

**UNIVERSITI TEKNOLOGI MARA**

**SOCIAL MEDIA CAPABILITIES  
AMONG ACADEMIC LIBRARIANS  
IN MALAYSIA: IMPACTS ON  
LIBRARIANS' AGILITY AND  
LIBRARIAN-USER RELATIONSHIP  
QUALITY**

**HASLINA BINTI HUSAIN**

**PhD**

**March 2026**

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**HASLINA BINTI HUSAIN**

Thesis submitted in fulfilment  
of the requirements for the degree of  
**Doctor of Philosophy**  
**(Information Management)**

**Faculty of Information Science**

**March 2026**

## **CONFIRMATION BY PANEL OF EXAMINERS**

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## ABSTRACT

This study investigates how social media capability influences librarians' agility and the quality of librarian–user relationships in Malaysian public university libraries. Guided by Dynamic Capability Theory, the Technology Acceptance Model, and Customer Relationship Management Theory, the research examines how social media capabilities translate into adaptive service delivery and stronger relational outcomes. The study employed a cross-sectional quantitative design and surveyed 189 librarians who were selected using stratified random sampling from among 20 public universities. An online survey instrument was developed based on validated survey scales of each of the three constructs social media capability (relationship capability, service innovation capability and tools capability), librarians' agility (decision making agility, acting agility or practicing), and quality of relationships with users (trust, commitment and satisfaction). A cross-sectional survey analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) revealed that social media capability significantly enhances librarians' agility and, together with agility, predicts higher levels of trust and satisfaction among users. High mean scores across key capability dimensions further indicate that librarians possess a well-developed level of social media capability and are confident in leveraging these platforms to improve communication, stimulate innovation, and deliver responsive services. The study's practical implications highlight the importance of ongoing training in social media capabilities, adopting agile methodologies and agile team approaches, and integrating social media performance indicators into accountability frameworks to advance user-centred library services aligned with national digital transformation goals. Limitations include the cross-sectional design, reliance on self-reported data, and focus on public universities. Future research should employ longitudinal and mixed-methods approaches, incorporate observational data, and include larger samples from private and international universities to enhance generalisability.

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## TABLE OF CONTENTS

	<b>Page</b>
<b>CONFIRMATION BY PANEL OF EXAMINERS</b>	<b>ii</b>
<b>AUTHOR’S DECLARATION</b>	<b>iii</b>
<b>ABSTRACT</b>	<b>iv</b>
<b>ACKNOWLEDGEMENT</b>	<b>v</b>
<b>TABLE OF CONTENTS</b>	<b>vi</b>
<b>LIST OF TABLES</b>	<b>xii</b>
<b>LIST OF FIGURES</b>	<b>xv</b>
<b>LIST OF SYMBOLS</b>	<b>xvii</b>
<b>LIST OF ABBREVIATIONS</b>	<b>xviii</b>
<b>CHAPTER 1 INTRODUCTION</b>	<b>1</b>
1.1 Introduction Research Background	1
1.2 Research Background	3
1.3 Problem Statement	4
1.4 Research Significance	8
1.4.1 Theoretical Significance	8
1.4.2 Practical Significance	10
1.4.3 Methodological Significance	11
1.5 Research Question	12
1.6 Research Objectives	13
1.7 Scope and Limitations	13
1.8 Significance of The Study	14
1.9 Operational definition of terms	15
1.10 Organization of The Thesis	15
1.11 Conclusion	16

<b>CHAPTER 2 LITERATURE REVIEW</b>	<b>17</b>
2.1 Introduction	17
2.2 Social Media	17
2.2.1 Definition and Concept of Social Media	24
2.2.2 Social Media Adoption in Academic Libraries	28
2.2.3 How These Capabilities Impact Librarians' Responsiveness and The Quality of Their Interactions With Users	30
2.2.4 Importance of Social Media in Academic Libraries	31
2.2.5 Role of Social Media in Library Services	33
2.2.6 Behaviour Trends of Social Media	35
2.2.7 Social Media Behavioral Trends Among Academic Librarians	37
2.2.8 Behavioral Trends of Social Media Users in Academic Libraries	39
2.2.9 Behavior Trends of Social Media on Academic Librarians in Malaysia	40
2.2.10 Trends, Challenges or Opportunities Within the Malaysia Context That Make this Study Significant	42
2.2.11 Social Media in Malaysia Perspective	45
2.3 Librarians' Agility	52
2.3.1 Definition of Agility in Librarianship	55
2.3.2 Factor's Influencing Librarians' Agility	56
2.3.3 Benefits of The Agile Librarianship	57
2.3.4 Strategies for Enhancing Librarians' Agility	59
2.4 Relationship Quality in Librarian-User Interaction	61
2.4.1 Definition of Relationship Quality	63
2.4.2 Importance of Relationship Quality in Libraries	64
2.4.3 Factors Affecting Relationship Quality	66
2.4.4 Measurement of Relationship Quality	68
2.5 Theoretical Framework	70
2.5.1 Social Media Capability Framework	72
2.5.2 Agility Framework in Librarianship	88
2.5.3 Relationship Quality Framework in Library Setting	91
2.5.4 Variable Identification	105
2.5.5 Proposed Conceptual Framework	108

2.5.6	Previous Studies on Social Media in Academic Libraries	111
2.6	Overview of Studies on Social Media Use in Academic Libraries	114
2.6.1	Findings on The Impact of Social Media on Librarianship	115
2.6.2	Gaps and Limitations in Existing Literatures	116
2.7	Conclusion	117
 <b>CHAPTER 3 RESEARCH METHODOLOGY</b>		 <b>118</b>
3.1	Introduction	118
3.2	Ontological and Axiological Assumptions of the Research Method	118
3.3	Exploratory Research	120
3.4	Research Approach	120
3.5	Quantitative Research	121
3.6	Sampling Design	122
3.7	Research Design	124
3.8	Questionnaire Development	126
3.9	Scaling	129
3.10	Data Coding	130
3.11	Pre-Test Instrument	131
3.12	Ethics Committee	136
3.13	Pilot Study	137
3.14	Reliability of The Instrument: Pilot Study	137
3.15	Survey Questionnaire	138
3.16	Data Analysis	139
3.17	Validity and Reliability of Scale	140
3.18	Conclusion	140
 <b>CHAPTER 4 FINDINGS</b>		 <b>141</b>
4.1	Introduction	141
4.2	Survey Analysis	141
4.3	Pre-Test Result	142
4.4	Assessment of the Relevancy of the Items Relationship Capability (RC) From Expertise	143

4.5	Assessment of the Relevancy of the Items Service Innovation Capability (SIC) From Expertise	144
4.6	Assessment of the Relevancy of the Items Tools Capability from Expertise	146
4.7	Assessment of the Relevancy of the Items Librarians' Agility (Sensing Agility-SA) from Expertise	147
4.8	Assessment of the Relevancy of the Items Librarians' Agility (Decision Making Agility-DMA) from Expertise	148
4.9	Assessment of the Relevancy of the Items Librarians' Agility (Acting Agility or Practicing - AA) from Expertise	150
4.10	Assessment of the Relevancy of the Items Relationship Quality (Relationship Trust – RT) from Expertise	151
4.11	Assessment of the Relevancy of the Items Relationship Quality (Relationship Commitment -RC) from Expertise	152
4.12	Assessment of the Relevancy of the Items Relationship Quality (Relationship Satisfaction -RS) from Expertise	153
4.13	Assessment of the Clarity of the Items Relationship Capability (RC) with The Comments from Experts	154
4.14	Assessment of the Clarity of the Items Service Innovation Capability (SIC) with The Comments from Expert	154
4.15	Assessment of the Clarity of the Items Tools Capability (TC) with The Comments from Experts	155
4.16	Assessment of the Clarity of the Items Librarians' Agility (Sensing Agility-SA) from Experts	156
4.17	Assessment of the Clarity of the Items Librarians' Agility (Decision-Making Agility) with The Comments from Experts	156
4.18	Assessment of the Clarity of the Items Librarians' Agility (Acting Agility or Practicing-AA) with The Comment from Experts	157
4.19	Assessment of the Clarity of the Items Relationship Quality (Relationship Trust-RT) with The Comment from Experts	158
4.20	Assessment of the Clarity of the Items Relationship Quality (Relationship Satisfaction-RS) with The Comments from Experts	159
4.21	Partial Least Square (PLS) – Structural Equation Modelling	160
4.21.1	Measurement Model Evaluation	160

4.21.2	Convergent Reliability Using Outer	160
4.22.2	Indirect Effects	166
4.23	Inner Model Residual Descriptive	167
4.24	Inner Model Residual Correlation	168
4.25	Outer Model Residual Scores	168
4.26	Inner Model Residual Scores	178
4.27	R Square	183
4.28	F Square	183
4.29.1	Construct Reliability and Validity	184
4.29.2	Fornell-Larcker Criterion	185
4.29.3	Cross loading	186
4.29.4	Heterotrait-Monotrait Ratio (HTMT)	187
4.29.5	Outer VIF Value	188
4.29.6	Inner VIF Value	189
4.30	Model Fit	190
4.30.1	Fit Summary	190
4.30.2	Model Selection Criteria	190
4.30.3	Stop Criterion Changes	191
4.30.4	Inner Model	193
4.30.5	Outer Model	194
4.30.6	Indicator Data	195
4.30.7	Mean Value	205
4.31	Indicator Data (Correlations)	206
4.31.1	Empirical Correlation Matrix	206
4.31.2	Indicator Data (Standardize)	209
4.31.3	Model Implied Saturated Correlation Matrix	218
4.31.4	Empirical Covariance Matrix	220
4.32	Descriptive Analysis	221
4.32.1	Sociodemographic Background	221
4.32.2	General Questionnaires Social Media Use	224
4.32.3	Descriptive Statistics of the Items and Constructs	234
4.33	Results of Social Media Capability	234
4.33.1	Results of Relationship Capability	234
4.33.2	Results of Service Innovation Capability	236

4.33.3	Results of Tools Capability	238
4.33.4	Results of Librarians' Agility	241
4.33.5	Results of Relationship Quality	242
<b>CHAPTER 5 DISCUSSION</b>		<b>244</b>
5.1	Introduction	244
5.2	To Determine the Level of Social Media Capability Among Academic Librarians in Malaysia	244
5.3	Descriptive Statistics of Social Media Capability	248
5.4	To Examine the Effect of Social Media Capability on The Agility of Academic Librarians in Malaysia.	248
5.5	The Effect of the Librarians' Agility on Relationship Quality	251
5.6	Research Contribution	254
5.7	Theoretical Contribution	256
5.8	Methodological Contribution	257
5.9	Conclusion	258
<b>CHAPTER 6 CONCLUSION</b>		<b>259</b>
6.1	Introduction	259
6.2	Summary of The Research	259
6.3	Conclusion	262
<b>REFERENCES</b>		<b>263</b>
<b>APPENDICES</b>		<b>329</b>
<b>AUTHOR'S PROFILE</b>		<b>372</b>

## LIST OF TABLES

<b>Tables</b>	<b>Title</b>	<b>Page</b>
Table 1.1	Definition of Terms	15
Table 2.1	Social Media Definitions with Author Names wnd Source	24
Table 3.1	Comparison Between Qualitative, Quantitative wnd Mixed Methods Research Approach	119
Table 3.2	List of Items	123
Table 3.3	Research Design	125
Table 3.4	Structure and Content of Questionnaire	127
Table 3.5	Questionnaire Sample from Previous Research	128
Table 3.6	Latent Variable Coding	131
Table 3.7	List of Panel Experts	132
Table 3.8	Operational Definition and Measurement for Social Media Capabilities	133
Table 3.9	Liability of Instrument Measure	138
Table 4.1	Data Collection for Survey Research	142
Table 4.2	Assessment of The Relevancy of the Items Relationship Capability (RC) from Expertise	143
Table 4.3	Items for Relationship Capability	144
Table 4.4	Assessment of the Relevancy of the Items Service Innovation Capability (SIC) From Expertise	144
Table 4.5	Items for Service Innovation Capability	146
Table 4.6	Assessment of the Relevancy of the Items Tools Capability (TC) From Expertise	146
Table 4.7	Assessment of the Relevancy of the Items Tools Capability (TC) From Expertise	147
Table 4.8	Assessment of the Relevancy of the Items Librarians' Agility (Sensing Agility - SA) from Expertise	147
Table 4.9	Items For Librarians' Agility: Sensing Agility (Before And After	148
Table 4.10	Assessment of the Relevancy of the Items Librarians' Agility (Decision Making Agility - DMA) From Expertise	148

Table 4.11	Items For Librarians' Agility: Decision Making Agility	149
Table 4.12	Assessment Of The Relevancy Of The Items Librarians' Agility (Acting Agility or Practicing Agility - AA) From Expertise	150
Table 4.13	Items For Librarians' Agility: Acting Agility	150
Table 4.14	Assessment of the Relevancy Of The Items Relationship Quality (Relationship Trust - RT) From Expertise	151
	Itemrt4—"Consider Using Good Instead of Friendly"(Expert2)	
Table 4.15	Items For Relationship Quality: Relationship Trust	151
Table 4.16	Assessment of the Relevancy Of the Items Relationship Quality (Relationship Commitment - RC) From Expertise	152
Table 4.17	Items For Relationship Quality: Relationship Commitment	152
Table 4.18	Assessment of the Relevancy Of The Items Relationship Quality (Relationship Satisfaction - RS) From Expertise	153
Table 4.19	Items Relationship Quality: Relationship Satisfaction	153
Table 4.20	Assessment of the Clarity of the Items Relationship Capability (RC) From Expertise	154
Table 4.21	Assessment of the Clarity of the Items Service Innovation Capability (SIC) From Expertise	154
Table 4.22	Assessment of the Clarity of the Items Tools Capability (TC) From Expertise	155
Table 4.23	Assessment of the Clarity of the Items Librarians' Agility (Sensing Agility -SA) From Expertise	156
Table 4.24	Assessment of the Clarity of the Items Librarians' Agility (Decision Making Agility -DMA) From Expertise	156
Table 4.25	Assessment of the Clarity of the Items Librarians' Agility (Acting Agility Or Practicing -AA) From Expertise	157
Table 4.26	Assessment of the Clarity of the Items Relationship Quality (Relationship Trust -RT) From Experts	158
Table 4.27	Assessment of the Clarity of the Items Relationship Quality (Relationship Commitment -RC) From Experts	158
Table 4.28	Assessment of the Clarity of the Items Relationship Quality (Relationship Satisfaction -RS) From Experts	159
Table 4.29	Convergent Reliability Using Outer	162
Table 4.30	Indicator Contribution via Outer Weight	163

Table 4.31	Path Coefficient	165
Table 4.32	Indirect Effects	166
Table 4.33	Total Effects	166
Table 4.34	Inner Model Residual Descriptive	167
Table 4.35	Inner Model Residual Correlation	168
Table 4.36	Outer Model Residual Scores	170
Table 4.37	Inner Model Residual Scores	178
Table 4.38	R Square	183
Table 4.39	F Square	183
Table 4.40	Construct Reliability and Validity	184
Table 4.41	Fornell-Larcker Criterion	185
Table 4.42	Cross loading	186
Table 4.43	Heterotrait-Monotrait Ratio (HTMT)	187
Table 4.44	Outer VIF Value	188
Table 4.45	Inner VIF Value	189
Table 4.46	Fit Summary	190
Table 4.47	Model Selection Criteria	190
Table 4.48	Meaning of the AIC, BIC, HQ	191
Table 4.49	Stop Criterion Changes	192
Table 4.50	Inner Model	193
Table 4.51	Outer Model	194
Table 4.52	Indicator Data	197
Table 4.53	Mean Value	205
Table 4.54	Empirical Correlation Matrix	207
Table 4.55	Indicator Data (Standardize)	210
Table 4.56	Saturated Correlation Matrix	219
Table 4.57	Empirical Covariance Matrix	220
Table 4.58	Respondents' Demographic Profiles	224
Table 4.59	Measures for Relationship Capability	235
Table 4.60	Measures for Service Innovation Capability	237
Table 4.61	Measures of Tools Capability	240
Table 4.62	Measures for Librarians' Agility	241
Table 4.63	Measures for Relationship Quality	242

## LIST OF FIGURES

<b>Figures</b>	<b>Title</b>	<b>Page</b>
Figure 2.1	Final Model Of Measuring Digital Library Engagement (Rosman Et Al., 2022)	19
Figure 2.2	Total Of Posting By Universities Versus Interactions (I.E. Like, Comments And Shares)	20
Figure 2.3	Social Media Used By Selective Libraries In Malaysia	47
Figure 2.4	DaHLK’s Satisfaction Rating For The Category “Library Websites And Social Media Are Informative And Interactive from 2018 to 2022 (Mustapa et al., 2023)	49
Figure 2.5	Capability Maturity Model (Wang et al., 2017)	74
Figure 2.6	Technology Acceptance Model	76
Figure 2.7	Resource-Based View Model	79
Figure 2.8	Dynamic Capability Approach	84
Figure 2.9	Twelve principles of agile	89
Figure 2.10	Core Agility Concept	90
Figure 2.11	Customer Relationship Management Model	97
Figure 2.12	An Extended Model of Consumer Behaviour for Social Media Brand Communities	104
Figure 2.13	Variable Identification	106
Figure 2.14	Proposed Conceptual Framework	108
Figure 3.1	Questionnaire Development Process	127
Figure 3.2	The minimum sample from Krejcie and Morgan (1970)	139
Figure 3.3	The Objectives, Hypotheses And Analysis Type	140
Figure 4.1	Screenshot Of E-Mail Request Permission To Conduct Research	222
Figure 4.2	Screenshot Of Formal Letter (Letterhead) From Faculty Of Information Management	222
Figure 4.3	Screenshot Of Online Questionnaire	223
Figure 4.4	Item Question “Do You Use Social Media In Your Profession?”	225
Figure 4.5	Item Question “What Purpose Do You Use Social Media?”	226

Figure 4.6	Item Question “What Social Media Tools Do You Use?”	227
Figure 4.7	Item Question “What Do You Use These Tools For?”	229
Figure 4.8	Item Question “How Long Have You Been Using These Social Media Tools (Any Tool)”	231
Figure 4.9	Item Question “Do You Have Any Concerns About Using Social Media Tools For Work-Related Purposes?”	232
Figure 4.10:	Initial Measurement Model	243

## LIST OF SYMBOLS

### Symbols

$\beta$	Beta
$R^2$	Coefficient of Determination
$R^2$	Coefficient of Determination
$f^2$	Effect Size
=	Equal To
E	Error Variance Term For An Item
$\Sigma$	Esh Letter
GoF	Goodness-of-Fit
$\geq$	Greater Than or Equal To
$\leq$	Less Than or Equal To
Max.	Maximum
M	Mean
Min.	Minimum
i	Number of The Corresponding Item
$\pm$	Plus or Minus
$Q^2$	Predictive Relevance
<i>p-value</i>	Probability Under Assumption of No Effect
SD	Standard Deviation
Std. Dev.	Standard Deviation
Std. Error	Standard Error
L	Standardised Factor Loading
N	Total of Respondents
Var.	Variation

## LIST OF ABBREVIATIONS

### Abbreviations

AA	Acting Agility
AI	Artificial Intelligence
AIS	Association for Information System
ALA	American Library Association
AVE	Average Variance Extracted
B2B	Business-to-business
BERNAMA	Malaysian National News Agency
CBBE	Customer-based Brand Equity
CB-SEM	Covariance-based- Structural Equation Modelling
CEO	Chief Executive Officer
CMM	Capability Maturity Model
CMV	Common Method Variance
CNBC	Consumer News and Business Channel
CoRM	Community Relationship Management
COVID-19	Coronavirus Disease of 2019
CR	Composite Reliability
CRM	Customer Relationship Management
CUNY	City University of New York

DCs	Dynamic Capabilities
DIT	Diffusion of Innovation Theory
DLs	Digital Librarians
DMA	Decision Making Agility
DOD	Department of Defence
e-CRM	Electronic Customer Relationship Management
EFA	Exploratory Factor Analysis
EICT	Emerging Information Communication Technologies
EIS	Electronic Information Sources
EKMM	Enterprise Knowledge Management Model
ESL	English as a Second Language
ESM	Enterprise Social Media
GPS	Global Position Point
HR	Human Resources
HTMT	Heterotrait-monotrait Ratio of Correlations
IBM-SPSS	International Business Machines Corporation - Statistical Package for the Social Sciences
ICH	International Conference Harmonisation
ICT	Information Communication Technology
ILS	Integrated Library Software
IoT	Internet of Things
IPC	Information Processing Capability

JK	Jawatankuasa
KBV	Knowledge-Based View
KLWBC	Kuala Lumpur World Book Capital
LA	Librarians' Agility
LAUTECH	Ladoke Akintola University of Technology
LIPs	Library and Information Professionals
LIS	Library and Information Science
LP	Library Policy
LRM	Library Relationship Management
MCO	Movement Control Order
MDEC	Malaysia Digital Economy Corporations
MEDLINE	Medical Literature Analysis and Retrieval System Online
MIMOS	Malaysian Institute of Microelectronic System
MOE	Margin of Error
NBA	National Basketball Association
NBA	National Basketball Association
NLM	National Library of Malaysia
NPD	New Product Development
OA	Organizational Agility
OLS	Ordinary Least Squares
OPAC	Online Public Access Catalogues
PLN	Personal Learning Network

PLS-SEM	Partial Least Squares- Structural Equation Modelling
PNM	Perpustakaan Negara Malaysia
R&D	Research and Development
RC	Relationship Capability
RC	Relationship Commitment
RDF / RSS	Really Simple Syndication
RDM	Research Data Management
RDMS	Relational Database Management System
RO	Research Objectives
RQ	Research Question
RQ	Relationship Quality
RS	Relationship Satisfaction
RT	Relationship Trust
SA	Sensing Agility
SCRM	Social Customer Relationship Management
SEM	Structural Equation Modelling
SIC	Service Innovation Capability
SIG	Special Interest Group
SMARTPLS	Software with Graphical User Interface for Variance-based Structural Equation Modelling using Partial Least Squares
SMC	Social Media Capability
SMCMM	Social Media Capability Maturity Model

SMEs	Small-and Medium-sized Enterprises
SMP	Social Media Policy
SMT	Social Media Technology
SNS	Social Networking Sites
SRM	Supplier Relationship Management
SWOT	Strengths Weaknesses Opportunities Threats
TAM	Technology Acceptance Model
TC	Tools Capability
TRA	Theory Reasoned Action
UIN	Universitas Islam Negeri
UiTM	Universiti Teknologi MARA
UML	University of Melbourne Library
UML	University of Malaya Library
USA	United States of America
USM	Universiti Sains Malaysia
VIF	Variance Inflation Factor
VOCA	Volatile, Uncertain, Complex, and Ambiguous

# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction Research Background

In recent years, the proliferation of social media platforms has reshaped how individuals, organizations, and institutions communicate and share information. Academic libraries, as information hubs, are no exception to this phenomenon. They have begun leveraging social media to enhance service delivery, engage users, and foster closer relationships with their communities. This shift is particularly pronounced in Malaysia, where the widespread adoption of digital technologies and the increasing reliance on social media have influenced how academic libraries operate and interact with their users (Alhaji et al., 2023; Zain et al., 2024).

Social media capabilities, encompassing the ability to share content, interact in real-time, and foster collaboration, have emerged as critical tools for modern academic libraries. These platforms offer opportunities to enhance information dissemination, promote library resources, and bridge the gap between librarians and users. Libraries in Malaysia, similar to their global counterparts, have started utilizing platforms such as Facebook, Twitter, Instagram, and LinkedIn to deliver services, announce events, and interact with students and researchers (Ng et al., 2025). For example, research indicates that academic libraries with active social media presence experience higher engagement levels and increased access to library resources (Hashim & Khalid, 2024). However, the effectiveness of these efforts often hinges on the agility of librarians in adapting to these technologies and their ability to build and maintain meaningful relationships with users (Lim et al., 2023).

The concept of agility, particularly in the context of librarianship, refers to the capacity of librarians to respond quickly and effectively to changing user needs, emerging technologies, and evolving trends in information consumption (Zhang & Ali, 2025). Social media provides a dynamic environment where agility becomes essential, as librarians must constantly adapt to the rapid pace of technological advancements and the diverse expectations of users (Omar & Ismail, 2023). In Malaysia, the adoption of social media in academic libraries has been driven by the need to remain relevant in an

increasingly digital information landscape, which places significant demands on librarians to be versatile and proactive (Rahman et al., 2024).

At the same time, the quality of the relationship between librarians and users plays a pivotal role in ensuring the success of social media initiatives. Relationship quality refers to the trust, satisfaction, and commitment that underpin interactions between librarians and their patrons. Social media has the potential to strengthen these relationships by enabling more frequent, personalized, and interactive communication (Salleh & Tan, 2025). Research shows that libraries with higher levels of personalized engagement on social media tend to report improved trust and satisfaction among users (Chong et al., 2023). However, achieving this requires a nuanced understanding of user expectations, as well as the ability to balance professional boundaries and personal engagement (Ahmad & Wong, 2024).

In the Malaysian context, several factors influence the integration of social media into academic library services. These include cultural attitudes toward technology, the digital literacy levels of both librarians and users, and institutional support for social media initiatives (Yusoff et al., 2023; Hamid et al., 2024). Studies have highlighted that while many academic libraries in Malaysia have embraced social media, there remains a gap in understanding how these platforms affect the agility of librarians and the quality of their relationships with users. Furthermore, limited empirical research has explored the intersection of social media capabilities, librarian agility, and relationship quality in the Malaysian academic library setting, highlighting the need for further investigation.

The increasing reliance on social media also raises important questions about its impact on the traditional roles of librarians and the evolving expectations of library users. As social media continues to transform the academic library landscape, understanding its implications for librarian agility and relationship quality is crucial for ensuring that libraries remain effective, user-centric, and relevant (Lim et al., 2023). By exploring these dynamics in the Malaysian context, this study aims to provide valuable insights into how social media can be harnessed to enhance academic library services and foster stronger librarian-user relationships (Alhaji et al., 2023).

## 1.2 Research Background

The social media landscape in Malaysia has experienced considerable growth, with 25.1 million active users representing 70.2% of the population as of January 2025 (DataReportal, 2025). Within this environment, platforms such as Facebook, Instagram, and TikTok are significant drivers of digital communication, with TikTok's platform alone representing 28.68 million users aged 18 and over (Statista, 2023). This extensive online engagement has naturally pervaded higher education and academic libraries. Academic libraries in Malaysia have increasingly utilized social media platforms such as Facebook and Twitter to announce updates, engage their users, and maintain continuity of service – particularly during the COVID-19 pandemic (Norazmi et al., 2020). These online spaces have fundamentally changed the ways in which libraries curate their participation in communities, evolving to facilitate real-time service delivery, branding, and outreach.

Social media also plays a considerable role in the librarians' ability to be agile in responding to evolving needs. Husain et al. (2023) established a positive relationship between social media knowledge and librarians' agility. Zaini et al. (2022) further developed the discussion to consider the implications of big data analytics and forecasting user trends, allowing for anticipatory service design. Sapri et al. (2024) identified a recommendation engagement increase of 45% from using AI, social media strategies. Abd Rahim et al. (2024) presented participatory models of social media use in promoting agile, user engagement service practices. Collectively, these findings highlight the potential of social media to not only digitize library services, but to support librarians in being responsive, innovative digital professionals.

Moreover, social media enhances the quality of relationships between librarians and users by generating dialogue, trust, and emotional agency. Platforms such as TikTok and Instagram are perceived to have potentials for an authentic engagement, especially in student populations (Izuagbe et al. 2025). Husain et al. (2023) commented on the enhanced transparency in communication, while Magoi et al. (2020) and Noorhidawati and Ghalebanti (2019) documented the importance of co-creation, responsiveness and trust-building activities in sustaining furniture-dealer relationships. Interactions through social media humanizes library services and renegotiates the librarian in education, not simply as an information curator, but as a digital facilitator in education.

Even with this productivity, a significant gap in the current literature on the twin benefits of social media capabilities impacting librarian agility and librarian-user relationships in an academic library context in Malaysia exists. Previous studies of academic library social media capabilities in Malaysia have focused on either operational benefits or user engagement separately, with little to no multimodal interpretations of the two dimensions of user engagement and libraries being agile. Additionally, some other reasons for not using social media in an academic setting included the differences of policy at an institutional or departmental level, uneven digital literacy between librarians, and uneven allocation of resources (Zaini et al., 2022; Izuagbe et al., 2025). Thus, the purpose of this study is to specifically examine how social media capabilities promotes librarians' agility and the quality of librarian-user relationships in Malaysian academic libraries. The goal was to inform our understanding would be to contribute towards designing; evidence based digital strategies, and in guiding institutional policy for building librarian-user engagement in academic libraries.

### **1.3 Problem Statement**

The primary focus of this study involves identifying issues within the topic under investigation. A thorough examination of prior research has been carried out to achieve this. Research is inherently driven by the quest to uncover the unknown. Without a problem to address, there would be no rationale for conducting research. Crafting a research problem statement is often regarded as one of the most challenging phases in any research endeavour. Essentially, a problem statement outlines the disparity between the current state of affairs and the desired state, highlighting a gap in knowledge that requires addressing, as articulated by Bwisa (2008).

According to Tejero (2007), a well-constructed problem statement in research should possess several key qualities. Firstly, it must be motivating and intriguing to the researcher, encouraging them to undertake the research endeavour. Secondly, the problem statement should hold practical value, benefiting those in the relevant field. Furthermore, it should be distinctive and contribute to the existing body of knowledge, particularly in the context of pure research. A strong problem statement should also demand a unique and complex research design, including specific data collection methodologies and sampling techniques. It should be feasible to investigate within a

defined time frame and, importantly, should not involve or require any unethical practices at any stage of the research project. These attributes collectively define the characteristics of a good problem statement in research.

There is a gap in the past literature which is: A review of prior studies reveals that the social media literature does not clearly identify the social media capabilities in academic libraries and the effect to librarians' agility and relationship quality (librarian-user).

- a. Uncertainty regarding the effects of social media capability on librarians' agility and relationship management

Despite the widespread the findings discussed in this paragraph shed light on the significant but moderately influential role of personal talents in utilizing social networks for commercial purposes. It underscores the imperative for library administrators to contemplate the enhancement of their staff's skill sets, drawing them closer to the desired level of proficiency. However, this endeavor necessitates the dedicated commitment of librarians, who must be willing to augment their understanding and competence in social media. By doing so, libraries can tap into more advanced digital marketing strategies, notably through social media platforms, given their pivotal role as social institutions striving to fortify their connections with patrons through state-of-the-art technologies (Hassanzadeh et al., 2020). In their role of serving the needs of library users, librarianship serves as a professional organization entrusted with the selection, acquisition, management, and dissemination of precise and reliable information materials. Social media emerged as a technological tool that provides librarians with opportunities for learning, collaboration, sharing, and knowledge transfer (Mayowa-Adebara, 2018). Furthermore, Adetayo's research (2022) suggests that the utilization of social media among librarians can enhance their research outcomes, underscoring the transformative potential of social media in a professional context. However, it is essential to consider the factors that influence social media capabilities, as Becker (2021) points out the trade-off between convenience and data confidentiality when promoting library services. The fact highlights the unparalleled potential of social media while emphasizing the necessity for educating users about data security. In the medical library sector, studies conducted by LAUTECH Teaching Hospital Library and LAUTECH College of Health Sciences Medical Library indicate that information literacy shared through library social media platforms boosts information-seeking behavior and access to health-related resources (Oluremi et al.,

2021). Nonetheless, it remains a question to what extent these abilities can further enhance the library-user relationship. Research at Purdue University by Howard et al. (2018) aligns with the idea that students seek diverse content from libraries on platforms such as Facebook, Twitter, and Instagram, underscoring the importance of librarian adaptability. It is suggested that librarians should develop additional skills to support their roles and responsibilities in serving the community (Sutrilastio & Salim, 2018).

- b. Incapability of social media in providing an ideal length to examine the process of value creation in librarians' agility led to relationship quality (librarian-user)

The relationship between social media, librarians' agility, and relationship quality in libraries is a subject of growing importance. Libraries, like many other organizations, have recognized the significance of social media in shaping their services and connections with users. This critical review aims to assess the existing literature on this topic and evaluate the key findings, limitations, and areas where further research is warranted. One of the significant findings in the literature is the multifaceted role of social media in libraries. Bradley (2015) emphasizes its use in establishing an online presence, reaching a wider audience, building trust, enhancing service reputation, and maintaining social authority. This highlights the strategic importance of social media beyond profit-making. Moreover, Clark and Bacon (2018) assert that while the technology underlying social media is relatively recent, the fundamental principles of community and socialization are deeply rooted. The historical context of social media's role in libraries is a valuable insight into the longevity of these concepts. Muninger et al. (2019) framework underscores the importance of criteria like a qualified social media manager, management support, and agile decision-making processes. This framework serves as a practical guide for libraries looking to leverage social media effectively. The literature also highlights limitations in this field. Notably, the incapability of social media in providing an ideal length for examining the process of value creation in librarians' agility, as mentioned by the additional sentence, is a significant constraint. This limitation can impede the assessment of the impact of social media on the quality of relationships between librarians and users.

Additionally, while the value of social media in enhancing library services and relationships is emphasized, the specific mechanisms through which this is achieved remain underexplored. The literature generally lacks detailed insights into the 'how' of

these relationships and the precise role of librarians. Considering these limitations, several areas for further research emerge. First, understanding the specific mechanisms and strategies through which social media can enhance library services and improve relationships is crucial. Researchers can delve deeper into the practical implementation of social media in libraries. The relationship between librarians' agility, social media, and relationship quality remains a fertile ground for exploration. Unpacking the concept of agility in library contexts and examining its interaction with social media is an uncharted territory that warrants investigation. In conclusion, the relationship between social media, librarians' agility, and relationship quality in libraries is a complex and evolving subject. While the literature provides valuable insights into the importance of social media, it also highlights limitations that call for further research. Libraries, as service-oriented organizations, must continuously adapt and explore the potential of social media to meet the expectations of their user communities. This critical review serves as a call to action for researchers and professionals to engage in deeper explorations and to develop practical strategies for the effective utilization of social media in libraries.

- c. Social media capabilities are critical focus in library management but low participation or relationship with user

The focusing more on library management has affected the relationship quality between librarian and user. Social media play an important role in the library. As stated by Bradley (2015) the applications of social media platforms in the library, are not for profit making, but to establish online presence, reach more people, gain customers' trust, earn service reputation and maintain social authority. Technologies in libraries such as social media and relationship management enable the mutual exchange of information between librarians and user and offer an additional lever for mutual added value. The idea of relationship quality defines by Woo and Ennew (2004) as an actor's overall assessment of a buyer or seller relationship. Researchers have been studying relationship quality for decades. Clark and Bacon (2018) mentioned in their article title "Utilising social media to improve relationship quality: the case of the university library," that the technology behind social media is fairly recent, but the foundations of community and socialization are not.

The framework was designed by Muninger, Hammedi, and Mahr (2019) in order to support the applications of social media for innovation. The criteria in the framework were appoint the manager who can manage the social media, support from management,

and agile processes in making decision. This framework very related to library that used the social media for their marketing or other purpose. The capability has in social media must also give impact to the relationship quality between librarian and user. The customer relationship management (CRM) very important to have better understanding between librarian and librarian (internal relationship) and also between librarian and user (external relationship). Librarian as manager for the social media and the agile processes in making decision should belong to them and the management should support them professionally.

#### **1.4 Research Significance**

This study investigates how social media capability in academic library influence librarians' agility, measures the effect of librarians' agility on relationship quality and determines the influence of librarians' agility on relationship quality. Before developing a successful programme, it is essential to have a comprehensive understanding of the client's operational context. To achieve this, relevant and valuable information is gathered during a preliminary survey focuses on analysing the social media platform of twenty academic libraries in Malaysia to understand current practices and capabilities. The remain research will employ a set of questionnaires distributed via e-mail to academic librarians across these twenty public universities.

##### **1.4.1 Theoretical significance**

As social media continues to expand its reach globally, the interactions facilitated by these platforms have increasingly blurred the lines between social media capabilities, librarians' agility, and the quality of relationships between librarians and users. As social media becomes an ever more integral part of both professional and personal interactions, understanding its impact on these elements has become crucial. This research conceptualizes the role of social media as an influential force that shapes not only the capabilities of librarians but also their agility in responding to challenges and their ability to foster quality relationships with library users. By integrating these variables, this study makes significant contributions to the body of knowledge in several

areas, offering a comprehensive framework for understanding the complex dynamics at play.

The study draws from several established theoretical models, each of which contributes to the development of a robust conceptual framework. The Dynamic Capability Approach (Chuang, 2020), for example, is instrumental in understanding how organizations adapt to changing environments. While the study may employ different specific variables than those typically used in the Dynamic Capability Approach, this model provides a solid foundation for generating hypotheses that enrich the research. It emphasizes the importance of organizational adaptability, which is critical for librarians facing rapid technological changes and the evolving needs of library users. By grounding the study in this framework, the research highlights how libraries can enhance their ability to innovate and respond to external pressures.

The Technology Acceptance Model (Lim et al., 2008) helps to unravel how librarians' agility is influenced by social media capabilities. TAM provides insights into the factors that determine how users (in this case, librarians) accept and utilize new technologies. By applying this model, the research addresses the core question of what drives librarians' agility specifically, how the adoption of social media tools can enhance their ability to respond to challenges and innovate within the library setting. This model underscores the significance of perceived ease of use and perceived usefulness in fostering librarians' adaptability, which is central to the study's conceptualization of librarians' agility.

The Core Agility Concept (Youssef, 1992) model introduces a modification to the framework by creating the specific variable of "librarians' agility." This model enables the study to distinguish between general organizational agility and the unique agile capabilities that librarians need to develop in response to the fast-paced, often unpredictable demands of their roles. By using this model, the research is able to focus on how librarians specifically build and maintain agility, particularly in managing interactions with users through social media.

Finally, the Customer Relationship Management model (Jayachandran et al., 2005) is used to contextualize the importance of relationship capabilities in the library setting. CRM theories traditionally focus on understanding and managing customer interactions to build loyalty and satisfaction. In this study, CRM principles are adapted to emphasize the librarian-user relationship, suggesting that librarians' ability to manage relationships effectively is closely linked to their agility in responding to user

needs. By integrating CRM into the framework, the research underscores the role of relationship management as a core competency for librarians and its significant impact on overall library performance.

#### **1.4.2 Practical significance**

Academic libraries traditionally relied on email, websites, or physical announcements to communicate with users. Social media, however, offers instantaneous, multi-channel communication that resonates with the digitally native student population. Platforms like Twitter, Instagram, and Facebook allow libraries to broadcast updates on new acquisitions, opening hours, or events in a way that is visually appealing and widely accessible. Social media can serve as an informal extension of the library's digital services. For instance, libraries can post direct links to e-books, journals, or research databases, ensuring that students and researchers can access critical materials with minimal effort.

The participatory nature of social media encourages libraries to go beyond a "provider-user" relationship and instead co-create value with their users. By hosting Q&A sessions, live chats, or conducting polls, libraries can actively involve their audience in decision-making or resource prioritization. Social media enables libraries to spotlight institutional research achievements, share citations, and provide platforms for interdisciplinary dialogue. By promoting webinars, workshops, and collaborative research opportunities, libraries position themselves as active contributors to the academic ecosystem.

Libraries can use platforms like Twitter or Instagram for real-time feedback, giving users an avenue to express their needs or concerns. Tools like Google Forms shared via social media can gather structured feedback to refine library services. Social media fosters collaboration beyond physical and institutional boundaries. By creating groups or forums on platforms such as LinkedIn or Facebook, libraries can connect students, researchers, and faculty for knowledge exchange and problem-solving. In today's information-rich environment, digital literacy is as crucial as traditional literacy. Libraries can use social media to teach users how to critically evaluate online information, combat misinformation, and responsibly share resources. Academic libraries often operate on limited budgets. Social media provides a low-cost yet highly

effective avenue to market library services and events, ensuring visibility and maximizing participation without heavy financial investments.

During emergencies such as the COVID-19 pandemic, social media played a pivotal role in ensuring library operations continued smoothly. Libraries shared updates on digital resources, virtual service hours, and even mental health support services, maintaining their relevance despite physical closures. Social media can serve as a tool for cultural preservation and knowledge dissemination. Academic libraries can create digital exhibits, document institutional history, or celebrate achievements, creating a lasting online repository.

Incorporating social media capabilities is not merely an enhancement but a transformative step for academic libraries. It aligns their services with contemporary user needs, enhances their visibility in academic and social spheres, and positions them as central hubs for knowledge creation, dissemination, and collaboration. When used thoughtfully, social media extends the reach and impact of libraries, ensuring their continued relevance in an ever-changing academic landscape.

### **1.4.3 Methodological significance**

The study's methodology demonstrates exceptional rigor, beginning with a pre-test involving field experts to ensure the questionnaire's content and design were aligned with the research objectives. This expert feedback helped refine questions for clarity and relevance, making the data collection tool more robust. Following this, a pilot study involving 30 respondents was conducted to identify potential issues with question interpretation and structure. Based on the feedback from this pilot, the questionnaire was revised to improve its effectiveness. This step-by-step refinement process ensures the methodology is replicable and adaptable for similar studies in library science or other fields.

The inclusion of 20 academic libraries across the region and the distribution of 208 questionnaires ensured broad representation, enhancing the generalizability of the findings. With 200 responses received a high response rate of 96%, the study minimized non-response bias, ensuring the results were credible and reflective of diverse library settings. By capturing data from a variety of libraries, ranging from small to large institutions, the study provides insights into the varied applications of social media capabilities in professional contexts. This approach

underscores the importance of comprehensive data collection in drawing reliable conclusions.

The study revealed various behavioural patterns of librarians in academic libraries in Malaysia. Librarians also have competence in using social media for key purposes such as promoting library events, sharing resources, and engaging users through interactive activities like polls and Q&A sessions. These capabilities position libraries as dynamic hubs of digital knowledge, transcending their traditional roles. For instance, librarians might use social media to guide students to academic databases during exam preparation, demonstrating how these tools enhance access and user engagement.

The study highlighted that most social media capabilities significantly contribute to librarian agility, enabling them to adapt to changing circumstances and meet user needs effectively. However, it also found that information processing capability and tools capability did not significantly influence agility. This suggests that while technological skills and data processing are important, agility relies more on strategic application, adaptability, and institutional support. For example, during the COVID-19 pandemic, agile librarians quickly shifted to virtual services and used social media to promote digital resources, showcasing the practical benefits of combining skills with flexibility.

The findings emphasize the need for libraries to invest in professional development programs that enhance staff skills in creating engaging content, analysing social media metrics, and using these platforms strategically. Institutions should also formulate clear policies integrating social media into their broader communication and service strategies. Additionally, the study opens avenues for future research into factors such as organizational culture, leadership, and team dynamics that could further enhance librarians' ability to leverage social media. These implications underscore the importance of aligning technological capabilities with institutional goals for maximum impact.

## **1.5 Research Question**

RQ1: What is the level of social media capability among academic librarians in Malaysia?

RQ2: To what extent does social media capability have a significant effect on academic librarians' agility in Malaysia?

RQ3: What is the effect of academic librarians' social media capability on relationship quality in Malaysia.

RQ4: What is the effect of academic librarians' agility on relationship quality in Malaysia?

## **1.6 Research Objectives**

RO1: To determine the level of social media capability among academic librarians in Malaysia.

RO2: To examine the effect of social media capability on the agility of academic librarians in Malaysia.

RO3: To investigate the influence of social media capability on relationship quality among academic librarians in Malaysia.

RO4: To analyze the effect of academic librarians' agility on relationship quality in Malaysia.

## **1.7 Scope and Limitations**

This study will be carried out within the context of public university libraries in Malaysia. The target population consists of academic librarians serving in twenty public universities nationwide. Based on information gathered from these institutions' official library directories, the total number of academic librarians across all twenty universities is estimated to be approximately 450. Focusing specifically on this population provides a coherent institutional setting in which social media is widely integrated into library operations, user engagement, and service delivery. The study examines how social media capabilities give an impact on librarians' agility and the quality of relationships between librarians and users. Agility in this context refers to librarians' ability to adapt, innovate, and respond swiftly to evolving information needs, while relationship quality encompasses trust, satisfaction, communication effectiveness, and overall interaction experience between librarians and their users.

Given this scope, the findings are expected to reflect conditions, practices, and challenges unique to academic libraries within the Malaysian public higher education

system. As such, the results may have limited applicability to other library settings, such as special libraries, corporate libraries, or school libraries, where organisational structures, service priorities, user characteristics, and social media practices differ substantially.

## **1.8 Significance of The Study**

### a) Theoretical significance

Data given will provide the researcher to build Malaysian librarians' agility and relationship management framework. The researcher will demonstrate how social media capability combined with librarians' agility that enable value creation through improved relationship quality, thus it will be extending the Dynamic Capability Theory, Technology Acceptance Model and Customer Relationship Management Model to be tested by researchers.

### b) Practical significance

This study will enable the librarians to design a specific strategy to strengthen social media capability, defining concrete goals and communicating them to all staffs. This study will help the library to focus on developing relationship quality by implementing specific processes to capture user and related information on social media platforms. This study will help the information technology librarians to develop user-oriented behaviour dashboard in the library. This study spreads awareness in the library users on recognizing social media as a platform concern and how their contribution can be as useful approach to support relationship quality. Other than that, this study hopefully will contribute to other institutional body such as International Federation of Library Association (IFLA).

### c) Methodological significance

Based on the framework, this study will be undergone various stages of assessment such as pre-testing, pilot testing and reliability measurement. The development of instruments can be used by libraries to gauge or assess their influence of social media capability on librarians' agility and relationship quality, based on the outcomes of the assessment, the required training, if necessary, can be identified.

## 1.9 Operational definition of terms

Table 1.1  
Definition of terms

Author	Terms	Operational Definition
Bolat et al. (2016)	Social media capability	Social media capability is a recombination of organizationally learned skills, taking into account new individual skills.
Hollebeek (2019)	Relationship capability	Connected networks that involve multiple business interactions and conversations through different channels.
Wilkinson, et al. (2009)	Service innovation capability	The new concept of service is being implemented or significantly improved.
Kaplan & Haenlein (2010)	Tools capability	Tool to contact end customers promptly and directly with relatively low costs and high efficiency.
Alavi et al. (2014)	Librarians' agility	Refers to the ability to react to and adapt changes appropriately and promptly and allows employees to capitalize changes and turn them into opportunities and development.
Habibi et al. (2016)	Relationship quality	Relationship quality is the combination of networking, conversation and community building.

## 1.10 Organization of The Thesis

The thesis is organized into six chapters. The first three chapters addresses the background of the study concerning research title, methodology and the development of the theoretical framework. The fourth to six chapters present the results, discussion and conclusion.

- a) Chapter one is the introduction to this work. This section explains the reasons, the importance and the aim of the study. It includes the background of the study, problem definition, research objectives, research questions, hypotheses to be tested, the significance of the study, limitations, scope of the research and definition of terms.
- b) Chapter two presents the literature search related to the research area. This section provides a complete overview and discussions of previous studies that are relevant to research.

- c) Chapter three introduces the research methodology, including experimental design, number of subjects, measurement, etc. This section describes the research methods and software used to analyse data.
- d) Chapter four presents the result or data analysis. This section contains the results and the study of the data. The results obtained can be shown in figures, tables, etc., with descriptive analysis and discussions
- e) Chapter five presents the discussion that focuses on the study outcome on the hypotheses of the research questions. It shed light on the main results, their meanings and implications. The result should be interpreted in light of what is already known, an emphasis should be placed on what the result adds to the subject area. The strengths and weaknesses of the development are discussed
- f) Chapter six contains the conclusion and recommendations. This section highlights the contribution of the knowledge to new knowledge and applications. It also discusses the limitations in conducting research and making recommendations for future research.

## **1.11 Conclusion**

In summary, Chapter One gives an overview of social media capability in academic libraries. The research question is constructed following the research objectives. To ensure the relevance of the research, Chapter One also defines the importance of the study to emphasize the research objectives and answer the research question.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter aims to overview the research topic. It includes the social media perspective in Malaysian academic libraries, the conceptual framework, and the hypotheses. A literature review is not only about gaining knowledge regarding what past studies have contributed to a particular topic of study (Neuman, 2005), but it should entail critical reading and analysis to help readers understand the contributions and limitations of previous research (Saunders et al., 2009). There can be two primary purposes of literature review.

- i.) The first one is to gain awareness of the knowledge of certain field or topic. The researcher must understand past research contributions toward theories, their strengths and weaknesses (Cooper & Schindler, 2006), and the links between different areas or theories pertaining to his field of knowledge well.
- ii.) The second is to provide a base or logic for doing further research on the topic. The researcher must analyse the literature critically and come up with a problem statement to develop research questions and hypotheses for his study (Sekaran & Bougie, 2010). The researcher should be able to explain why conducting particular research will be useful and what it would contribute to the body of knowledge. While literature acknowledges some of the challenges associated with the capabilities of social media, there needs to be more research that has focused on the influence of 'agility' on the use of these platforms among academic librarians.

#### **2.2 Social Media**

The initial study by Rizalawati Ayu and Abrizah (2011) on social media presence in Malaysia examines how Facebook is utilized in academic libraries, revealing that only 3 out of 14 Malaysian academic libraries are well-positioned to effectively leverage Facebook's potential. While Rafidah et al. (2011) also found that Facebook is the most

widely used platform among Malaysian academic libraries, with 9 out of 15 adopting it, and the strategic use of Library 2.0 tools to enhance user interaction in informal ways, align with the assertion that the level of social media capability in Malaysian academic libraries is high and effective. This demonstrates not only a strong presence on popular platforms but also an intentional approach to leveraging social media for meaningful engagement, underscoring the progressive adaptation of these libraries to digital trends. As Rafidah et al. (2011) mentioned that the research has been conducted on the use of Library 2.0 tools in academic libraries, focusing on aspects such as Instant Messaging (IM) and Social Networking Services. Malaysian academic librarians recognize the positive effects of Library 2.0 tools, particularly in improving two-way communication, promoting library services, and supporting reference activities. While there are no definitive metrics to measure their overall impact, these tools are believed to contribute positively to library operations.

The findings, which show that Facebook is the most widely used social media platform among Malaysian academic libraries, with 9 out of 15 utilizing it, and the effective use of Library 2.0 tools to foster informal interactions with users, directly align with the objective of measuring the level of social media capability in these institutions. These results highlight both the prevalence and strategic implementation of social media, providing a clear indication of the capabilities of academic libraries in Malaysia to adapt to and leverage digital platforms for improved engagement and service delivery.

Wan Nor Haliza et al. (2023) in their research found that 68 (48.6%) respondents agree that social media enables faster delivery of information to their users and library social media sites easy to access at anywhere and anytime. In capabilities section, they also found that students mostly agree that social media contribute to promote library's resources and services. They concluded that good cooperation between libraries and social media mostly needed to provide the best physical and digital environment together. The studies by Rosman et al. (2022) with their final model in Figure 2.1 suggest a significant link between contextual factors and digital library (DL) engagement, yet empirical evidence supporting this connection is scarce, particularly within the library and information science (LIS) domain. Furthermore, research examining DL engagement in terms of its determinants and impacts remains limited, highlighting a gap in the existing literature.

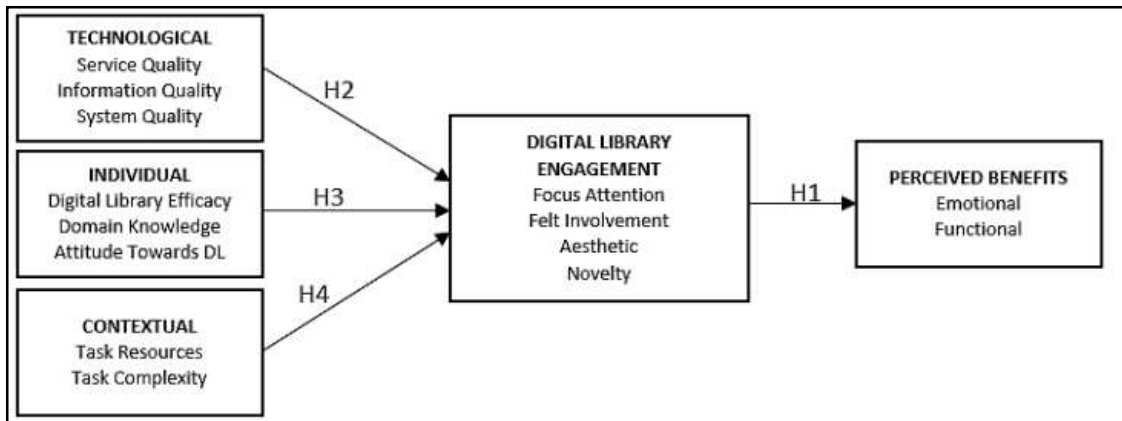


Figure 2.1 Final model of measuring digital library engagement (Rosman et al., 2022)

Boyd and Ellison (2007) define that sites serve as web-based platforms that allow users to create public or semi-public profiles within a defined environment, establish connections with other users, and navigate their own network of connections, as well as those of others, within the system. While Tella and Akinboro (2014) defines that social networking websites are a collection of user-generated web pages created through a form, with the information entered into the form being published on a generated page.

Social media is a ubiquitous presence across various sectors worldwide, with libraries being no exception to its widespread adoption. Libraries have harnessed the power of social media for diverse purposes, leveraging its unique combination of "high tech," interactivity, and the human touch to extend their information resources and services beyond traditional confines (Shafawi & Hassan, 2018). Research conducted by Choi and Joo (2021) reveals that public libraries in the United States recognize social media as a pivotal tool for library marketing and express intentions to intensify its use. A similar sentiment is echoed in South Africa, as findings from a study by Rabatseta et al. (2021) indicate that social media is extensively employed for marketing library services, disseminating announcements, and enhancing service delivery. Meanwhile, in Ghana, academic libraries have embraced social media applications, particularly Facebook, to facilitate the provision and accessibility of library services and resources, as well as to engage with their user base (Mensah & Onyancho, 2021).

Nor Hazidah (2012) explored on how Malaysian academic libraries have adopted Web 2.0 technologies to enhance services, focusing on supporting research and engaging with user feedback. By examining selected library websites, the study provides insights into expanding library services to create more dynamic and interactive

learning experience. Siti Marlia et al. (2023) shared the statistic of the total postings by universities versus interactions (i.e. like, comments, and shares) and this proves that among five academic libraries, the Universiti Sains Malaysia was the highest post via their social media library and also the highest reaction which 58,875 reactions (like). Library engagement will be enhanced with reactions like comment and shares.

Universities	Total Posts	Reactions (Like)	Comments	Shares
Universiti Teknologi Malaysia	32	1064	325	129
Universiti Kebangsaan Malaysia	31	421	13	153
Universiti Sains Malaysia	49	58875	34	69
Universiti Malaya	8	185	0	6
Universiti Putra Malaysia	28		1	19

(Source: Facebook, Data as of Oct 2020)

Figure 2.2 Total of posting by universities versus interactions (i.e. like, comments and shares)

Source: Siti Marlia et al. (2023)

Yushiana and Sufy Rabea (2010) explored the perceptions, awareness, and acceptance of Library 2.0 applications among librarians at the International Islamic University Malaysia (IIUM), along with the factors and challenges affecting their implementation. The findings indicated that librarians demonstrated a strong awareness of Library 2.0 tools and exhibited advanced computer skills, especially in using web browsers, search engines, blogs, and Wikipedia. Although librarians held favourable views of Library 2.0 and showed a willingness to further develop their expertise in these tools, they also pointed out various challenges in adopting the applications effectively. While a study found by Rosmani et al. (2020) that Malaysians are avid internet users, utilizing it for work, study, and shopping on platforms like Lazada and eBay, while actively engaging on social media such as Twitter, Facebook, and Instagram. This extensive use of social media highlights its potential as a valuable tool in academic libraries for enhancing communication, promoting library resources, and supporting collaborative learning among students and researchers.

In light of the research conducted by Esew et al. (2021), they observed that a significant majority of students at the University of Lagos and the Kashim Ibrahim Library express a strong preference for utilizing WhatsApp as their primary platform for accessing information services provided by their respective libraries. This finding

underscores the prominence of WhatsApp as a preferred medium for library-related interactions among these students. Moreover, the study's recommendations offer valuable insights for library professionals at both the Kashim Ibrahim Library and the University of Lagos Library. The researchers propose that librarians should increase their utilization of social media platforms. By embracing social media more actively, librarians can explore additional opportunities for engaging with patrons and fulfilling the diverse requirements of their library users. This shift toward enhanced social media engagement aligns with the evolving information-seeking behaviour of today's library clientele, thereby enhancing the overall effectiveness of library services.

Social media is widely recognized as a powerful force in today's world, affecting daily life and being actively embraced by a multitude of organizations, institutions, and enterprises, as noted by Uche and Udo-Anyanwu (2019). In this digital age, organizations, and institutions leverage various social media channels to engage with their clientele in real time, transcending geographical boundaries, as suggested by Esew et al. (2021). When we specifically examine academic libraries, it becomes apparent that the adoption of social media is a common phenomenon on a global scale. However, the extent of its acceptance can vary from one library to another, contingent upon the integration of information and communication technology (ICT) into their services. Adewojo and Mayowa-Adebara (2016) have highlighted the advantages of incorporating social media in academic libraries. Among these benefits, social media platforms allow library staff to remain up-to-date with the latest developments in their field. This, in turn, supports the provision of services that effectively cater to the diverse needs of library consumers. Therefore, the integration of social media capabilities in academic libraries not only keeps libraries in tune with the changing times but also enhances their ability to meet the evolving demands of their users.

A research study conducted by Tella et al. (2013) engaged the participation of 200 academic librarians, aiming to investigate the role of social networking sites (SNSs) in their professional advancement. The findings of this study revealed that social media platforms are recognized as dependable sources of educational information, offering valuable opportunities for knowledge dissemination. The act of knowledge sharing is acknowledged as a pivotal facet of career development within the library profession, as it fosters creativity and innovation, thus contributing significantly to professional growth and advancement in this field. Professional development often encourages librarians to explore innovative approaches and solutions. This creativity and problem-

solving mindset are fundamental to agility, enabling librarians to respond effectively to complex issues and emerging demands within the library setting. Many professional development activities involve knowledge sharing among librarians. Sharing insights and experiences fosters a collaborative and learning-oriented culture, which, in turn, enhances the agility of the entire library team in addressing challenges and opportunities.

In their study, AlAwadhi and Al-Daihani (2019) identified a positive perception among academic librarians regarding the utilization of social media. They also highlighted the growing recognition of social media as a vital means for users to access and exchange information, facilitating interactions that enable librarians to better understand users' information needs and cater to those requirements. Consequently, academic libraries have begun integrating social media platforms into their strategies to promote information sharing and enhance proximity to their user base, as observed by Quadri and Idowu (2016). These findings are in alignment with the observations made by Williams (2010), who noted that technologically adept Generation Y students exhibit a distinct preference for addressing their educational needs through social media platforms. This concurrence underscores the significance of social media in academic libraries, particularly in serving the technological preferences and information-seeking behaviors of contemporary students. According to the Merriam-Webster Dictionary, generation Y can be defined as the generation of people born in the period roughly from 1980 to the mid-1990s: the millennials.

Despite the numerous publications on social media research, the literature indicates that social media in the library setting in the developing world is still in its early stages, particularly in establishing social media authority and trust activities (Magoi et al., 2019). The study by Okuonghae (2018) also found that the level of librarians' awareness of the use of social media for informal academic communication is low. Further, it is worth noting that while the study by Okuonghae (2018) revealed a low level of awareness among librarians regarding the use of social media for informal academic communication, recent research conducted by Alley and Hanshew (2022) in U.S. academic libraries indicates a growing trend in the use of platforms like TikTok for creating engaging and humanizing videos, particularly focusing on highlighting library collections and spaces. This shift toward more humanizing and entertaining content in academic libraries aligns with the evolving social media landscape.

The rising popularity of social media has significantly impacted service providers, including academic libraries, by enhancing their capacity to elevate user awareness regarding library services, resources, events, and new acquisitions, among other facets. As noted by Mensah and Onyanha (2022), this evolution underscores the growing indispensability of social media as a tool within the professional realm of library services. According to the study conducted by Mogale and Bobape (2023), respondents at the University of Limpopo displayed a high level of familiarity with popular social media platforms such as Facebook, Twitter, Instagram, and WhatsApp. These platforms were predominantly used for personal purposes. In their professional roles, these academic librarians engaged with users within educational institutions, including schools and faculties. They effectively utilized platforms like the library blog and Facebook to promote and market library services. However, the widespread use of social media among academic librarians in their workplace has encountered several challenges. These obstacles encompass restrictions on social media usage during work hours, a notable lack of knowledge or training on how to harness social media effectively for professional purposes, the absence of institution-wide social media policies, and a deficiency of managerial support, particularly in terms of training and resources for leveraging social media in their roles as librarians. As scrutinized in the study by Howard et al. (2018), students' heightened concerns about privacy when using social media underscore the importance of well-defined social media policies within educational institutions. Such policies serve as a framework for addressing privacy issues and ensuring responsible and secure use of social media platforms among students and staff.

In a recent study by Magoi and Echezona (2022), the authors highlighted the pervasive issue of misinformation on social media platforms. The rapid dissemination of vast amounts of data on the Internet has given rise to spurious content and website impersonation. In response to this trend, academic libraries and their dedicated librarians are adopting a cautious and skeptical approach when evaluating information obtained from the social media landscape. Librarians, who serve as information professionals, are responsible for meticulously verifying the legitimacy and credibility of the materials they encounter. This vigilant stance is vital in preventing the proliferation of inaccuracies, rumors, and disinformation, which can swiftly propagate through social media. Through these efforts, librarians aim to preserve the authority, credibility, and trustworthiness of the social media facets of their libraries. The accuracy

of the information available to library patron hinges on this rigorous fact-checking and verification process. Librarians play an indispensable role in promoting a more informed and educated society by ensuring the dissemination of accurate and reliable information.

Within the urban landscape of Kerman City, a study conducted by Saadat Nasab (2015) reveals that social networks serve as a platform for the exchange of knowledge, experiences, ideas, group activities, and leisure among both librarians and patrons of public libraries. Furthermore, Agyekum et al. (2016) emphasize the multifaceted utility of social networks within the librarian community. Librarians employ these platforms not only to disseminate library materials, news, and events and engage in group discussions but also to disseminate information regarding public libraries and share electronic resources.

### 2.2.1 Definition and Concept of Social Media

The phrase of social media was initially coin in 1994 within an online media platform in Tokyo named Matisse (Bercovici, 2010). Before 2010, social media was primarily viewed as a tool for connecting people with shared interest. After 2010, the emphasis shifted towards the creation and sharing of user-generated content. In a piece of writing, it is crucial to establish clear definitions. The following findings have been obtained:

Table 2.1  
Social media definitions with author names and source

Year	Definition	Authors	Source
1996	When computer networks link people as well as machines, they become social networks, which we call computer supported social networks (CSSNs).	Wellman	Annual Review of Sociology
1997	Virtual communities are groups of people who communicate with each other via electronic media and are a relatively new phenomenon	Romm et al.	International Journal of Information Management
1997	When a computer network connects people or organizations, it is a social network. Just as a computer network is a set of machines connected by a set of cables, a social network is a set of people (or organizations or other social entities) connected by a set of social relationships, such as friendship, co-working, or information exchange	Garton et al.	Journal of Computer Mediated Communication

Year	Definition	Authors	Source
1999	Virtual communities are defined by bringing people together with a common set of needs or interests. Those needs or interests could span a variety of dimensions. Virtual communities could be organized around an area of interest (such as sports or stock investments), a demographic segment (certain age groups within the population), or a geographic region (metropolitan areas).	Hagel	Journal of Interactive Marketing
2001	For the purposes of this article, we define a virtual community (in a relatively neutral way) as any entity that exhibits all of the following characteristics: (a) It is constituted by an aggregation of people. (b) Its constituents are rational utility-maximizers. (c) Its constituents interact with one other without physical collocation, but not every constituent necessarily interacts with every other constituent. (d) Its constituents are engaged in a (broadly defined) social-exchange process that includes mutual production and consumption (e.g., mutual dissemination and perusal of thoughts and opinions). Although each of its constituents is engaged in some level of consumption, not all of them are necessarily engaged in production. Such social exchange (as opposed to monetary or material exchange) is a necessary, but not always the only, component of interaction between the constituents of the entity. (e) The social interaction between constituents revolves around a well-understood focus that comprises a shared objective (e.g., environmental protection), a shared property/identity (e.g., a national culture or a lifestyle choice), or a shared interest (e.g., a hobby).	Balasubramanian and Mahajan	International Journal of Electronic Commerce
2002	Virtual communities can be defined as groups of people with common interests and practices that communicate regularly and for some duration in an organized way over the Internet through a common location or mechanism. The location of the virtual community, although not physical, is important because it establishes the virtual “place” where the members meet. This location or mechanism may be a chatroom, bulletin board, or listserv e-mail program	Ridings et al.	The Journal of Strategic Information Systems
2005	SNSs [social networking services] are designed specifically to facilitate user interaction for a variety of goals, mainly dating, business networking, and promotion.	Marwick	Conference: Association of Internet Res. 6.0

Year	Definition	Authors	Source
2006	At the most basic level, an online social network is an Internet community where individuals interact, often through profiles that (re)present their public persona (and their networks of connections) to others.	Acquisti and Gross	Conference: Privacy Enhancing Technologies (PET)
2007	A social networking site (SNS) connects and presents people based on information gathered about them, as stored in their user profiles	O'Murchu et al.	Book: Viral Marketing: Concepts and Cases
2007	Social network sites are web-based services that allow individuals to (a) construct a public or semi-public profile within a bounded system, (b) articulate a list of other users with whom they share a connection, and (c) view and traverse their list of connections and those made by others within the system	Boyd and Ellison	Journal of Computer-Mediated Communication
2008	Social networking sites typically provide users with a profile space, facilities for uploading content (e.g., photos, music), messaging in various forms, and the ability to make connections to other people	Joinson	Conference: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems
2009	Social network sites provide a public forum that enables the exchange of digital information, such as pictures, videos, text, blogs, and hyperlinks between users with common interests, such as hobbies, work, school, family, and friendship.	Sledgianowski and Kulviwa	Journal of Computer Information Systems Kaplan
2010	Social media is a group of Internet-based applications that builds on the ideological and technological foundations of Web 2.0, and that allows the creation and exchange of user-generated content.	Kaplan and Haenlein	Business Horizons Kietzmann
2011	Social media is a honeycomb of seven functional building blocks: identity, conversations, sharing, presence, relationships, reputation, and groups.	Kietzmann et al.	Business Horizons
2012	Social networking sites can be defined as virtual collections of user profiles that can be shared with others.	Hughes et al.	Computers in Human Behavior
2013	A social network site is a networked communication platform in which participants (a) have uniquely identifiable profiles that consist of user-supplied content, content provided by other users, and/or system-level data; (b) can publicly articulate connections that can be viewed and traversed by others; and (c) can consume, produce, and/or interact with streams of user-generated content provided by their connections on the site.	Ellison and Boyd	Book: The Oxford Handbook of Internet Studies
2015	Social media are Internet-based, distained , and persistent channels of mass personal communication facilitating perceptions of	Carr and Hayes	Atlantic Journal of Communication

Year	Definition	Authors	Source
	interactions among users, deriving value primarily from user-generated content.		
2016	Social media is the colonization of the space between traditional broadcast and private dyadic communication, providing people with a scale of group size and degrees of privacy that we have termed “scalable sociality.”	Miller et al.	Book: How the World Changed Social media
2018	For this study, we define “social-media” as Web sites and technological applications that allow its users to share content and/or to participate in social networking.	Leyrer-Jackson and Wilson	Journal of Biological Education
2018	Social media is made up of various user-driven platforms that facilitate diffusion of compelling content, dialogue creation, and communication to a broader audience. It is essentially a digital space created by the people and for the people, and it provides an environment that is conducive for interactions and networking to occur at different levels (for instance, personal, professional, business, marketing, political, and societal).	Kapoor et al.	Information Systems Frontiers
2019	For purposes of this chapter, we define social media as any online resource that is designed to facilitate engagement between individuals.	Bishop	Book: Consumer Informatics and Digital Health

(Source: Aichner et al., 2021)

The discovery of the definition of social media indicates that the study of its use by researchers is ongoing. This continuous research is driven by the desire of researchers to stay updated on social media trends and developments. As mentioned by Aichner et al. (2021), the outcome is a timeline of social media definitions that enables researchers and practitioners to quickly contextualize previous research findings and avoid the time-consuming task of searching for individual definitions in various papers. Based on a website The Economic Times.com which was accessed on May 17, 2024, social media bring good and bad to someone. The good is connecting people around the world and for someone who does a business it can create opportunities and get more network. But the bad is people getting eager to scroll the stories in social media in long hours and this can affect their health. The concept of social media is as a platform to make it easier for people to communicate in cyberspace. Through social media platforms such as TikTok, the delivery of information will become faster and save time.

According to a public relation analyst named Solis at Altimeter Group mentioned in chapter four of a book titled “Social media communication: concepts, practices, data, law and ethics” written by Lipschultz (2014) that a person using a mobile phone

will not connect with a person using social media. This show that various communication mediums whether through the phone or even social media platforms used by peoples. Berger et al. (2014), Kane et al. (2014), and Shirky (2008) stated that social media is about networking, which is undeniable and what makes it unique is the large number of users and the constantly changing networks or communities that form and dissolves as people create, share, and consume content online.

### **2.2.2 Social media adoption in academic libraries**

Social media has become a necessity in today's world. People use it everywhere for various purposes. Both government and private organizations use it to boost company profits. Developed countries like the United States use it for political and economic purposes. Even developing countries like Malaysia use it for political, economic, and social reasons. However, this study aims to examine the patterns or attitudes of librarians towards the use of social media. This study also aims to assess the ability of social media to enhance the skills of librarians in fostering quality relationships between librarians and users. Academic libraries leverage social media to cultivate a more robust and well-informed learning community. The growing prevalence of social media has introduced innovative methods for millions of users globally to access and share information. Social media holds significant importance across various fields, particularly in information science and library services.

Research on the use of social media in academic libraries in Malaysia is relatively limited, with only a few studies available, including those by Ahmat et al. (2016), Siddike and Kiran (2015), Chore (2023), and Zoohorian-Foladi and Abrizah (2014). Therefore, this thesis will explore the use of social media among academic librarians and examine the various capabilities of social media that influence the quality of the relationship between librarians and users. As technology advances and user expectations evolve, social media will play a key role in helping libraries engage with diverse audiences, promote services, and build connections. Librarians will use social media to communicate, share resources, and offer real-time support, while adapting to the growing emphasis on mobile and multimedia platforms. It will also provide a space for professional networking and collaboration, fostering a global community of knowledge exchange. For academic libraries, a strong social media presence will be

crucial for staying relevant, meeting user needs, and driving growth in an increasingly digital landscape.

The growing significance of social media usage among academic librarians in Malaysia aligns with the goals outlined in the National Higher Education Strategic Plan Beyond 2020, as highlighted by Nooraini and Nordini (2017). The plan aims to elevate Malaysian research universities, positioning two institutions among the Top 100 globally. Social media can play a pivotal role in achieving this vision by enhancing academic visibility, fostering collaboration, and disseminating research outputs effectively. Each of Malaysia's five research universities which is University of Malaya (UM), Universiti Kebangsaan Malaysia (UKM), Universiti Sains Malaysia (USM), Universiti Putra Malaysia (UPM), and Universiti Teknologi Malaysia (UTM) which supported by a dedicated library that can leverage social media platforms to bridge the gap between research outputs and global audiences, ultimately contributing to the universities' global stature.

Ahmat et al. (2016) mentioned that the social media is widely regarded as a strategic and vital platform for raising awareness of services, especially in marketing library products and offerings. Nevertheless, reference librarians at the Hamzah Sendut Library, Universiti Sains Malaysia (USM) continue to debate whether this approach is suitable or if a traditional physical method would be more effective. Meanwhile at Universiti Teknologi Malaysia (UTM), researchers and academic staff utilize social media as a tool for informal learning, emphasizing that it facilitates idea exchange and fosters networking opportunities with other researchers.

Siddike and Kiran (2015) conducted a study focused on examining the marketing and promotional tools currently employed by Malaysian academic libraries. The paper also aimed to explore the reasons Malaysian academic librarians utilize social media platforms as a means of library marketing and promotion. Alilou (2014) has conducted research on the integration of Social Customer Relationship Management (SCRM) within CRM theory, demonstrating how the use of social media can foster strong and effective relationships between librarians and users. The study emphasizes the importance of recommending a new social CRM system for the UTM library, enabling the adoption of an adaptable and upgradable customer relationship management system. According to Palmatier et al. (2006), relationship strength and numerous aspects of the connection are captured by the composite or multidimensional construct known as relationship quality. Librarians work hard to keep strong

relationships with customers since they may benefit customers in the long run (Roy and Eshghi, 2013).

A study by Ahmad et al. (2016) revealed that academic librarians utilize social media to advance their careers and build their personal brands. Syed Ahmad Alhafy and Zakaria (2010) highlighted that library and information managers should embrace and drive transformation aligned with new media trends, warning that failure to do so risks losing relevance. Ayre (2003) further noted that the professional image of librarians and information specialists is shaped by users' personal experiences, stressing the importance of delivering exceptional services at the grassroots level.

### **2.2.3 How these capabilities impact librarians' responsiveness and the quality of their interactions with users**

Dynamic capabilities are crucial for academic libraries to adapt to the rapidly changing digital landscape, especially in leveraging social media and technology. These capabilities enable libraries to respond to shifting user needs, create engaging content, and manage resources efficiently. By remaining flexible, academic libraries can innovate, stay relevant, and foster collaborations with external partners. Dynamic capabilities also allow libraries to continuously enhance their services, optimize staff skills, and adjust to new trends, ensuring long-term growth and sustained impact in the academic community.

For academic libraries, patrons are their most valuable asset. Understanding their needs is essential for libraries to maintain relevance, provide meaningful services, and remain competitive in the face of today's growing challenges. A study by Hwang et al. (2022) found that the diversity of social media platforms does not lead to the replacement of one by another, but rather, each complements the others to fulfil various communication needs. The researchers relate this to niche theory, highlighting that social media's ability to meet user needs and provide satisfaction is crucial for its growth and sustained success.

The adoption of tools such as social media, Customer Relationship Management (CRM) systems, and professional branding strategies significantly enhances librarians' ability to adapt to evolving user needs. Social media, for instance, serves as a dynamic platform for promoting services, fostering informal learning, and enabling real-time communication. This enhances responsiveness by allowing librarians to address queries

quickly, disseminate information broadly, and engage with a diverse audience, as seen in the practices of institutions like Universiti Teknologi Malaysia (UTM).

CRM systems, particularly Social CRM as proposed by Alilou (2014), provide a structured approach to relationship management, ensuring that user interactions are tailored, efficient, and personalized. This aligns with the principles of relationship quality outlined by Palmatier et al. (2006), which emphasize trust, commitment, and satisfaction as cornerstones of effective engagement. Furthermore, professional branding and career development, as discussed by Ahmad et al. (2016), not only elevate the librarians' image but also instil confidence among users regarding the quality of service provided.

These capabilities, when integrated effectively, create a synergy that allows librarians to remain relevant, proactive, and user-centric. They bridge the gap between traditional library services and contemporary user expectations, ensuring that interactions are not only responsive but also meaningful, thereby strengthening the library's role as a cornerstone of academic and research excellence.

#### **2.2.4 Importance of Social Media in Academic Libraries**

Social media provides benefits to academic libraries. Martzouku (2021) addressed that social media play an important role during COVID-19. The sudden and mandatory switch to online learning due to COVID-19 has created many challenges for higher education. These challenges include using remote tools and practices in online teaching in a way that ensures everyone has access and is treated fairly, and preparing students with the necessary digital and information skills for online learning. Academic libraries now have an important role in helping students become knowledgeable and skilled in using digital tools. They can be linked that help advance a strategy focused on designing education for fairness and equality.

As mentioned by Ali and Gatiti (2020), libraries as social institutions are responsible for promoting public health awareness and providing current information to clinicians and managers. However, with numerous information sources and diverse communication channels available today, users do not always access the most reliable information. During this emergency, university librarians in Pakistan played a crucial role by raising awareness through public health education, supporting medical staff and researchers, and continuing to offer traditional services to regular library patrons. Some

libraries in Pakistan have started online webinars and sessions to stay connected with their users through platforms like Google Classroom, Google Hangouts, Skype, or Zoom.

Deja et al. (2021) noted that caused of the pandemic, librarians and academic technologies stepped up during the pandemic to help faculty transition to online learning. They offered crucial support by improving digital literacy, teaching practical tech skills like using learning management systems and hosting Zoom meetings, and promoting information literacy, and crucial thinking skills. Dahdal (2020) found that many students using WhatsApp for communication improved their relationship with the professor by removing the formality. They also agreed that with less formality, they felt more encouraged to ask questions and engage in learning. While Chaputula et al. (2020), found that WhatsApp has been effective in providing user and reference services to students and staff. However, technical, human resource, and service-related issues were identified as obstacles. It is recommended that library management address these challenges to improve service delivery

Abangan et al. (2024) showed the results from their interviewed with ten academic librarians at Davao de Sur at Philippines that academic librarians encountered challenges like promoting and marketing the library and adapting to new work roles. Despite this, they successfully managed by attending webinars and online training, introducing new services, delivering resources directly to users, and embracing change with resilience. This means that with the development of social media, it positively influences academic librarians to be more agile and can do anything if given a challenge. Libraries use any platform to connect with their stakeholders via social media, streaming video apps, library websites, emails, phone calls, video tutorials, and microblogging. Chigwada (2021), Guo et al. (2020), Temiz and Salelkar (2019) recommended that library websites have to transform to make them dynamic and responsive to users in real time. Ashiq et al. (2021) suggested that the libraries need to build infrastructure and systems that enhance their online presence, expand access to services, meet the needs of remote users, and crucially, provide professional librarians with the necessary skills.

Lobo and Dhuri (2021) noted that as educational institutions worldwide closed, library patrons encountered significant difficulties in accessing library resources for their information needs. The pandemic has profoundly reshaped the education sector into a digital learning hub. Embracing digital solutions and adopting the latest ICT

applications became the only way to cope with the pandemic situation. Choi and Kim (2024) discovered that public libraries actively shared information on social media during the Covid-19 lockdown. Over the past three years, public libraries have consistently used Twitter to promote events and programs, inform patrons about library operations, and highlight resources for literacy.

Social media also relate with Artificial Intelligence (AI) which can be define as the ability of machines to do things that people would say require intelligence; it has been infiltrated as one of the modern technologies for library operations (Jackson, 1985). Modern social media platforms such as Twitter, Snapchat, Facebook, and Instagram incorporate AI. Many libraries have adapted their services on these platforms to engage their patrons (Hussain, 2023). The adaption of new technologies has transformed how libraries engage and interact with the world, allowing library services to meet users' information needs in a rapidly changing society (Lee, 2012). According to O'Connor et al. (2007), major advancement includes the rise of digital technologies, shifts in how library users seek and utilize information, and new demands and expectations from these users, prompting libraries to transform their service delivery methods.

### **2.2.5 Role of Social Media in Library Services**

Social media is a subset of media technology that specifically refers to platforms designed for social interaction and content sharing, like Facebook, Twitter, Instagram, and LinkedIn. Social media relies on media technology to operate but focuses on building networks and communities online. Media technology has expanded communication beyond physical boundaries, enabling individuals to connect with people or groups over distances and time, thereby enhancing social interactions (Husain et al. 2023). Mathar et al. (2021) mentioned that libraries can utilize social media to engage in various activities, such as fostering active interaction, introducing library services and resources, sharing collections, distributing surveys, and offering high-quality reading materials to the community. Therefore, libraries need to be adept at using social media platforms like Facebook, WhatsApp, Twitter, and others. Additionally, many libraries now have their own YouTube channels to enhance their connections with users.

Chore (2023) stated that social media is vital for connecting with users and potential customers. Over the past few decades, vast amounts of information have been exchanged globally. As the most significant transformation of the 21<sup>st</sup> century, social media is rapidly expanding, with millions of pieces of information shared daily. Librarians are eager to use social media to meet the patrons' needs. Librarian Resources (2024) mentioned that websites like YouTube offer great opportunities to gather new information and educate ourselves and others. Library services can use social media platforms to post insights into specific materials and collections, educating the public and promoting what they have available. Parabhoi and Pathy (2016) are concerned about the role of social media in library services. Social media connects people with similar professions and engages them through platforms such as Facebook, Twitter, and MySpace. Libraries also create their own Facebook pages and connect with various social and academic networks. They also mentioned that the people in India very actively participate in social media platforms. The libraries use social media to promote the new arrival books, event information, news announcement, new database etc.

Shashikiran and Sharma (2017), noted that the social media has been used in libraries as:

- i.) To promote any kind of library events
- ii.) To promote all types of library services
- iii.) To promote the library resources/collections
- iv.) To promote library guides, exhibition guides
- v.) To receive complaints, suggestions, enquiries and feedback
- vi.) To retrieve information and to actively interact with the content as well as its creators
- vii.) To support collaborative work substituting old documents or PDF documents
- viii.) To enhance delivery of service and to contribute professional development

According to Istiana (2017), social media enables more people to be reached and also enables individuals who are unable to attend libraries to become accustomed to that. Additionally, it interacts with library patrons and improves the quality of services provided to customers. Facebook by Istiana (2017), permits notification of services like prolonged book lending by the Gadjah Mada University Yogyakarta, namely the Faculty of Geography Library, Faculty of Social and Political Sciences Library, and the Library

of the Faculty of Agriculture (ISOPOL) Faculty Library, from which a sizeable number of student benefits. The ISOPOL library is aware that its customers have a predominance in using gadgets.

Catalano et al. (2018) addressed the issue of librarians who are particularly focused on staying current and utilizing new technology to meet users' demands. "Social media is a very powerful medium to reach people, even to target customers, such as our alumni or someone out there who wants to read seriously and wishes to use the university library," according to one of the respondent research projects examined (Mensah and Onyanacha, 2022). TikTok the app is more creative than a social media platform and acts as a virtual playground. For instance, the hashtag #librariansoftiktok will direct you to videos of libraries and librarians in public, academic, and educational settings. Twitter is used for interaction and to strengthen bonds with people (VanScoy et al. 2018). Once the material is shared via social media libraries, (Divya, & Subaveerapandiyam, 2019) observed that two-way communication with users and other stakeholders will be established.

Social media is used by libraries to provide a mix of user service, news, and updates, content/collection promotion, disseminating the institution's research, providing educational tools and resources, and building relationships inside and outside the institution (Prabhakar, & Manjula Rani, 2017). In Ghana, Ahenkorah-Marfo, and Akussah (2016) examined the use of social media in reference and user services by academic librarians at public and private universities and showed that most academic librarians are knowledgeable and use social media for personal and professional purposes. According to Balaji et al. (2019), two-thirds of Asian university library websites have Web 2.0 integration. The popular Web 2.0 applications were Facebook (61.3%), RSS (53.3%), Twitter (46.7%), and YouTube (37.3%).

## **2.2.6 Behaviour Trends of Social Media**

### ***2.2.6.1 Evolution of Social Media Behaviour***

The evolution of social media behaviour reflects a shift from text-based interactions to multimedia-driven engagement. Smith and Mendelson (2024) emphasized that platforms like Instagram and TikTok have capitalized on users' preference for short-form, visually engaging content, especially among younger

demographics. This trend aligns with studies by Brown (2024), who noted that Gen Z prefers interactive and dynamic formats over static posts.

The shift to algorithm-driven content curation has also played a significant role in shaping social media behaviour. This phenomenon has sparked discussions about echo chambers, where users are exposed to content that reinforces their existing preferences and biases (Alvarado et al., 2025).

Moreover, social media platforms have increasingly integrated e-commerce features, which significantly influence user behaviour. Harris (2024) observed that users often engage with shopping features, sponsored posts, and influencer-driven content, blurring the lines between entertainment and commerce. This multifaceted approach to social media usage has expanded its role beyond communication, making it a tool for marketing, education, and social influence (Lee et al., 2023).

#### ***2.2.6.2 Engagement Patterns Across Difference Demographics***

Engagement patterns on social media vary across age groups, professions, and cultural backgrounds. Younger users, especially Gen Z, gravitate toward platforms like TikTok and Snapchat, where quick, interactive, and entertaining content dominates (Wilson et al., 2025). This preference is supported by findings from Chen and Zhang (2024), who observed that gamified and short-form videos are particularly effective in capturing the attention of younger audiences. In contrast, older demographics tend to favor platforms like Facebook and LinkedIn, prioritizing informative and professional content (Brown & Davis, 2024).

Cultural influences also shape social media behavior. In Asia, for instance, users demonstrate a higher preference for community-driven content compared to individualistic content seen in Western countries (Atmaca, 2025). Noorhidawati et al. (2024) highlighted that user in Southeast Asia, including Malaysia, are more likely to engage in group discussions, collaborative threads, and localized content, reflecting the region's collectivist cultural orientation.

Gender also plays a role in shaping engagement. Studies by Lin et al. (2025) revealed that women are more active on platforms like Pinterest and Instagram, engaging with content related to lifestyle and education. Men, on the other hand, dominate LinkedIn and Twitter, focusing on professional discussions and current

events. These variations emphasize the importance of demographic-specific strategies in maximizing social media engagement.

### ***2.2.6.3 Factors Influencing Social Media Behaviour***

The factors influencing social media behavior are multifaceted, including platform algorithms, user motivations, and external societal influences. Smith et al. (2024) highlighted that algorithms on platforms like Instagram, Facebook, and TikTok prioritize personalized content to keep users engaged. These algorithms often promote content with high engagement rates, such as viral videos or trending posts, encouraging users to stay on the platform longer (Alvarado et al., 2025).

User motivations, such as entertainment, information-seeking, and networking, also drive social media behavior. Harris (2024) noted that while younger users are primarily motivated by entertainment and social connectivity, older users focus on accessing reliable news and professional resources. Lee et al. (2023) found that students and professionals often engage with educational content, such as tutorials and webinars, which align with their academic and career goals.

External factors, such as privacy concerns and misinformation, significantly influence user engagement. Noorhidawati et al. (2024) observed that users are more likely to engage with verified accounts and content from trusted sources, particularly on platforms like LinkedIn and Twitter. Conversely, platforms perceived as unreliable or prone to misinformation, such as TikTok and Facebook, often experience lower engagement in academic and professional contexts (Hill et al., 2024). Addressing these concerns through transparency and content verification is essential for fostering trust and sustained user interaction.

## **2.2.7 Social Media Behavioral Trends Among Academic Librarians**

### ***2.2.7.1 Adoption of Social Media in Academic Librarianship***

Academic librarians globally have embraced social media as a tool for outreach, resource promotion, and community engagement. Platforms like Facebook and Twitter are commonly used for sharing announcements, while Instagram and YouTube are leveraged for visual storytelling and tutorials (Mueller and Rajaram, 2022). For

instance, librarians in the United States frequently use Twitter to live-tweet academic conferences and promote digital literacy programs (Choi and Kim 2021).

Professional platforms such as LinkedIn have also become integral for librarians to network with peers, share best practices, and stay informed about industry trends (Santiago et al., 2017). In regions like Europe and Australia, librarians use LinkedIn to collaborate on research projects and highlight institutional achievements (Perrotta et al., 2022). However, adoption rates vary globally due to differences in technological infrastructure and institutional priorities (Smith et al., 2024).

A growing trend among academic librarians is the use of WhatsApp for real-time communication with students and faculty. Noorhidawati et al. (2024) highlighted that WhatsApp groups are particularly effective in regions with limited access to more advanced technologies, providing an accessible platform for sharing updates and addressing user queries. This adoption demonstrates how librarians adapt their social media usage to meet local needs and resource availability.

#### ***2.2.7.2 Behavioral Patterns of Academic Librarians***

Behavioral patterns among academic librarians on social media are shaped by their dual roles as educators and information managers. Mu'awiyah and Jurana (2024) observed that librarians prioritize educational content, such as guides to academic databases, citation tools, and open-access resources. These posts aim to support the academic goals of students and researchers, emphasizing the librarian's role as an academic facilitator (Filipeti & Mumelaš, 2025).

Interactive content, such as live Q&A sessions, polls, and quizzes, is also widely used to foster engagement and promote library services (Hamam et al., 2025). For example, libraries in Australia have implemented Instagram stories to provide quick updates on resource availability, which has proven effective in increasing user participation (Garcia et al., 2018). This approach reflects the importance of balancing promotional and interactive content to maintain user interest.

Librarians' behavior on social media is also adaptive, guided by data and user feedback. Noorhidawati et al. (2024) found that posts with higher engagement, such as tutorials and event promotions, are more likely to be replicated or expanded. Conversely, posts that fail to attract attention are revised or replaced, demonstrating a commitment to optimizing content based on user preferences and behavior patterns.

### ***2.2.7.3 Challenges Faced by Academic Librarians on Social Media***

Despite its benefits, social media presents significant challenges for academic librarians. Limited time and staffing often hinder their ability to maintain an active presence across multiple platforms (Smith et al., 2024). Many librarians must juggle social media responsibilities with traditional roles like cataloging, user training, and research support, leading to potential burnout (Corrado, 2022).

Privacy concerns also impact the credibility of social media in academic settings. Users may question the reliability of content shared on platforms like Instagram and Twitter, where academic rigor is often less emphasized (Miller, 2005). Additionally, the risk of misinformation or biased content can undermine trust in library posts, making it essential for librarians to verify and curate content carefully (Alvarado Garcia et al., 2025).

Another challenge is the rapid pace of technological change. Platforms frequently update their features and algorithms, requiring librarians to continuously upskill to stay relevant (Marquart et al., 2025). Providing professional development opportunities and institutional support can help librarians navigate these challenges and enhance their social media impact (Chen & Zhang, 2024).

## **2.2.8 Behavioral Trends of Social Media Users in Academic Libraries**

### ***2.2.8.1 Engagement Patterns of Students, Faculty and Researchers***

Engagement patterns among students, faculty, and researchers using social media in academic libraries differ significantly based on their roles and needs. Students are the most active group on social media platforms, often interacting with visually engaging and interactive content such as polls, Instagram reels, and quizzes (Noorhidawati et al., 2024). Libraries that post announcements about study tips, library events, and workshops tailored to students' academic schedules receive high engagement during peak periods like exam seasons (Hashim, 2025).

Faculty members, by contrast, prefer content that focuses on research support and academic resources. Tariq et al (2025) noted that faculty are more likely to engage with posts about journal subscriptions, citation tools, and research data management workshops. Researchers, meanwhile, gravitate toward platforms like LinkedIn, where

they can access academic updates and network with peers. Abdullah and Rahman (2025) found that researchers actively engage with content promoting scholarly communication, such as webinars on publishing and intellectual property rights.

One common trend across all groups is passive engagement, where users consume content without interacting. This behavior presents a challenge for academic libraries, as it makes it difficult to gauge the effectiveness of their social media efforts. Libraries can address this issue by incorporating calls-to-action, such as encouraging comments, likes, and shares, or offering small incentives for participation (Harris, 2024).

## **2.2.9 Behavior Trends of Social Media on Academic Librarians in Malaysia**

### ***2.2.9.1 Platform Preferences Among Academic Librarians***

Malaysian academic librarians predominantly use platforms like Facebook, Instagram, and WhatsApp for engaging with students, faculty, and researchers. Facebook remains the most popular due to its multifunctionality, allowing libraries to share announcements, conduct live sessions, and interact with users in the comments section (Noorhidawati et al., 2024). This platform's wide reach makes it ideal for connecting with both students and staff across different institutions. Instagram, on the other hand, is favored for its visual appeal, which attracts younger audiences through promotional content, library events, and tutorials on resource usage (Hashim, 2025).

WhatsApp is particularly popular for instant and personalized communication, enabling librarians to create dedicated groups for students and faculty to provide timely updates on library services (Rahman & Zulkifli, 2023). Its ease of use and accessibility make it an essential tool, especially in smaller institutions or in settings where other platforms may not be as effective. Emerging platforms like TikTok are gradually gaining traction as librarians explore innovative ways to engage users through creative and short-form videos (Nirgude & Naik, 2025). While its adoption remains limited, early studies show promising results in reaching younger demographics.

However, platform preferences among Malaysian librarians are influenced by institutional goals and available resources. Public universities with larger budgets and dedicated teams tend to diversify their platform usage, whereas smaller institutions often rely heavily on WhatsApp or Facebook due to resource constraints (Rahman &

Zulkifli, 2023). This variation highlights the need for tailored strategies to optimize social media usage across different institutional contexts.

### ***2.2.9.2 Social Media Engagement Strategies in Malaysian Libraries***

Malaysian academic librarians employ various strategies to engage their audience, focusing on interactive and culturally relevant content. Noorhidawati et al. (2024) reported that libraries often align their social media posts with academic calendars, increasing activity during examination seasons and enrolment periods. Popular posts include study tips, resource availability updates, and tutorials on accessing digital collections. Interactive posts, such as quizzes, contests, and polls, are also used to boost user participation and engagement.

Multilingual content is a common strategy among Malaysian librarians to cater to the country's diverse population. Hashim (2025) noted that posts in both Malay and English are more likely to resonate with users, reflecting the linguistic preferences of the academic community. This practice ensures inclusivity and encourages engagement from users across different backgrounds. Additionally, some libraries collaborate with faculty members and student organizations to co-create content, enhancing its relevance and appeal (Tran, 2025).

Live sessions have become a key engagement tool, with librarians using platforms like Facebook Live and Instagram Live to conduct virtual workshops and Q&A sessions (Fasae et al., 2021). These sessions allow librarians to interact directly with users, address queries in real time, and promote library resources effectively. This approach has proven particularly effective in maintaining engagement during the COVID-19 pandemic, when physical library access was restricted.

### ***2.2.9.3 Challenges and Opportunities for Malaysian Librarians***

Despite the growing role of social media in Malaysian academic libraries, librarians face several challenges in optimizing its usage. Budget constraints are a common issue, limiting access to advanced tools and technologies for content creation and analytics (Päkkilä, 2024). Many librarians also struggle to balance social media responsibilities with traditional duties, such as cataloging and user training, leading to inconsistencies in posting schedules (Budd, 2022).

Technical expertise is another hurdle. Noorhidawati et al. (2024) found that some librarians lack the necessary training to create engaging multimedia content or analyze user engagement metrics effectively. This gap highlights the need for targeted professional development programs to equip librarians with the skills required for modern social media management. Privacy concerns also pose a challenge, with users often hesitant to engage in public discussions on platforms like Facebook or Instagram due to fear of data misuse (Trepte, 2021).

Despite these challenges, Malaysian librarians have shown resilience and creativity in leveraging social media. The adoption of gamification techniques, such as using Instagram stories for scavenger hunts and quizzes, has proven effective in boosting engagement among students (Stark et al., 2021). Collaboration with faculty members and student influencers to co-create content is another innovative practice that enhances the credibility and appeal of library social media posts. These strategies demonstrate the potential for Malaysian academic librarians to overcome challenges and maximize the impact of their social media activities.

The behavior trends of Malaysian academic librarians on social media reflect a dynamic blend of platform preferences, engagement strategies, and adaptive practices. By leveraging platforms like Facebook, Instagram, and WhatsApp, librarians have successfully bridged communication gaps and promoted library resources effectively. However, challenges such as limited resources, technical expertise, and privacy concerns highlight the need for institutional support and professional development. With innovative practices like gamification and multilingual content, Malaysian librarians are well-positioned to enhance their social media presence, fostering stronger connections with their academic communities.

#### **2.2.10 Trends, challenges or opportunities within the Malaysia context that make this study significant**

Academic libraries are embracing several emerging trends in social media, including the increased use of multimedia content, personalized user engagement, and enhanced collaboration with academic communities. Mobile-friendly platforms and the integration of Artificial Intelligence (AI) and automation are also becoming more prevalent, helping libraries streamline operations and improve engagement. However, libraries face challenges such as maintaining consistency and quality across multiple

platforms, addressing privacy and security concerns, and overcoming resistance from staff who may be unfamiliar with new technologies. Additionally, balancing the professionalism required in academic settings with the informal tone of social media and measuring the impact and return on investment (ROI) of social media efforts remain ongoing struggles. These trends and challenges highlight the need for academic libraries to adapt strategically in order to leverage the full potential of social media while managing emerging issues. Libraries are adopting various key trends in social media, such as incorporating multimedia content like videos and podcasts to engage their audience, and hosting live-streamed events to reach remote users. Social media is also being utilized to tailor content to individual needs, promote collaboration with other organizations, and encourage contributions from users. With the growing use of mobile devices, libraries are adjusting their strategies to ensure their platforms are mobile-friendly.

Noorhidawati et al. (2015) in their study found that one key issue was the lack of clear policies defining the responsibilities of libraries at six countries which is China, Switzerland, United States of America, United Kingdom, Australia and New Zealand in promoting social inclusion. These issues are especially pertinent to Malaysian academic libraries, where the use of social media often lacks structure, emphasizing the importance of establishing clear policies to promote consistent and impactful user engagement across various institutions.

Likewise, Meredith Farkas emphasized the importance of libraries establishing social media policies to address the "blurred boundaries" between personal and professional spaces (2009, p. 35). She argued that these policies should include clear guidelines for official content and usage to safeguard the library's brand. In 2008, Amanda Powers stressed the significance of addressing the constantly evolving ethical challenges in library work (p. 192). She suggested that open discussions about technology and ethics are essential for navigating these issues. Libraries should prioritize developing guidelines, either through professional bodies like the American Library Association (ALA) or the Ontario Library Association (OLA), or by implementing institutional policies. Collins and Quan-Haase (2014) stated that an academic library should utilize social media in a way that respects users' privacy and avoids being overly invasive, while recognizing the growing overlap between public and private spaces in online environments.

Chore (2023) stated that social media can greatly enhance the engagement between libraries, information centers, and their users, no matter the users' location or preferred methods for accessing and utilizing library services and resources. In Malaysian academic libraries, social media offers significant opportunities to build stronger connections with users from various geographical and cultural backgrounds. These platforms enable libraries to engage with students, researchers, and faculty members, regardless of their location, ensuring equal access to services and resources. Additionally, social media provides a means for promoting library services, supporting virtual learning, and disseminating updates, all of which are particularly important in Malaysia's multilingual and multicultural context. This approach helps enhance user engagement and supports the academic objectives in a rapidly evolving digital landscape.

Zoohorian-Foladi and Abrizah (2014) shared their research study done at three-intensive universities in Kuala Lumpur that the integration of social media into library operations faces challenges such as time constraints, unclear authority, and evolving job roles, making it difficult for staff to balance responsibilities. The fast pace of technological advancements, insufficient training, and the absence of clear policies or dedicated personnel further complicate management. Language barriers and the need to curate scholarly content add complexity, especially in academic and multilingual contexts. Additionally, maintaining long-term commitment is a persistent issue due to limited motivation and incentives for staff.

Social media platforms present a range of opportunities for librarians to engage with their users, promote library services, and extend their influence beyond traditional environments. Through platforms like Facebook, Twitter, Instagram, and LinkedIn, librarians can share resources, host discussions, and publicize library events and programs. These tools also allow for instant communication with students and faculty, offering the ability to provide personalized assistance and address questions promptly. Social media helps librarians strengthen relationships within the academic community, encourage collaboration, and showcase scholarly materials, enhancing the library's visibility and impact. Furthermore, social media serves as a valuable resource for professional networking, development, and staying informed about the latest trends in information management and technology.

### **2.2.11 Social media in Malaysia perspective**

The use of social media in academic libraries began in 2008 when the University of Malaya (UM) Library initiated its first step by creating a Facebook account. An interesting point highlighted by Edzan (2010) is that rather than waiting for questions from users, it is better to take the initiative by establishing a social media presence and receiving direct queries from users. Today, all academic libraries in Malaysia have their own social media platforms, each serving different purposes and objectives. However, the main goal is to disseminate information to the public, particularly researchers, students, and academic staff at the respective universities. Numerous studies on the use of social media in academic libraries in Malaysia have been conducted. For instance, Rizalawati Ayu and Abrizah (2011) found that many academic libraries use social media for marketing purposes. Meanwhile, A'dillah et al. (2016) highlighted that Facebook has had an impact on the library world and is also an effective tool for responding to user inquiries. In 2018, the Director-General of the National Library of Malaysia (PNM), Datuk Nafisah Ahmad, stated that there were 13,719 libraries across the country, including 10,180 school resource centers, 1,111 rural libraries, 950 special libraries, 452 academic libraries, 336 state public libraries, 286 KEMAS resource centers, 243 Medan Info Desa, 98 international school resource centers, and 58 MARA Science Colleges, along with four community libraries. A study by Mohd Ismail et al. (2013) revealed that Facebook is the most used application among public libraries in Malaysia.

A study by Rizalawati Ayu and Husriyati (2011) showed that by 2010, 14 academic libraries were using social media platforms like Facebook. They also stated that Facebook provides libraries with an opportunity to communicate more effectively with their users. Breeding (2007) argued that Facebook's success is due to the continuous improvements in its development and the introduction of new features. Farkas (2007) described Facebook's use as more visible, easily accessible to users, free, and time-saving. In Malaysia, there were 10,075,420 Facebook users in January 2011, representing 38.51% of the total population (Socialbakers.com, 2011). According to the official portal of the Ministry of Communications (2025), a report dated September 22, 2024, stated that Malaysians are the most active social media users, with an increase of 2 million or 7% in usage over the year from 2020. This rise was attributed to the

COVID-19 pandemic, which forced people to stay home during the Movement Control Order (MCO).

The integration of social media in Malaysian academic libraries has revolutionized how they connect with students, faculty, and researchers, effectively meeting various needs through improved communication, resource sharing, and community engagement. Platforms such as Facebook, Instagram, and YouTube facilitate instant updates, promote online resources, and provide educational content, aligning with the preferences of a digitally inclined audience. Social media also helps build a sense of belonging by encouraging interaction and recognizing cultural diversity, while supporting research collaborations and enhancing the global visibility of Malaysian academics.

Kamarudin et al. (2020) emphasized that the use of social media by academic libraries to foster a more informed learning community is a promising initiative, yet it warrants critical examination. While social media undoubtedly offers innovative pathways for sharing and seeking information on a global scale, its implementation in library settings raises questions about the depth and quality of engagement it fosters. Social media's role in information science and libraries is significant, but the claim of it being a universally effective communication tool requires scrutiny. In the context of academic libraries, platforms such as Facebook, Twitter, YouTube, Instagram, and blogs are increasingly used to connect with users and promote library resources and services. The Tun Abdul Razak Library (PTAR) at UiTM Sarawak exemplifies this trend by leveraging these platforms to enhance outreach and engagement.

Library	Channels	Year	Department/Unit	Purpose of social media
		5 years above	IT	Calendar of yearly programs/events, information sharing, interaction, promote library events, promote new collection, arrivals, announcement, library notices, Online Video, Quotes of the days, Photo & Video sharing, Online FAQ, reference services, advertisement & job vacancy, polls.
		5 years above	IT	
		5 years Above	Management, Media, Information	
		5 years above	IT, Corporate, Management, Services	
		5 years above	IT	
		Below 5 years	PR, IT	
				

Figure 2.3 Social media used by selective libraries in Malaysia

Source: Shafawi (2020)

According to Shafawi (2020), all libraries utilized various social media platforms to promote their resources, services, outreach programs, and to foster engagement with the community. The author also recovered that to enhance the engagement in online environments, libraries have adopted strategic approaches to align their digital presence with the needs and preferences of their users, ensuring meaningful interactions and effective outreach. Same goes to Zohorian-Fooladi and Abrizah (2020) found that academic libraries in Malaysia use social media not only to provide information for enjoyment, relaxation, and escapism but also to enhance community-building efforts. The research further demonstrates that librarians can effectively utilize social media to foster communities, broaden readership, and promote greater social inclusion. Zainud-din and Abu (2022) explored libraries engaged with users during the COVID-19 pandemic, using both online and offline methods. While the use of physical libraries declined, they remain relevant for educational purposes. Efforts continue to enhance services through online platforms, with the Head Librarian of a Malaysian Public University Academic Library affirming that users still visit the library for its learning environment.

As reported in web International Federation of Library Associations and Institutions (IFLA, 2020) in response to the COVID-19 pandemic, Malaysian libraries, including Perpustakaan Negara Malaysia (PNM), quickly supported the government's

efforts to curb the spread of the virus. PNM closed all its community and village libraries from April 16, 2020, until Phase 5, while continuing to meet the public's information needs through u-Pustaka, a digital portal offering 13.2 million resources. PNM also used Facebook to actively communicate with the public, promoting reading, providing instructions for u-Pustaka, sharing government updates, and offering safety tips. Additionally, in collaboration with the Ministry of Tourism and Culture, PNM organized an essay writing competition inviting the public to share their experiences during the Movement Control Order (MCO).

According to Kemp (2024), Malaysia had 28.68 million social media users in January 2024, representing 83.1% of the country's total population. As of January 2024, Malaysia had 33.59 million internet users (Kemp, 2024). As reported by International Federation of Library Associations and Institutions (IFLA, 2020), during the Malaysian Movement Control Order (MCO), Malaysian academic libraries transitioned services online. Libraries like the University of Malaya, Universiti Teknologi MARA, Universiti Sains Islam Malaysia, Universiti Putra Malaysia, and Universiti Teknologi Malaysia implemented virtual chat platforms such as WhatsApp, Telegram, and mobile apps to assist users. The University of Malaya Library also collaborated with its Faculty of Medicine, University of Malaya (UM) to launch the COVID-19 Evidence Retrieval Service (CERS), providing clinicians with expert-verified information via WhatsApp. Similar virtual reference services were adopted by other libraries to maintain user engagement. The National Library of Malaysia (NLM) actively utilizes Facebook, achieving higher engagement through posts that promote reading, provide instructions for using u-Pustaka, share updates from various government agencies, debunk fake news, offer safety tips to prevent infections, promote library services, and much more.

A study done by Mustapa et al. (2023) found that with utilizing the social media at Dar al-Hikmah Library (DaHLK's), International Islamic University Malaysia (IIUM), Kuantan creates engagement with community and good relationships among librarian and users. It can be look at figure below. In order to evaluate the impact of these strategies, customer satisfaction surveys were conducted by Mustapa et al. (2023). The results indicate an increase in the average satisfaction score for the category "Library websites and social media are informative and interactive," rising from 4.06 in 2020 to 4.26 in 2022. The increase in the average satisfaction rating suggests that the library's strategies for involving staff in social media promotion have contributed to improving the quality of content showcased on its websites and social media platforms.

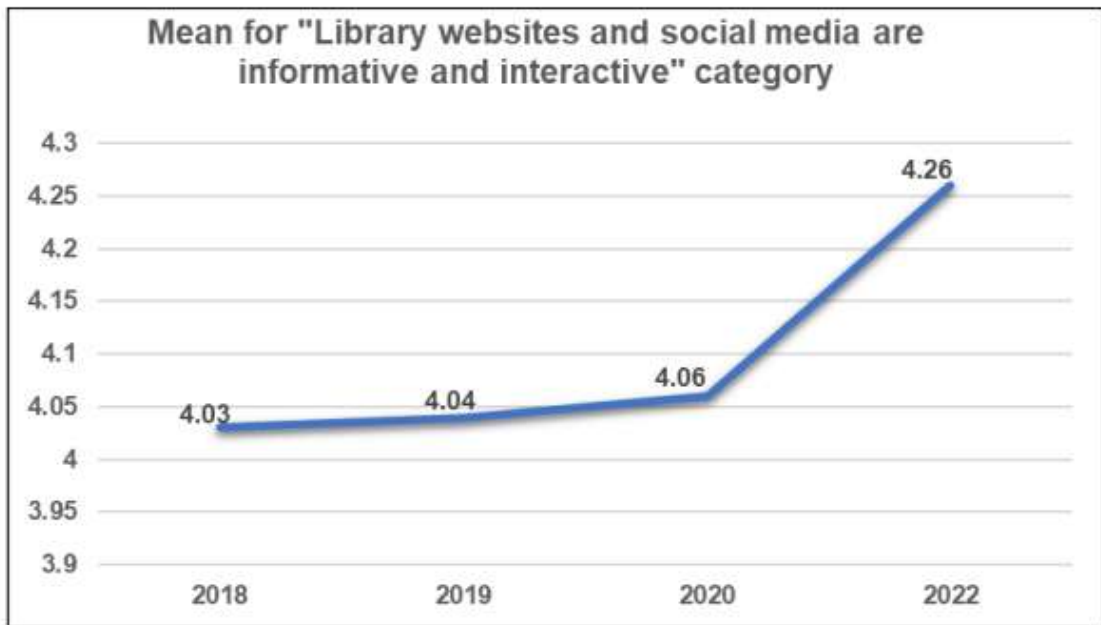


Figure 2.4 DaHLK’s satisfaction rating for the category “Library websites and social media are informative and interactive from 2018 to 2022 (Mustapa et al., 2023)

Badruesham et al. (2024) reported in IFLA websites that the “USM Campus Nature Challenge,” led by the Universiti Sains Malaysia (USM) Library in collaboration with the School of Biological Sciences (SBS) and the Centre for Global Sustainability Studies (CGSS), aimed to raise awareness of ecological issues and biodiversity conservation by documenting campus biodiversity. The project highlighted successful collaboration between the library, researchers, and the campus community, enhancing data collection, community engagement, and librarian insights into research activities. By utilizing iNaturalist to share biodiversity records, the initiative also contributed to broader learning and awareness. Selected flora and fauna from the USM campus were documented on iNaturalist, an online platform that facilitates the sharing of biodiversity information for educational purposes. This effort demonstrated the effectiveness of involving non-researchers in scientific initiatives, and the USM Library remains committed to supporting future citizen science projects.

Although previous studies have shown interest in social media values for organizations, there needs to be more empirical studies on the influence of using social media on librarians' agility and relationship quality (librarian-user). The long-established field of librarianship needs a new sort of librarian who can successfully integrate technology, information, and learning into a contemporary framework (Drake, 1996). The development of internet users is becoming more enhanced. According to the Malaysian Communication and Multimedia Commission (2020), the number of internet

users increased by 1.3% from 87.4% in 2018, and the highest number of places to access the Internet was from home, which consists of 70.5%. At the same time, the top five online activities were text communication (98.1%), social media (93.3%), watching video (87.3%), voice/video communication (81.1%), and getting information (74.3%). The top five social networking applications recorded by the Malaysian Communication and Multimedia Commission (2020) were Facebook (91.7%), YouTube (80.6%), and Instagram (63.1%).

The newest technology, including the Internet of Things, big data, and artificial intelligence, has been urged to benefit civil workers by immediately altering the standards of their work. Tan Sri Mohd Zuki Ali, Malaysia's Chief Secretary, recently stated that using artificial intelligence (AI) has impacted many facets of human existence and can significantly impact public policy and services in numerous ways (The Sun, 2023). Through the Malaysia Digital Economy Corporations (MDEC), the Communications and Digital Ministry is concentrating on luring high-value global and local direct investments in the digital sector, such as artificial intelligence (AI) and big data analytics. Under the 12th Malaysian Plan, the government, via MDEC, has allocated a total of RM238 million for industrial development, such as digital infrastructure, education, and the provision of skills for people to succeed in the digital economy. About RM45 million from allocation is utilized to improve technological skills such as blockchain technology, automation, AI, and others (BERNAMA, 2023). The latest news platforms, YouTube, WhatsApp, Instagram, and Facebook, have been Malaysians' most used social media over recent years, says Fahmi Fadzil (The Star, 2023). Norhayati (2020) shared in her report titled "Media sosial saluran jayakan gerak kerja Kuala Lumpur World Book Capital (KLWBC) 2020" that the National Library of Malaysia has used social media platforms during the KLWBF2020 festival. The festival impacts the Malaysian community, especially regarding the reading promotion program. Social media sites are essential for educating librarians on the most recent advancements in various information science and librarianship fields.

According to research, a single librarian can save time equal to three, four, or even five end users while simultaneously conducting searches more successfully and efficiently. Regarding carrying out information-searching duties, librarians are three to five times more effective and efficient than end users (Griffiths, 1995). To become specialists in information access, librarians must change their emphasis from being information providers. They must be experts in information and communication

technology (ICT) and fluent in a foreign language in order to make this move (Hayani et al., 2021). Mandal and Dasgupta (2019) mentioned that contemporary librarianship is a notably intricate profession that demands scholarly and technical expertise.

From Sabat (2021) perspective, Instagram, Twitter, and TikTok have special characteristics which are;

- a. Instagram presents an additional means to connect with your patrons, emphasizing the importance of visuals. You can share graphics or images you've captured, making it an excellent platform to engage a diverse group of staff members
- b. Twitter boasts a vibrant book community, popular among authors and active librarian circles. Leveraging tweets to showcase your library's programs and services is effective, especially when using relevant hashtags, including popular ones. Twitter's feature allowing links aids in facilitating easy access to your library's offerings for your followers
- c. For younger demographics, TikTok is an excellent option. While it might be less familiar to some, it offers an enjoyable approach to engage an audience that sometimes receives less attention in library social media efforts. Explore hashtags like #librarytiktok and #booktok for inspiration, and remember, you can utilize hashtags in your video captions to enhance discoverability in searches.

Lotts (2020) highlights the evolving role of librarians in the 21st century, necessitating a shift towards diverse responsibilities and creative user engagement due to budget constraints and changing technological landscapes, which aligns with Englin (2022) observation that public libraries in Sweden are actively using social media platforms to market their services and events, with some librarians finding increased creativity and engagement opportunities during disruptions like the COVID-19 pandemic.

According to Siti Ezaleila and Azizah (2010), social media is widely used by academics, politicians, businesses, and students because it allows communication without boundaries and the sharing of information worldwide. These users utilize social media for different purposes, including business, education, politics, personal communication, and advertising. The rise of social media, smartphones, and mobile Internet has increased social media's impact. Social media connects people in new ways and is now a key communication method. Users use it to get information quickly, while

businesses use it for unique marketing. This has expanded opportunities for people to get and use information. The emergence of social media, driven by factors like the popularity of smartphones and mobile Internet, has led to larger ripple effects, creating new communication networks for users and unique marketing strategies for businesses, thus increasing access to information (Kwahk & Park, 2018).

In recent times, diverse sectors spanning tourism, agriculture, education, and beyond have harnessed social media as a pivotal marketing instrument. Social media platforms, by design, offer an array of advantages, notably in terms of time efficiency, accessibility, and their dynamic nature, constantly refreshed and updated (Peters et al., 2013). Within the realm of higher education, and more specifically within university settings, social media stands as a paramount tool for the dissemination of information among the campus community, encompassing students, faculty, and administrative staff. Malaysia, in particular, boasts a considerable higher education landscape, comprising 20 public universities, 36 polytechnics, 105 community colleges, and 417 private higher education institutions, as reported by the Ministry of Higher Education in 2022. In this extensive academic milieu, each university boasts a well-appointed library replete with a substantial collection of books. In the context of research-oriented university libraries, the overarching goal is invariably the satisfaction of their clientele, underscoring the critical need for agile and dedicated librarians.

Libraries, fundamentally commercial enterprises, rely extensively on their clientele, with customers of all age groups, both within and beyond the library's physical premises, remaining their central focus. Academic libraries primarily cater to undergraduate and graduate students, along with faculty members, constituting the bulk of their patrons. The administrative team and external users also form additional segments of library clients, encompassing members of the university community and individuals from other educational institutions. Recognizing that customers are the lifeblood of any organization, this study seeks to assess how social media can enhance librarians' adaptability and, in turn, improve the quality of the librarian-user relationship.

### **2.3 Librarians' Agility**

The rapid exchange of information via social media fosters a positive relationship between the sender and receiver. Libraries, for instance, offer various

services to their patrons. Many libraries worldwide leverage social media to benefit their users. During the COVID-19 pandemic, librarians used social media to share information, raise awareness, educate users, and more. According to Harrison et al. (2017) and Choi and Joo (2018), Facebook was the most popular social media platform used by academic and public libraries, followed by Twitter. In Greece, public libraries responded to closures during the COVID-19 curfew by offering innovative services. The Veria Central Public Library introduced a free "Book Delivery" service in partnership with a private courier company. Meanwhile, the Municipal Library of Chania implemented online storytelling and distance learning programs (Veria Central Public Library, 2020). These initiatives demonstrate that library services and activities aim to benefit their users. Cheng et al. (2020) noted that social media has facilitated interactions and discussions between libraries and users about library policies and services.

Social media allows library information to be shared in multiple ways (library to user, user to library, and user to user). However, current social media practices face challenges with online participation and content contribution. Both consumers and producers generate online content, enhancing user engagement and feedback mechanisms in the development and maintenance of library services. The interaction, learning, and information exchange among people will inevitably affect the library, its services, and its staff. Singh (2020) pointed out that librarians can act as advocates on social media, identifying community needs and providing relevant information and links to necessary websites.

Palmatier et al. (2006) describe relationship quality as a composite or multidimensional construct that encompasses the strength and various aspects of a connection. Librarians strive to maintain strong relationships with patrons, as these relationships can provide long-term benefits for customers (Roy and Eshghi, 2013). Sundar and SrinivasaRagavan (2015) highlight that one advantage of using social media in a library is the closer relationship it fosters between librarians and users. However, Jones and Harvey (2019) found that students raised several issues, including a lack of trust in the staff's skills and capabilities.

Trust in social media equates to credibility and reliability, which involves sharing accurate and timely information, regularly engaging with followers, and being active in similar communities to enhance outreach and reputation (Bryson, 2017). Trust refers to confidence in the reliability and integrity of an exchange partner (Morgan and

Hunt, 1994). Various definitions of trust in the literature emphasize elements such as reliability, trustworthiness, and sincerity as essential components (Morgan and Hunt, 1994; Garbarino and Johnson, 1999). Trust is considered vital for long-term business relationships because it signifies a belief that the other party will keep their promises. People maintain long-term relationships because trust reduces insecurity and the risk of opportunistic behavior (Chenet et al., 2010). A study by Ayubi and Treku (2020) found that user trust is closely linked to an organization's social media integrity. If an organization spreads misinformation via social media, it will harm user trust, necessitating an apology for the misinformation. In a library context, it is crucial to evaluate information carefully to prevent the spread of fake news and misinformation. The potential of social media helps to promote the library brand, thereby enhancing library services and increasing user trust (Davydova et al., 2019).

Commitment is defined as a continuous desire to maintain a special relationship (Palmatier et al., 2006). Garbarino and Johnson (1999) explain that commitment is characterized by a sense of belonging, pride, loyalty, and the length of the relationship. Chenet et al. (2010) describe commitment as a long-term orientation towards a business relationship, built on emotional bonds and the belief that staying in the relationship will yield unique benefits. When a client is committed, they feel close to the business partner, enhancing loyalty. Bahader (2022) introduced a conceptual framework in the article "Barriers to Customer Relationship Management Practices: A Survey of University Libraries in Pakistan," identifying leadership commitment as an independent variable and Customer Relationship Management (CRM) practices as the dependent variable. According to Marina (2017), social media can create a positive environment between librarians and users, directly fostering commitment between them.

Satisfaction refers to consumers' overall contentment with the relationship (Palmatier et al., 2006). Verma et al. (2016) highlight that satisfaction is the most critical factor driving online customer loyalty. It is widely believed that a company must satisfy its customers to achieve success and profitability, underscoring the importance of customer satisfaction (Clemes et al., 2008). User satisfaction is a way to gauge the effectiveness of library services and is described as a personal, emotional reaction to a library service or product (Cullen, 2001). Strategic use of Customer Relationship Management (CRM) significantly influences customer satisfaction (Emaluta, 2019). Customers continue to use products or services when their expectations are met

(Tjiptono, 2011). The creation of engaging content on social media by libraries can enhance the long-term relationship between librarians and users.

### **2.3.1 Definition of Agility in Librarianship**

The concept of agility in the workplace became in the software industry in 1990s and quickly spread to technology, manufacturing and services industries. Library science Professor Michelynn McKnight focused on the concept of agility to our profession in 2010 with the publication of her book *The Agile Librarian* (McLaughlin, 2018). In reality, librarians have always been agile and the forefront of rapidly responding to changes in knowledge management. Recent authors may not use the term 'agile,' but their works expound on key agile characteristics: teamwork, frequent feedback, trial and error, and trial some more.

The scholars Muhamad Khairul Nizam et al. (2022) noted that the libraries are evolving to be more user-centered and agile in response to the complex information environment, leveraging technologies like Big Data to enhance services and demonstrate value, though empirical research is needed to validate these conceptual models. Agile library is a user-centred library that permits flexibility, to take risks, and to make responsive changes that address its users' needs (Muhamad Khairul Nizam et al., 2022). In agile environments, good decisions rely on quality information and tools. Libraries play a key role by providing access to critical information and analytical tools, sparking innovation and improving productivity. Technology is crucial for enabling agility in libraries, leveraging IT systems and other technologies to enhance responsiveness (Bhatt et al., 2010). Lee and Lee (2012), noted that the agility in digital libraries can significantly influence their effectiveness and relevance. It allows libraries to quickly adapt to changing user needs and technological advancements, ensuring that the services and resources they offer remain up-to-date and valuable. By being agile, digital libraries can enhance user satisfaction, improve service quality, and better support research and education activities in higher education institutions.

Agility in Sandhu (2018) perspective, librarians can quickly adapt to changes in information needs and technological advancements, ensuring they remain relevant and valuable in fast fast-evolving educational environment. The digital tools enable libraries to offer advanced services such as virtual reference, online research consultations, and digital literacy programs, increasing their reach and activities. Good problem-solving

and good project management are important elements as to be agile in digital development (Williams, 2013). Social media platforms such as TikTok as mentioned by Husain and Abdullah Sani (2022) are gaining eager among academic librarians today. TikTok will act as a communication online and support the community in providing factual information. During COVID-19, social media such as TikTok was used dramatically to create awareness. Academic librarians have played their roles effectively during COVID-19 and the endemic. The social media capability in academic libraries has influenced the librarians' agility.

### **2.3.2 Factor's Influencing Librarians' Agility**

Knight (2017) stated that the impact of internet revolution has changed the library environment. Academic libraries as noted by Seal (2015) recognized the need to evolve into social and communal learning spaces to meet the needs of millennials, who have grown up with digital technology. While Abram and Cromity (2013) opined that once librarian understand that library technology has changed from just storing and finding information to focusing on social interaction and sharing, they realize they must keep up with this new trend. Koloniari et al. (2018) asserted that the academic libraries must aware with the technological advances and innovations in order to create information products and services that are in line with those technological advances. Jantz (2017) found that there is a new wave of innovation seems to requires adopting radical new management methods because traditional bureaucratic approaches tend to maintain the current state of affairs rather than encourage change and innovation.

In agile organization as mentioned by McGrath (2013) it's not only focusing on strategies but focusing on developing the technology itself in continually building new advantages. Libraries must stay at the forefront of new developments in both physical and virtual environments (Brundy, 2015). Leadership skills are also important to be someone who is innovative and able to manage as well as deal with difficult situations that arise (Hughes et al., 2012). The changing environment compels libraries to reevaluate their role, services, and leadership strategies. Librarians must be agile as mentioned by Seal (2015) that due to several factors influencing the concept of the information commons: the expansion of the World Wide Web, advancements in computer technology, the rise of social media, and evolving teaching methods. These elements necessitate that the information commons continually develop, merging

library services, technology, and teaching to enhance research, create knowledge, and support learning. Agility must come with leadership and knowledge management. Rahoo et al. (2021) noted that effective knowledge management requires knowledgeable and effective leadership within an organization. Library leaders are focusing on significant technological trends, as described by Schwab (2017), and understand that to successfully advance the goals of our institutions, academic colleagues, and communities, it is crucial to accelerate the library's digital strategies. Shamsiah (2021), noted that during COVID-19, which hit Malaysia on 2020, the University of Malaya Library has changed 360 degrees, where all staff need to work hybrid environment and the digital and online platform are used so that services and facilities can be delivered efficiently. Learning agility has been found by Shamsiah (2021) where librarians at University of Malaya Library learn quickly during Covid-19 and all decisions are made agilely because of the pandemic.

### **2.3.3 Benefits of The Agile Librarianship**

Agile, as defined by Agile Alliance (2023), is the capacity to both create and react to change. It is a method for managing uncertain and turbulent environments to achieve success. The term "agile" signifies the ability to adapt and respond to change, which is crucial for survival. It involves individuals being able to assess and comprehend their current environment, recognize uncertainties, and develop adaptive strategies for the future. In order to be agile, Allan (2019) asserted that agile method is a popular project management framework that helps organization develop innovative services. Using Agile methods assists librarians and their teams in developing innovative products that are completed on schedule and within budget. Obuezie and Alex-Nmecha (2023) stated that libraries often need to develop services and products that are research-intensive and distinct from others, requiring time, user input, iteration, and close collaboration among team members. Agile offers the necessary tools and techniques for this process. This method can assist staff in developing confidence in their capacity to collaborate effectively with colleagues, engaging in meaningful and valuable work. It promotes teamwork and team building, creating leadership opportunities and improving morale among staff (Stoddard et al., 2019).

Other benefits of librarians' agility are closed relationship with faculty members such as academicians. As highlighted by McBurney et al. (2020), librarians as liaison

officer, data analyst, research assistant, and project manager enhanced their agility as well as their relationship. As liaison officer at faculty, the academicians thought they well guided and continuous meeting must be made in order to create more opportunities. According to Adetayo et al. (2021), the librarians should leverage and utilize all forms of technology through innovation and product differentiation. Libraries must show their superiority over other channels by effectively influencing the use and handling of information and communication technology products and services.

Wakeling et al. (2022) mentioned in their article that the COVID-19 pandemic has profoundly affected public libraries globally. They found that in Australia, nearly all public libraries faced temporary closures, necessitating adjustments in their services and delivery models. Managers highlighted the agility of public libraries in their responses. This agility was evident in the adaptability and flexibility of staff, the swift development and delivery of new services and programs, and the willingness to embrace new technology and platforms. Despite challenging organizational contexts, public libraries demonstrated their responsiveness and ability to innovate and meet community needs effectively.

According to Raju et al. (2018), the librarians need to become highly skilled experts to fulfil new roles and responsibilities in the evolving partnership between libraries and researchers. Currently, the librarians responsible as data science for the faculty community. Based on Luce (2008), the collaboration, partnerships, and established best practices are essential for researchers to effectively utilize diverse data sources. Various organizations, such as research centers, libraries, supercomputing centers, archives, and Internet companies, possess expertise in different aspects of data-driven scholarship. Sparks (2019) shared her experience in how Macquarie University Library at Australia shaped an agile library community. She named the EPIC approach which consists of agile, flexible, future-focused to empower staff and work with university partners. This innovative strategy positions the library at the core of the university's key activities. Following those three concepts emerged which is open, connect and communicate. "Open" signifies the library's dedication to core values, collaborative scholarly advancements, and future-focused knowledge preservation. While "connect" empowers library staff, students, and academics by linking people to each other and to knowledge, fostering understanding, trust, and relationship-building within and beyond the library. Lastly, the "communicate" stream seeks to enhance understanding of library users' needs, while improving decision-making speed and

information flow within the library. EPIC achievements occur when talented library staff are brave enough to take risks, embrace curiosity and creativity, and adapt their core values to evolving circumstances. Following that the library community and the stakeholders can create good relationships.

Of course, as librarian, he/she responsible for assists their users and help their users in getting the information. Diamond (2020) from UCLA library presented that the agile librarian who can collaborate with each other, delegate work among themselves, evaluate assigned projects, set goals so that the good quality of the services will be achieved.

#### **2.3.4 Strategies for Enhancing Librarians' Agility**

In recent years, as noted by Akwang (2021) where academic libraries have experienced significant changes due to rapid advancements in Information and Communication Technologies (ICTs). These changes have greatly impacted how information is gathered, stored, retrieved, disseminated, and delivered. This trend presents new challenges and opportunities, requiring continuous repositioning of library services. Academic libraries have transitioned from mere storehouses to centres for learning, education, research, and hubs of digital information. Various new technologies are available to libraries, including big data, quick response codes, augmented reality, blockchain technology, artificial intelligence, cloud computing, and different iterations of web technologies (Web 1.0, Web 2.0, and Web 3.0), among others. Saleh (2019) defined strategy as a plan of action designed to achieve a long-term or overall aim, while activity has to do with actions intended to achieve desired outcome. At the Nigerian Library Association (NLA) more activities and services that promote significant development, such as conferences, seminars, and workshops, to meet the interests of its members.

Kline (2021) listed some of the strategies for enhancing librarians' agility:

- a) To succeed, librarians must stay updated on information technologies to help integrate them into academia and create innovative programs that demonstrate their value and support student success.
- b) Successful librarians often have conversations with students, faculty, deans, and other administrators to understand their difficulties and determine how the library can support them

- c) Effective communication includes both listening to stakeholders and ensuring they are informed about the library's various programs and services. Librarians who can promote their library's programs and show the positive impact on student outcomes will be more likely to succeed in the future
- d) To be successful, librarians need to be strategic in their decisions, optimizing limited space and funding to maximize their impact on student success. Utilizing data analytics can assist librarians in making informed and strategic decisions when evaluating purchases or assessing the impact of programs and services. This enables them to more effectively meet the needs of stakeholders.

With the development of Artificial Intelligence (AI) technology, it enables librarians to be more agile in doing daily tasks. This is proven by International Federation Library Associations (IFLA) and Institutions in documenting the library's preparation on using AI. According to Cordell (2020), one powerful applications of AI for libraries are 'descriptive AI', which can be employed to convert various types of content (such as photos, videos, audio, and manuscripts) into machine-readable data. Techniques like computer vision and speech-to-text can be used to achieve this, enabling large-scale description for information retrieval. In educational libraries, AI can also be applied in creating adaptive learning materials or chatbots to enhance the student experience, which are also considered relevant (Jisc, 2023).

Cox (2010) identified that by focusing on clear communication, forming partnerships, leading services, optimizing performance, embracing innovation, and developing flexible skills, librarians can adapt more effectively to challenges such as resourcing and technological changes, thereby demonstrating their relevance and resilience during a recession. While Etter (2012) shared the conference on Special Libraries Association (SLA) at Atlanta, attendees benefited and gave added value to be agile in librarianship. The participants at the conference shared their leadership experience and exchanged ideas in enhancing their skills among them. This conference helps them in strategize their librarianship. Beard and Dale (2008) summarized in their article that agile libraries are influenced by users need as well as technological trends. Davis et al. (2018) stated that the chapter explains the insufficient ability of professional librarians to utilize their skills, knowledge, and professional principles in addressing

one of today's significant issues the decreasing opportunities in the United States and suggests measures to help achieve this aim.

## **2.4 Relationship Quality in Librarian-User Interaction**

Mills and Lodge (2006) discussed librarian and user interactions in creating the relationship quality. They shared that to better connect with their user populations; information professionals should utilize emotional intelligence and value personal interactions to gain insights into how users perceive the library's role. They need to recognize that the library provides more than just access to resources and that users may have different views on tools like catalogues and databases. Understanding that users' perceptions are influenced by their experiences and needs, extending the library's reach into communities, and adopting marketing strategies from commercial retailers to attract and retain users are also crucial.

Before the web, librarians primarily used print resources and communicated in person, by phone, or mail (Burns & Bosaller, 2012). Today's reference environment is dominated by digital tools like search engines, social media, and online resources, alongside traditional print sources (Wu, 2005). According to Melchionda, 2007, librarians now need proficiency in various technologies to effectively communicate and showcase their libraries' capabilities. Burns and Bosaller (2012) done the research on communication overload among reference librarians and the study shows that librarians need time away from digital distractions to sustain their job satisfaction.

According to Husain et al. (2023), the advent of artificial intelligence (AI) enhances librarians' adaptability and readiness for future challenges. Social media's ability to foster relationships connects people worldwide, and librarians effectively use these platforms to share knowledge with their users. Effective two-way communication between the provider and the receiver is essential to build trust, commitment, and satisfaction especially when dealing with social media.

While Mustofa et al. (2023) expressed that an effective interpersonal communication can boosts user satisfaction. The other evidence found about library-user interactions was Ansari and Tripathi (2017) which discussed the advantages of WhatsApp for libraries, such as facilitating collaborations and enhancing communication between library staff and patrons. Ansari and Tripathi (2017) found that WhatsApp increases engagement and interactions among library staff and users, serving

as an effective feedback tool for library services and resources. This also supported by Moses and Ekeng (2023) where the analysis revealed the significant relationship between librarians' use of Facebook, WhatsApp, and Flickr, and their interaction with users in promoting library services at the University of Calabar Library. Tajedini et al. (2020) stated that adhering to moral and humane principles boosts user loyalty and attracts new users to public libraries. Key factors include managing physical spaces, information resources, human resources, and IT. Important considerations are service quality, interior design, diverse and updated resources, new communication technologies, and social networks. Building user loyalty ensures frequent use and highlights the positive impact of public libraries.

Study found by Haruna et al. (2017) that there is a direct positive relation between service quality and user loyalty, also service quality influenced loyalty indirectly through users' satisfaction. According to Nwachokor and Okeke (2020), today librarianship focuses on user satisfaction, but the rise of virtual universities and libraries has raised concerns about the future role of academic libraries. Despite embracing technology, academic libraries struggle to attract users, who prefer alternative, unrestricted information sources like Google and Bing. Many users visit libraries for study spaces or internet access but ignore other library services, leading to a decline in the libraries' relevance in information provision.

As stated by Sharma et al. (2014), the embedded librarian should utilize ICT to engage with faculty programs and inform them about the benefits of embedded librarianship. Embedded librarianship is highly beneficial for users, particularly in the current environment where students begin their research online. Students often can't access all library resources remotely, and both faculty and students need timely and appropriately formatted information. Embedded librarians help by providing access to peer-reviewed information and library databases, enhancing knowledge. This approach promises new opportunities for librarians to integrate into the professional and academic lives of users.

Anser et al. (2023) found in their study that e-service quality positively influences e-trust within the digital economy. Furthermore, e-trust is a predictor of e-loyalty. The findings also reveal that e-trust mediates the relationship between e-service quality and e-loyalty, highlighting its pivotal role in connecting these two factors. Digital library was developed because of the digital economy. Kang et al. (2016) defined the digital library as databases that have been digitized, containing collections and

repositories of digital objects such as e-books, articles, images, audio, videos, and other digital documents. These various digital media formats and contents are stored and accessed remotely via the Internet and web platforms.

#### **2.4.1 Definition of Relationship Quality**

Reynolds et al. (2014), defines the relationship quality as good relationships, how well partners get on, and how happy there are in their relationship. Good quality relationships are associated with positive outcomes for individuals, children and families. While Farooqi (2014) defines the relationship quality as the positive or negative feelings about a relationship. Based on Reis et al. (2004) the relationship quality hinges on the belief that one's partner is responsive, meaning they understand, value, and support key aspects of oneself, which in turn makes individuals feel closer, more satisfied, and more committed to the relationship. Tomaszuk (2022) elaborated that the relationship quality has been defined as a superior concept consisting of a series of correlates.

Hendry (2024) stated that there are five elements of a quality relationship which are trust, forgiveness, integrity, hope, and compassion; are crucial individually and collectively, all based on giving. Trust involves vulnerability and faith, forgiveness re-establishes trust, integrity means moral behaviour and honesty, hope promotes mutual purpose and care, and compassion entails understanding and responding to others' emotions. Giving underpins and adds meaning to each element, ensuring the relationship functions authentically.

Jackson (2024) shared that the quality relationships transcend all barriers and are based on seven principles: acceptance, respect, understanding, transparency, non-judgment, empowerment, and trust. Acceptance means valuing people for who they are. Respect involves treating everyone with dignity and avoiding manipulation. Understanding is appreciating differences. Transparency is about being open and honest. Non-judgment involves accepting uniqueness without labelling right or wrong. Empowerment means supporting others' individuality and self-belief. Trust is founded on honesty and creating an environment for open discussion and confidentiality. Together, these principles enhance relationship quality and reduce barriers.

Based on [healthdirect.gov.au](https://healthdirect.gov.au) (2024) healthy relationships provide significant benefits to one's overall well-being. Supportive and loving interactions are more likely

to foster feelings of happiness and satisfaction. A positive relationship with your partner and family members can greatly enhance your quality of life, promote well-being, and contribute to a positive self-concept for all involved. Kempeners (n.d.) noted that in today's business world, strong customer relationships give suppliers a competitive edge. Relationship quality, influenced by commitment, trust, and satisfaction, is key for future interactions. Both psychological and tangible factors impact this quality, categorized into relational, personal, organizational, and environmental elements. A tool is suggested to classify customers and enhance relationship quality for each type. For instance, services can result in customer satisfaction and commitment, thereby affecting relationship quality. All contributing factors can be categorized into four groups, listed in decreasing order of importance: relational, personal, organizational, and environmental.

#### **2.4.2 Importance of Relationship Quality in Libraries**

Fatimah Az Zahra and Roziya (2022) discussed the implementation of both online and offline methods by Malaysian libraries during the COVID-19 pandemic. They found that the librarians have expanded their roles as online providers to foster strong relationships with their users. Additionally, library staff are encouraged to enhance their technical skills to increase the effectiveness of resource planning, reduce costs, improve customer service, and save time.

Kuchi (2022) stressed that the liaison librarians can sustain and improve relationship with users. Understanding clients through a personal approach offers deeper insights than surveys, interviews, or focus groups. Liaisons should go beyond addressing specific needs to understand user expectations and suggest service improvements. Increased personal interaction and active engagement enhance client satisfaction and add value to library services. Bales (2015) noted that the liaison librarian is the closed person with their users for example they get network with academicians in publication, courses, departmental projects, events, programs, and interest of the faculty and student. According to Gersick et al. (1998), the liaisons are crucial in providing valuable insights into the resource's libraries should offer and in shaping their services efficiently, while establishing and nurturing personalized relationships with clients is essential for sustaining and enhancing these connections. While Moran (2021) give opinion that the public librarians enhance and enrich lives by

using their skills and knowledge to help individuals find information, and their effectiveness improves with increased community engagement. Public librarians utilize their expertise to assist individuals in finding information that enhances and enriches their lives.

Kaur and Gaur (2017) shared in their article that due to the rapid pace of technological advancement, library professionals must continually update and enhance their knowledge to manage innovative technologies and the extensive array of digital resources. This commitment ensures they can offer the highest quality services, thereby fostering a strong and positive relationship with their users. Interpersonal skill should have among librarians to fostering positive relationship with users.

Bigdeli and Ngah (2013) mentioned phenomenon, it's crucial for public libraries to create a welcoming environment that promotes user participation and involvement. Adopting a social interaction approach not only helps in developing successful public spaces but also strengthens the relationship quality between librarians and users. While according to Salih and Ismail (2017), social interaction involves dynamic relationships where individuals exchange meaning, interpret, and respond to each other. For librarians, fostering such interactions with users can enhance the quality of their relationships. Moreover, individuals with active social lives, including those engaging with librarians, often experience a better quality of life.

Trivedi and Bhatt (2019) noted that it is commonly understood that the main aim of any business or service provider is to ensure customer or end-user satisfaction by offering superior products or enhanced services. Achieving customer satisfaction, which involves meeting user expectations after utilizing library services, is the primary goal for library authorities, as it directly enhances the library's value and overall image, necessitating academic libraries to deliver quality services and strive for maximum customer satisfaction. Research by Wang and Shieh (2006) indicates a positive relationship between the quality of library services and customer satisfaction.

In 1999, the scholars name Haynes identified common faculty perceptions that impact the relationship quality between librarians and users. Faculty often see librarians as subordinates rather than equals, believe their role in student education is minimal, and view them as lacking sufficient teaching and research experience, which can undermine the relationship. Additionally, faculty perceive librarians' educational credentials as substandard. To improve the relationship quality, Haynes suggests librarians should focus on teaching electronic resources, as this could enhance their

perceived value and expertise in areas where faculty feel less confident. In 2008, Elizabeth Joy Birmingham and her team emphasized the necessity for enhanced collaboration between writing instructors and librarians to incorporate the teaching of information literacy skills. Currently Ducas et al. (2020) found that librarians are adapting by working with faculty in research, teaching, and scholarship to improve the user experience. Traditional tasks like reference work and collection management are becoming less important. Instead, librarians are focusing more on research support, data management, bibliometrics, digital projects, scholarly communication, and enhancing user experience.

Julien and Genuis (2011) found that the Canadian survey of librarians shows that most respondents view teaching as a key part of their professional identity and suggests that librarians need more formal education to build confidence in their teaching abilities. While Ducas et al. (2020) found that the services and functions librarians provide in each of the five areas of investigation, survey participants were asked about their confidence in performing their duties in these areas. Most librarians reported feeling either confident or very confident in their abilities. Jange (2021) suggested that to improve the relationship quality between librarians and users, the library should focus on making the library an engaging and dynamic space on campus. By transforming the library into a "Happening Place," it can become more than just a place to access information, but also a community hub that fosters interaction and collaboration. This transformation can include offering cutting-edge ICT facilities for accessing e-information, which can enhance the user experience and demonstrate the library's commitment to providing valuable services.

### **2.4.3 Factors Affecting Relationship Quality**

Penzhorn & Pienaar (2009) suggest that the way people communicate, acquire, and share knowledge will significantly affect academic libraries. Hence, inadequate communication and knowledge sharing among library staff can result in subpar service for users. To enhance service delivery, library staff need to equip themselves to address these diverse needs. However, Liu et al. (2010) examined how task characteristics influence knowledge sharing within libraries. Their study aimed to combine a strategy survey with affective outcomes theory to determine the connection between physical task characteristics and the importance of knowledge sharing in library settings. The

research indicated that the key to enhancing library quality is fostering a desire among individuals to share their knowledge and fostering a sense of belonging to a group.

Maponya (2005) asserts that the primary goal of academic libraries is to offer resources and information services that assist the university community. Supporting this view, Stoffle and Cuillier (2010) as well as HermanMiller (2010) suggest that academic libraries need to collaborate with faculty across all levels to provide educational support services catering to diverse skill levels. Miller adds that academic libraries should transition their mission from merely facilitating students' consumption of information to supporting them as creators of information.

Trust plays a crucial role in shaping friendships and relationships in a professional setting (Ahmed et al., 2022). Dirks and Ferrin (2001) suggest that building partnerships with individuals enhances their ability to exchange information within an organization. Therefore, fostering trust through partnerships is crucial for effective information exchange in academic libraries. Cabrera and Cabrera (2002) and Nooshinfard and Nemati-Anaraki (2014) also highlighted that various factors, including personal characteristics, trust, intentions, attitudes, communication skills, teamwork, organizational culture, motivation, rewards, and knowledge distribution, can influence knowledge sharing among librarians or staff in other organizations.

Academic libraries enhance university operations by developing the information literacy skills of faculty and students and fulfilling their information requirements. Kim et al. (2022) noted that the success of library operations in South Korea relies heavily on the leadership skills of librarians. Collaboration with administration and faculty members enhances librarians' motivation. Support and motivation from all university communities can significantly improve librarians' performance for their patrons.

Wojciechowski (2020) noted that the social capital can also be explored through the relationships that form when visitors come to the library. These relationships can be between users and librarians or among users themselves. The social capital of library staff can be seen as contributing to social and organizational advancement. Capable and supportive library personnel can help foster the development of social capital within library user communities. Willingness to help is one of the indicators of social capital. Trust is a key aspect of social capital. Measures related to generalized trust, such as those used by Morris Rosenberg in the 1960s, have been questioned due to their reliance on respondents' belief in the trustworthiness and honesty of others rather than on their actual behaviour. However, these trust indicators are still utilized in major global

surveys, including the European Social Survey and the World Values Survey. The library is expected to take an active role beyond merely following orders and completing delegated tasks. This active involvement fosters innovation and dialogue, creating opportunities to enhance social capital resources. Librarians, as professionals who actively support library user communities, should demonstrate a high level of social engagement and be trustworthy to their users.

#### **2.4.4 Measurement of Relationship Quality**

Robinson (2021) noted that when talk about measuring relationships, it's essentially looking at three main aspects:

- 1) Relationships themselves: This involves assessing the quality and strength of individual relationships or networks of relationships. By doing this, we can identify areas where relationships are strong, weak, or even missing. This information is valuable as it helps us understand where we need to focus on nurturing existing relationships and where we might need to build new ones or strengthen weak connections.
- 2) The added value of relationships: Here, we're interested in measuring the outcomes or benefits that result from good relationships or relationship-centered ways of working. For example, strong relationships might lead to better health outcomes, greater happiness, higher academic performance, or more effective teamwork. By quantifying these outcomes, we can demonstrate the tangible benefits that good relationships bring, which can be useful in convincing skeptics of the value of investing in relationship-building efforts.
- 3) Relational practice: This aspect involves looking internally at our own methods, culture, values, and approaches to see how they contribute to the quality of relationships. By assessing our relational practices, we can identify areas where improvements can be made to better support the development of strong and meaningful relationships. This self-reflection and improvement process can lead to more effective strategies for building and maintaining relationships in various contexts, such as in the workplace, schools, or communities

Noh (2020) explored how user satisfaction with library services relates to quality of life. Surveys were given to public library users, and the results showed that satisfaction with library staff positively impacts living satisfaction, self-efficacy, and emotional stability. Overall satisfaction with the library also positively influences living satisfaction and positive thinking. Investing in libraries improves overall life satisfaction, future outlook, confidence, and a sense of freedom.

According to Wise (2023), there are seven ways to measure relationship quality:

1. **Communication assessment:** If you seek positive attributes in a relationship, assess how well you and your partner communicate. Pay attention to elements like active listening, clear expression, openness, and the capacity to share emotions and needs without judgment.
2. **Emotional connection:** Evaluate the level of emotional intimacy and connection in your relationship. Studies indicate that a strong emotional bond can enhance the closeness between partners. Consider the degree of empathy, understanding, and support you and your partner share.
3. **Trust and reliability:** Measure the trust and reliability in your relationship. Trust in high-quality relationships is founded on honesty, consistency, and dependability. Determine if you and your partner feel secure and confident in each other's actions and words.
4. **Compatibility check:** Assess the compatibility between you and your partner regarding values, goals, interests, and lifestyle. Consider how well your lives align and whether you can see a future together. If you're unsure about what determines compatibility, you can refer to expert studies.
5. **Conflict resolution evaluation:** Consider how conflicts are resolved in your relationship, as it impacts your overall satisfaction. Healthy conflict resolution includes respectful communication, compromise, and seeking mutually beneficial solutions. Determine if conflicts are handled constructively or if they escalate into recurring negative patterns.
6. **Intimacy assessment:** To genuinely evaluate the quality of your relationship, consider the level of physical and emotional intimacy you share with your partner. Experts highlight that intimacy is crucial in determining the health of a relationship. Reflect on the quality of your sexual connection, as well as the emotional closeness and vulnerability you and your partner share.

7. Overall satisfaction and happiness: Evaluate your overall satisfaction and happiness with your partner to determine your relationship's quality. Consider if it brings joy, fulfilment, and growth. An objective assessment can provide valuable insights, but remember that continuous effort and communication are essential to maintaining and enhancing the relationship over time.

## **2.5 Theoretical Framework**

This conceptual framework is meticulously crafted after a comprehensive review and identification of pertinent theories and models. Consequently, the omnipresence of social media has permeated various sectors of organizations, encompassing realms such as business, education, marketing, and beyond. To guide this exploration, the Dynamic Capability Approach, Technology Acceptance Model (TAM), Core Agility Concept, Moderate Mediation Model and Customer Relationship Management have served as theoretical lenses in prior research endeavours, notably in examining the determinants of Social Media Technology (SMT) adoption (Siamagka et al., 2015). This foundation establishes a robust framework for understanding the intricate dynamics involved in the adoption and utilization of social media technologies across diverse organizational sectors.

Within the framework five notable models were incorporated, namely those proposed by Chuang (2020), Davis (1986), Youssef (1992), Edwards and Konold (2020) and Jayachandran et al. (2005). The initial model by Chuang (2020), designated as the conceptual framework, intricately addressed four interconnected social media capabilities: information processing, service innovation, relationship and tools capability. Concurrently, Davis (1986) model, known as the Technology Acceptance Model (TAM), gained widespread recognition among scholars. TAM revolves around the perceived usefulness and ease of use of technology, offering insightful explanations regarding the determinants of computer adoption and general user behaviour. The incorporation of these models contributes to a comprehensive understanding of social media capabilities, encompassing both maturity levels and user-centric perceptions.

The Technology Acceptance Model (TAM) has garnered widespread and enduring utilization across diverse technological landscapes since its inception in 1986. This ubiquity is attributed to the model's inherent simplicity and comprehensibility in elucidating theoretical relationships (Dugar, 2018; King & He, 2006). Notably, TAM

stands out as the preeminent choice among various models and theories associated with technology acceptance due to its unwavering consistency and empirical validity in delineating usage behaviour across diverse contexts (Liu & Yu, 2017). In light of an extensive review of the existing literature, this research endeavours to contribute to the scholarly discourse by proposing a novel conceptual framework. This framework, an extension of the TAM model, seeks to enhance and refine the explanatory power for the hypotheses posited within the scope of this study. By building upon the foundational strengths of TAM, this conceptual framework aspires to provide a more nuanced and robust elucidation of the complex dynamics governing technology acceptance in contemporary research paradigms.

Within this framework, the Technology Acceptance Model (TAM) is intricately interwoven, acknowledging the pivotal roles of librarians and user-perceived usefulness and ease of technology adoption. The incorporation of the TAM model specifically introduces the concept of "Tools capability" as an integral element derived from user perceptions. In light of the evolving landscape of ICT development in library services, many institutions have strategically leveraged social media technology to cater to the diverse needs of their patrons.

Within the framework of agility, Core Agility Concept models were drawn upon, originating from Youssef (1992). This model shifts focus towards elemental skills, encompassing individual resources, micro-agility, and macro-agility. This model, integral to the proposed conceptual framework, elucidates the multifaceted dimensions of agility within an organizational context. The Core Agility Concept model underscores the interactions among management, customers, and suppliers. Within the realm of relationship quality, three seminal models were selected for integration, hailing from Jayachandran et al. (2005). The Customer Relationship Management (CRM) model by Jayachandran et al. (2005) served as a foundational template, with the CRM technology use construct adapted to gauge the utilization of social media technology.

The Moderate Mediation Model from Wei et al. (2020) concentrates on enterprise social media (ESM) platforms, specifically exploring their impact on knowledge sharing and work-related communication among employees. This model delineates that employee agility stems from meta-knowledge, with a moderating effect exerted by digital fluency. Notably, digital fluency is highlighted as fortifying the relationship between ESM usage and employee agility. A perspective highlighted by Cortina et al. (2022) underscores the growing prevalence of models that seamlessly

integrate moderation and mediation. Within this framework, a noteworthy model configuration emerges, wherein one variable triggers the occurrence of another variable, subsequently assuming a moderating role in the relationship between two additional variables. Specifically, this model contemplates scenarios where one or more effects are subject to moderation, and the causal factors influencing the moderator are explicitly defined. This nuanced approach not only enriches our understanding of complex relationships within models but also exemplifies the evolving sophistication in statistical methodologies by accommodating both moderation and mediation in a cohesive framework.

Bennett (2000) highlights the crucial roles of mediators and moderators in influencing the relationship between an independent variable and an outcome variable. Mediators contribute by offering supplementary insights into the mechanisms or reasons underlying a robust association between two variables. In contrast, moderators shed light on the specific conditions that result in a weaker or unclear correlation between two variables that were anticipated to have a strong relationship. Despite their pivotal roles, mediators and moderators are frequently underappreciated in research designs, and there is a propensity for the terms to be misapplied or overlooked. Clarifying and appropriately incorporating these elements in research methodologies is essential for a more comprehensive and accurate understanding of the complex interplay among variables.

### **2.5.1 Social Media Capability Framework**

The earlier section underscored the imperative to investigate the precursors of social media capability within academic libraries, elucidating their impact on both librarians' agility and the quality of relationships between librarians and users. It posits that library policy operates as a moderator in influencing librarians' agility and the aforementioned relationship quality. A comprehensive review of the literature reveals a conspicuous gap, as there exists a paucity of studies exploring the intricate connections among social media capability, librarians' agility, the relationship between librarians' agility and relationship quality, and the moderating role of library policy in shaping the nexus between librarians' agility and relationship quality.

To elucidate the fundamental issues within this discipline, various key theories have been employed. Specifically, six central hypotheses, constituting foundational

theories, are examined. This research encompasses three models addressing social media capability, three models focusing on librarians' agility, and three models exploring relationship quality. This investigation has formulated a theoretical framework grounded in the resource-based view (RBV) perspective, as expounded by eminent scholars such as Penrose (1959), Wernerfelt (1984). In tandem with RBV, the study integrates the paradigm of Dynamic Capabilities (DCs), drawing inspiration from the seminal contributions of Teece et al. (1997). RBV, with its emphasis on establishing sustainable competitive advantages, is complemented by the DCs framework, which places a heightened focus on adaptability and survival in the rapidly evolving contemporary business landscape. The rationale behind incorporating DCs lies in their capacity to enable organizations to adeptly acquire and leverage copious data and information. This, in turn, facilitates the integration, construction, and reconfiguration of both internal and external competencies, empowering organizations to respond nimbly to dynamic environmental shifts and cultivate agility and flexibility.

Teece et al. (2016) have characterized DCs as organizational and managerial competencies that enable a deep understanding of the environment and the development of business models capable of addressing new challenges and opportunities. These competencies are rooted in the knowledge required to innovate, adapt to changes, and instigate changes that benefit customers while putting competitors at a disadvantage. Through the integration of social media technology capabilities with marketing expertise, organizations can nurture novel skills, adapt to their competitive milieu, and consequently attain a competitive advantage with improved performance (Berthon et al., 2012). This capability demonstrates a robust association with customer relationship management (CRM) and warrants acknowledgment in future research inquiries (Baptista et al., 2017).

The critical exploration of social media marketing capability, through the lens of a theoretical framework rooted in critical theory, reveals its potential influence not only on customer engagement, satisfaction, loyalty, and retention but also on librarians' agility and the quality of relationships within the library profession. This multifaceted analysis seeks to unravel the intricate dynamics between social media capability, librarians' adaptability to changing information landscapes, and the quality of professional relationships, providing a nuanced understanding of the broader societal implications within the library context (Barney, 1991).

### 2.5.1.1 Capability Maturity Model

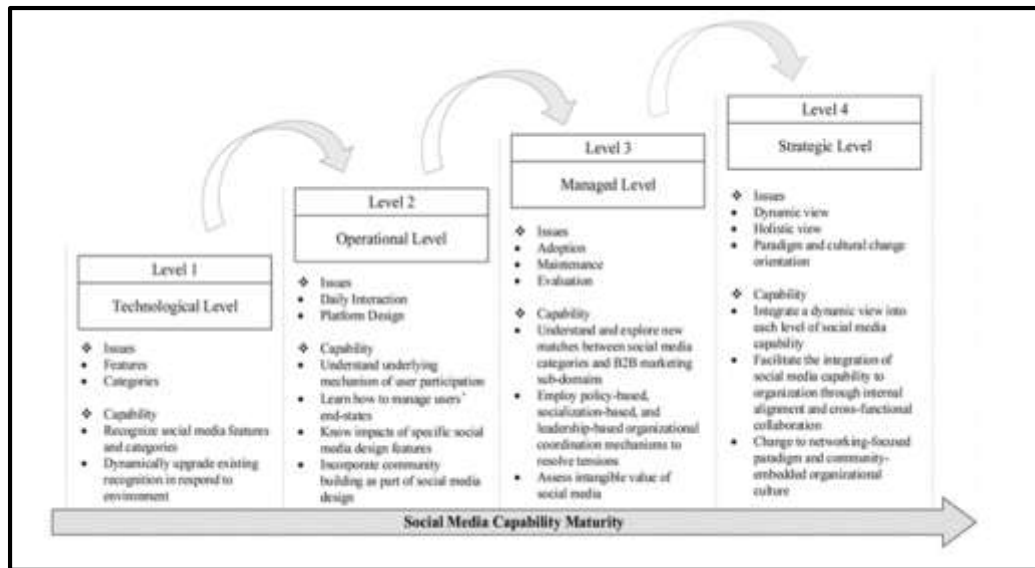


Figure 2.5 Capability Maturity Model (Wang et al., 2017)

The Social Media Capability Maturity Model comprises four interconnected tiers: technological, operational, managed, and strategic. This hierarchical structure underscores the interdependence of these levels, as proficiency at each stage serves as a foundational prerequisite for the subsequent one. The model advocates a sequential progression wherein organizations cultivate technological proficiency initially to harness the fundamental functionalities of social media. Subsequently, they advance to operational skills, integrating social media into their everyday marketing practices and routines. Progressing further, organizations attain a managed capability level, allowing for the systematic monitoring of social media alternatives and the evaluation of their values. Ultimately, strategic approaches and paradigms are developed to dynamically guide the lower levels of social media capabilities. It is imperative to recognize that the four levels are intricately inter-constrained. A harmonious alignment between these tiers is essential to optimize a firm's social media capability. A study conducted by Thomas and Woodside (2016) underscores the utility of the social media maturity model in the healthcare sector. Their research identifies the model as a valuable tool for healthcare managers to assess their organization's social media capabilities, formulate strategies aligned with their maturity level, and strategically plan for further advancement.

As delineated by Zhu et al. (2016), the Capability Maturity Model (CMM), centering on the concept of maturity, has garnered widespread acceptance and significant application, notably within the domain of library and information research.

Within this context, the effectiveness with which university libraries harness Social Networking Services (SNS) platforms serves as a barometer for the maturity of such services in the academic setting. This involves the delivery of knowledge and information services to university students through standardized procedures and specialized consultation techniques, drawing upon a diverse array of knowledge resources both within and beyond the library confines. In essence, the utilization of SNS platforms in university libraries is indicative of a matured approach to knowledge dissemination, underscored by methodological rigor and the integration of diverse information reservoirs.

Sakoda et al. (2009) highlighted the considerable potential inherent in the Japan Science and Technology Agency's digital content for fostering educational innovation. Despite this potential, a significant challenge persists, wherein many educators invest substantial time in class preparation. Recognizing this issue underscores the imperative for the development of a maturity level framework, aligning with the Capability Maturity Model, to systematically assess instructors' proficiency in effectively disseminating knowledge. Such a framework would not only acknowledge the transformative potential of digital content but also address the practical challenges faced by educators, thereby enhancing their capability maturity in knowledge sharing. By establishing a structured evaluation framework, educators can systematically advance through maturity levels, optimizing their ability to integrate digital resources seamlessly into their teaching practices, thereby contributing to educational innovation.

Ibrahim et al. (2015) highlighted the pivotal role played by the Cybersecurity Capability Maturity Model (C2M2) program, situated at Carnegie Mellon University, in fostering a public-private partnership. This collaborative initiative serves as a valuable resource for organizations across diverse sizes, sectors, and industries, offering a structured approach to assess, prioritize, and elevate their cybersecurity capabilities. Drawing from the insights of Kerkhof (2012) study, which introduced a comprehensive Social Media Capability Maturity Model, organizations can navigate the complexities associated with implementing effective social media strategies. By leveraging this social media maturity model and its various adaptations, businesses can streamline their efforts in addressing challenges and capitalize on opportunities presented by the dynamic landscape of social media. This strategic approach not only enables organizations to optimize their relationships within the digital sphere but also positions them to adapt seamlessly to the evolving media ecosystem for the foreseeable future.

### 2.5.1.2. Technology Acceptance Model

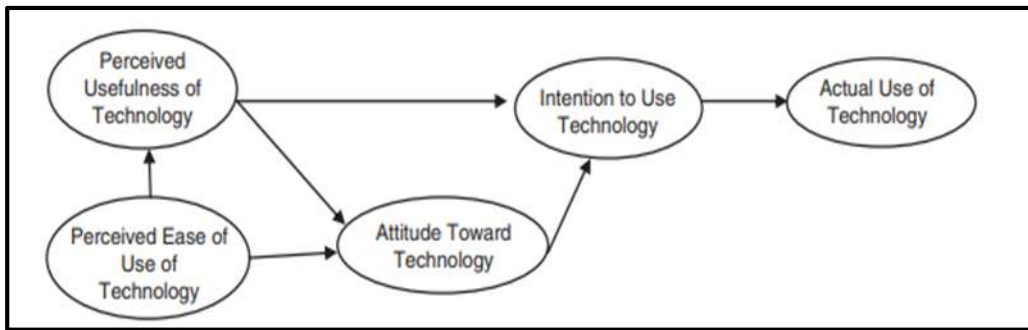


Figure 2.6 Technology Acceptance Model

The Technology Acceptance Model (TAM) has become a cornerstone in the realm of technology adoption research, embraced by scholars investigating the multifaceted factors influencing the acceptance and utilization of technology across diverse contexts (Lim et al., 2008). At its core, TAM postulates that the critical determinants of individuals' intentions to adopt technology, as well as their subsequent acceptance and usage behaviours, hinge significantly on two external factors: "perceived ease-of-use" and "perceived usefulness" (Heinrichs et al., 2011). This enduring model provides a robust theoretical framework for comprehending the intricate interplay between cognitive perceptions and behavioural inclinations in the dynamic landscape of technological integration. Librarians, navigating the evolving landscape of information dissemination, may find the TAM principles instrumental in understanding and enhancing their acceptance and adept utilization of social media capabilities. This alignment facilitates a nuanced exploration of how technology acceptance models, originally designed for broader contexts, can be applied to fortify librarians' agility in effectively incorporating social media tools into their professional practices.

The Technology Acceptance Model (TAM), devised by Davis in 1986, serves as a conceptual framework aimed at elucidating the behavioural patterns associated with the utilization of computer technology. Rooted in the social psychology domain, TAM derives its foundations from the Theory of Reasoned Action (TRA), proposed by Fishbein and Ajzen (1975), which examines human behaviour through the lens of intentions. These intentions, pivotal to TAM framework, are shaped by two fundamental constructs: individual attitudes towards behaviour and social norms, representing the

belief in the approval or disapproval of specific behaviours by designated individuals or groups. Originally tailored to explicate determinants of computer adoption, TAM has evolved into a versatile model capable of elucidating user behaviour across a spectrum of end-user computing technologies and diverse user populations (Davis et al., 1986). Since its inception in 1986, the Technology Acceptance Model (TAM) has experienced widespread application across various technological domains and research sectors. Noteworthy scholars such as Dugar (2018) and King and He (2006) attribute its enduring appeal to the model's accessible and straightforward theoretical.

In the context of librarians' agility influenced by social media, the prominence of the Technology Acceptance Model (TAM) becomes particularly pertinent. As Liu and Yu (2017) observed, TAM widespread adoption and reliability in explaining usage behaviour across diverse scenarios underscore its relevance in understanding how librarians navigate and adopt technology, including social media tools. Librarians, functioning within a professional environment, are increasingly exposed to creative and compelling information technology tools, notably those tailored for individual professionals. This aligns with the notion put forth by Chau and Hu (2001), emphasizing the need to evaluate existing theories and models related to technology acceptance within professional settings. By applying the TAM framework in the realm of librarianship, one can delve into the intricacies of librarians' attitudes towards adopting social media tools and the perceived usefulness and ease-of-use associated with such technologies. The model's adaptability allows for a nuanced exploration of how librarians, as information professionals, interact with and integrate social media capabilities into their practices. This holistic understanding, considering both technological and professional aspects, contributes to comprehending how social media influences librarians' agility in staying adept and responsive within the dynamic landscape of information dissemination.

Lu et al. (2003) extended the Technology Acceptance Model (TAM) to address the unique attributes of wireless Internet, offering a nuanced adaptation to accommodate the distinctive characteristics of the wireless systems under scrutiny. The TAM for wireless Internet framework posits that an array of factors, including individual variations, technological complexity, the presence of supportive conditions, social influences, and the degree of trust in the wireless environment, collectively contribute to shaping users' perceptions regarding both short-term and long-term utility.

Perceived usefulness encompasses an individual's assessment of the extent to which utilizing a system will facilitate the achievement of specific objectives, essentially gauging the belief in technology's capacity to enhance work performance. The discernible value of information technology becomes manifest when users invest their trust in it, subsequently influencing their acceptance of the technology, as they perceive it as a positive contributor to their specific needs (Asongu & Odhiambo, 2019). In the context of TAM, perceived usefulness is a key construct that plays a central role in influencing users' intentions to accept and use a particular technology. According to TAM, users are more likely to embrace a technology if they perceive it as useful in achieving specific goals or tasks. The sentence highlights the core concept of perceived usefulness, explaining how individuals assess the potential of a system to help them accomplish objectives and improve work performance. Furthermore, it emphasizes the importance of trust and positive contribution in users' acceptance of technology, aligning with the foundational principles of TAM.

The empirical findings put forth by Granić and Marangunić (2019) underscore the robustness of the Technology Acceptance Model (TAM) and its diverse adaptations, affirming its efficacy as a dependable framework for the comprehensive assessment of educational technologies. Within this paradigm, the intrinsic elements of TAM, notably the perceived ease of use and perceived usefulness, stand out as pivotal determinants shaping individuals' inclination to embrace technology for educational purposes. In the evolving landscape of library services, the integration of social media capabilities holds immense potential in shaping the agility of librarians and fostering a qualitative shift in the relationships between librarians and users. Drawing upon the lens of the Technology Acceptance Model (TAM), which has proven to be a reliable framework for evaluating technology adoption, librarians' willingness to embrace social media tools is crucial. The model's foundational tenets, encompassing perceived ease of use and perceived usefulness, become particularly pertinent in this scenario. Librarians' acceptance and proficient utilization of social media technologies not only enhance their agility in adapting to dynamic information environments but also contribute significantly to the quality of relationships with users. As librarians leverage social media capabilities, users may perceive these tools as user-friendly and valuable, ultimately reinforcing a collaborative and effective librarian-user relationship within the digital realm.

### 2.5.1.3 Resource-Based View Model

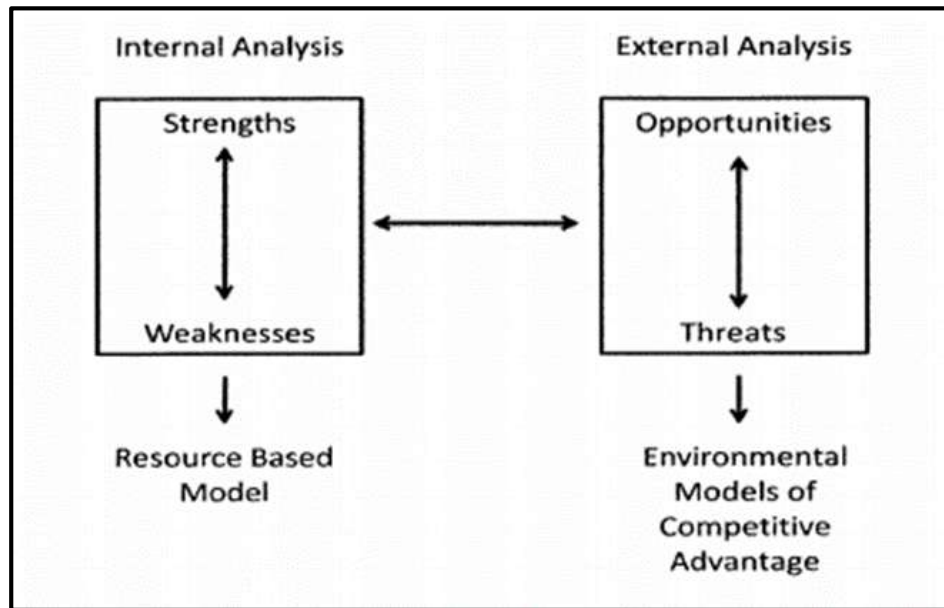


Figure 2.7 Resource-Based View Model

At the core of the resource-based view (RBV) lies the proposition, elucidated by Barney (1991), that a company's performance is intricately linked to the heterogeneity and immobility of its resources. The strategic acquisition of valuable, rare, irreplaceable, and challenging-to-imitate resources, as posited by Dyer and Singh (1998), becomes a pivotal determinant for companies seeking to establish and sustain a competitive advantage. While RBV positions the company as the primary unit of analysis, it is imperative to acknowledge, in accordance with Collis and Montgomery (1995), that the value of internal resources cannot be viewed in isolation, as their ultimate impact is contingent upon market forces. These firm resources, akin to the internal strengths in a SWOT analysis, encompass a spectrum of assets, capabilities, organizational processes, and knowledge, as comprehensively defined by Barney (1991), which collectively empower the firm to formulate and execute strategies aimed at enhancing its efficiency and effectiveness.

In accordance with the Resource-Based View (RBV) model posited by Pervaje (2011), a firm competitive advantage emanates from its distinctive and valuable assets, encompassing tangible and intangible resources, capabilities, and knowledge. Within this paradigm, social media emerges as an exceptional resource for firms, presenting the opportunity, when strategically leveraged, to satisfy the RBV criteria of rarity and

value. Wolff and Kim (2020) study constitute a valuable augmentation to the burgeoning corpus of research delving into the adverse ramifications of networking. The findings underscore the imperative of embracing a more expansive and equilibrium-oriented viewpoint on networking for both individual employees and organizations alike. This holistic perspective ought to encompass not only the widely acknowledged advantages but also the potential drawbacks that networking may exert on both the professional and personal facets of individuals' lives. Implicitly tethered to the Resource-Based View (RBV) model, the study, while refraining from explicit reference to the RBV model, traverses the terrain of resources and their influence on organizations. In the networking context, it alludes to individuals apportioning their finite energy resources to both work and networking, aligning with the RBV emphasis on valuable and constrained resources as a fount of competitive advantage. The insights gleaned from Wolff and Kim (2020) study are pertinent to the examination of social media capability's impact on librarians' agility. While not explicitly delving into the Resource-Based View (RBV) model, the study indirectly touches upon the concept of resource allocation, reflecting the nuanced interplay between social media capabilities and the agility of librarians. The findings highlight the need for a comprehensive understanding that goes beyond the perceived advantages of social media, acknowledging its potential drawbacks in shaping the agility of librarians in their professional endeavours.

Bromiley and Rau (2016) undertake a critical examination of the applicability of the RBV model within the realm of operations management. Their critique revolves around the contention that integrating the RBV model into operations management research may not harmonize effectively with the field's objectives and practical requirements. The authors identify several challenges inherent to the RBV model, including its emphasis on sustained competitive advantage, the intricacies involved in quantifying valuable and rare resources, and the difficulties in providing pragmatic prescriptions. In response to these concerns, Bromiley and Rau advocate for an alternative framework, the Practice-Based View (PBV), positing that it offers a more fitting explanation for firm and unit performance in the context of operations management.

In considering the application of the Resource-Based View (RBV) model to the dynamics of librarianship, this study endeavours to illuminate how social media capability serves as a pivotal resource influencing both librarians' agility and the quality of relationships between librarians and users. While traditionally employed to elucidate

competitive advantages in various organizational contexts, the RBV model can be adapted to scrutinize the strategic allocation and utilization of resources, including social media capabilities, within library settings. The prevailing RBV framework, with its emphasis on identifying valuable and rare resources, provides a conceptual lens to explore how librarians leverage social media tools to enhance agility in adapting to evolving information landscapes. Moreover, it prompts an investigation into how these digital capabilities may contribute to fostering robust and meaningful relationships between librarians and users.

However, recognizing the intricate nature of social media in the context of librarianship, this study acknowledges the need to augment the RBV model with additional frameworks that specifically address the nuances of social media dynamics. By intertwining the RBV model with insights from relationship management and digital communication frameworks, a more comprehensive understanding can be achieved, shedding light on the intricate interplay between social media capability, librarians' agility, and the quality of relationships in the library ecosystem. Thus, this research posits that the RBV model, when integrated judiciously with supplementary frameworks, offers a potent analytical tool for comprehending the multifaceted impacts of social media capability in the realm of librarianship.

In Pervaje (2011) seminal thesis, the resource-based view of the firm serves as the analytical framework for a comprehensive examination of Wiki implementation through the lens of five distinct case studies. The primary objective of the research is to discern the ways in which social media, particularly Wiki platforms, can serve as a catalyst for achieving and sustaining a competitive advantage within the contemporary business landscape. The thesis's analytical journey unveils a nuanced understanding, asserting that social media has the potential to augment a firm's existing resources and capabilities. What distinguishes these advantages is their inherent difficulty for competitors to replicate, a phenomenon attributed to factors such as path dependency, social complexity, and causal ambiguity. Pervaje (2011) analysis implies that, when strategically harnessed, social media becomes a reservoir of distinctive competencies that contribute significantly to a firm's resilience against market forces. Crucially, the research extends beyond theoretical insights to offer actionable strategies for firms aspiring to effectively leverage social media. To this end, the thesis prescribes a deliberate approach, emphasizing the necessity for firms to identify their core capabilities and resources, acknowledge the disparities between needed and existing

capabilities, and methodically integrate social media into their daily routines and operational processes. This strategic integration, as outlined by Pervaje, is posited as pivotal for unlocking the full potential of social media, thereby fostering sustained competitive advantages in the contemporary business landscape.

In the scholarly discourse elucidated by Arbelo et al. (2020), the prevailing acceptance of the resource-based view (RBV) within the strategic management domain is acknowledged. Nevertheless, a discernible lacuna in its scholarly standing is underscored due to the dearth of substantive empirical validation. The crux of the RBV lies in its postulation of a causal nexus between a firm resource and its overall performance. The present study, however, advances the argument that the conventional yardsticks of financial or accounting metrics may fall short in capturing the nuanced intricacies of firm performance. Rather, it advocates for an alternative evaluative paradigm, specifically centering on profit efficiency as a more adept metric. Moreover, the research posits a notable departure from traditional methodologies by advocating for the incorporation of frontier models in empirical inquiries germane to the RBV. This departure is underscored by the contention that such models bear significant promise in enriching the empirical landscape, shedding new light on the intricate interplay between a firm's resources and its ultimate performance. In essence, Arbelo et al. (2020) study not only critiques the prevailing limitations of the RBV but also propounds a novel methodological avenue that could potentially reshape the trajectory of future empirical research within the strategic management discourse.

In the contemporary corporate landscape, the paradigm of corporate environmental ethics, as investigated by Gabler et al. (2023), has undergone a transformative journey from a marginal consideration within business strategies to a potential source of competitive advantage. The intricate fabric of organizations, however, comprises individuals with diverse perspectives on environmental responsibility. Noteworthy among these individuals are environmental stewards employees exhibiting a steadfast dedication to environmental concerns. To propagate a collective ethos of environmental responsibility, upper echelons of management can play a pivotal role by cultivating eco-capabilities within the organizational framework. This strategic initiative aligns with the tenets of the natural resource-based view of the firm. Within this theoretical framework, we posit a model designed to scrutinize the impact of aligning environmental values on diverse organizational outcomes. This analytical approach seeks to unravel the nuanced dynamics through which the

integration of environmental values resonates within the organizational milieu.

The Resource-Based Theory, as elucidated by Halawi et al. (2005), serves as a conceptual framework aiming to elucidate the mechanisms through which organizations attain sustainable competitive advantages. This theoretical construct operates on the foundational premise that organizations inherently possess distinctive resources and capabilities that are not easily replicable by competitors. The variations observed in the dimensions of firm size and competitiveness can be traced back to their prowess in the development, augmentation, and adept management of these unique resources and capabilities. In Gao et al. (2018) study, they delve into the intricate dynamics of international brands forging connections with social media users within local markets. Employing the resource-based theory as their analytical lens, the researchers evaluate the relationships in terms of their value, uniqueness, and rarity. Through a comprehensive approach, the investigation incorporates interviews with brand managers and social media users in both China and New Zealand, coupled with direct observations of brand-centric social media platforms. The study contributes two distinct theoretical frameworks aimed at elucidating the evolution of these brand-user relationships in foreign markets. Notably, the authors advocate for a strategic approach in tailoring incentives within social media platforms to align with the nuanced nature of the relationship between the brand and the user.

Sedera et al. (2016) research related to the Resource-Based View (RBV) theory in strategic management. The RBV theory emphasizes how a firm's unique and valuable resources, including information systems, can contribute to competitive advantage and sustained performance. While the paragraph discusses organizational innovation enabled through information systems and its importance for achieving competitive parity, it does not directly address the research study on social media capability influencing librarian agility. Sedera et al. (2016) research might apply to understanding the impact of social media capabilities on librarians' agility in managing information resources.

Peteraf and Barney (2011) introduced the Resource-Based View (RBV) as a cornerstone theory in strategic management, emphasizing the pivotal role of a firm's distinctive resources and capabilities in attaining and maintaining a competitive edge. According to RBV, companies possessing resources that are valuable, rare, inimitable, and non-substitutable are strategically positioned to surpass their rivals. This perspective advocates for a proactive approach, urging businesses to concentrate on

identifying and harnessing their internal strengths rather than merely reacting to external market dynamics. By comprehending and nurturing their unique resources, organizations can cultivate enduring competitive advantages, enabling them to not only withstand but thrive in their respective industries.

Chen and Liu (2023) research delves into the intricate dynamics between entrepreneurs' engagement with social media and its impact on reinvestment in their businesses. The study posits a U-shaped relationship, highlighting that social media usage can simultaneously act as a facilitator and an impediment to reinvestment. This dual effect is particularly accentuated in fledgling enterprises and those operating in high-tech industries. The research, rooted in the context of Chinese companies, substantiates these assertions. In essence, it scrutinizes the multifaceted influence of social media on entrepreneurial activities. While connected to the broader realm of resources and capabilities, it refrains from a direct application of the Resource-Based View model.

#### 2.5.1.4 Dynamic Capability Approach

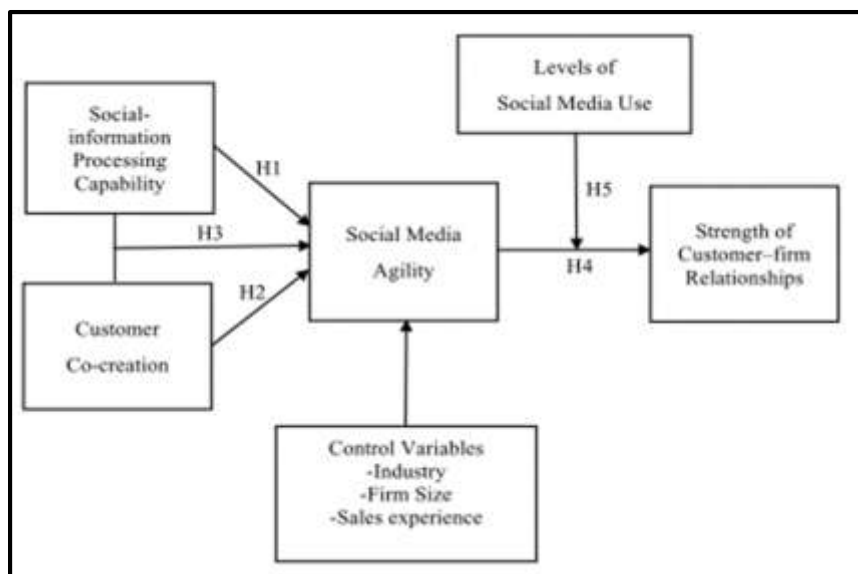


Figure 2.8 Dynamic Capability Approach

Chuang (2020) model and its hypothesized relationships delve into the precursors and outcomes of social media agility, with a specific focus on pivotal constructs such as social-information processing capability, customer co-creation, and the robustness of customer-firm relationships. The sway of social media on the potency of these relationships is contingent upon adept and agile responses to customer

interactions. The fusion of established operational agility with the realm of social media has birthed a novel conceptualization of agility, necessitating an exploration of how companies can effectively achieve agility while harnessing the power of social media. This model emerges from a comprehensive literature review intertwined with the dynamic capability view and the nuanced landscape of social media agility.

Dynamic capabilities theory, originally proposed by Teece and Pisano in 1994, serves as an evolutionary extension of the resource-based view (RBV) of the firm, initially articulated by Barney (1986, 1991). The RBV posits that firms within the same industry exhibit divergent performance levels due to variations in their resources and capabilities (Barney, 1986, 1991; Peteraf, 1993). However, the RBV is critiqued for its static nature and perceived inadequacy in elucidating a firm's competitive advantage within a dynamic market environment (Priem & Butler, 2001). Dynamic capabilities, as defined by Teece et al. (1997), extend beyond the confines of the RBV by encapsulating the firm's capacity to amalgamate, cultivate, and reconfigure both external and internal expertise, enabling swift responses to rapid environmental changes. While dynamic capabilities are closely aligned with the RBV, they represent a distinct and crucial element in comprehending competitive advantage, particularly in the face of a continually evolving environment (Ambrosini & Bowman, 2009; Barreto, 2010; Eisenhardt & Martin, 2000; Wang & Ahmed, 2007). Notably, prior research has significantly contributed to refining the definition and understanding of dynamic capabilities, highlighting its inseparable connection to the broader framework of the resource-based view.

Dynamic capabilities are recognized as a vital facet of strategic sensemaking, encompassing the ability to make timely decisions and implement changes effectively within the dynamic interplay of the business environment and competitive landscape (Li & Liu, 2014). These capabilities, integral to gaining a competitive advantage, manifest in various forms of innovation. Raman and Bharadwaj (2017) delineate these innovation processes as accumulation, pioneering, coordination, and deployment. Furthermore, according to Chan (2012), dynamic capabilities signify an entity's prowess in systematically analysing its environment, assessing markets and competitors, and adeptly transforming in response to imminent challenges and rival actions.

Kim (2022) emphasizes the critical importance of instilling a dynamic capabilities perspective in students, particularly within the realm of social media education. Despite students having access to industry-standard tools and training, a

discernible gap exists between theoretical teachings and real-world applications in their professional roles. This research advocates for the integration of a dynamic capability mindset into social media education, one that actively engages students in sensing, seizing opportunities, and transforming approaches to secure a competitive edge. By adopting this approach, educators can remain at the forefront of the latest industry developments, tools, and challenges. Moreover, the study underscores the significance of intentional collaboration with industry organizations and professionals. Through this collaboration, educators can offer students simulated real-world scenarios, preparing them to navigate actual industry pressures. These experiences, rooted in a dynamic capability framework, equip students with the knowledge and skills needed to thrive in a rapidly evolving and uncertain marketplace. While the passage primarily addresses social media education, its underlying message of staying current, fostering adaptability, and preparing students for a complex job market resonates across various fields, including library science. From my perspective, even though the passage doesn't explicitly mention librarians, it aligns with the concept of agility. The discussion underscores the importance of being adaptable and staying abreast of changes, which holds relevance for librarians in response to evolving information and technology trends. While the passage indirectly relates to librarianship, it doesn't explicitly address librarians within its context.

In alignment with the recommendation posited by Teece et al. (1997), this study establishes Dynamic Capabilities (DCs) as its theoretical foundation, thereby extending the Resource-Based View (RBV) framework. DCs, integral for enterprises navigating swiftly evolving environments, play a pivotal role in harnessing data and information. They facilitate the internal and external adaptation, integration, and reconfiguration of organizational skills, fostering adaptability and flexibility within companies. Teece et al. (2016) assert that DCs encompass managerial and organizational abilities essential for comprehending the dynamic business landscape. These capabilities empower organizations to formulate innovative business models in response to emerging challenges and opportunities. Moreover, the adept utilization of knowledge enables firms to innovate, adapt, and ultimately attain a sustainable competitive advantage.

The theory of dynamic capabilities stands as a pivotal construct within the domain of strategic management. Its foundation lies primarily in the resource-based view of organizations, elucidating a firm's inherent ability to consistently rejuvenate and adapt its competitive advantage rooted in resources (Shamim et al., 2019). Lawson

and Samson (2001) paper posit that innovation management can be construed as a distinctive organizational capability. Flourishing enterprises strategically invest in and cultivate this capability to orchestrate effective innovation processes, yielding novel products, services, and enhanced business performance. The paper meticulously examines extant literature on innovation management, offering a comprehensive conceptual model portraying a firm as an innovation engine. A noteworthy emphasis is placed on the paramountcy of prioritizing investment in innovation capability over tangible assets. Introducing the construct of "innovation capability," the paper delineates seven pivotal elements integral to its composition: vision and strategy, leveraging existing skills, organizational intelligence, creativity and idea management, organizational structure and systems, culture and climate, and technology management.

This study addresses the pivotal inquiry regarding the impact of top managers on project, portfolio, and firm performance. Through a comprehensive analysis of a diverse global sample of firms actively involved in projects, the research reveals that the influence of top managers on performance is manifested through the cultivation of operational capabilities at the project level and dynamic capabilities at the portfolio level. This signifies that the pivotal avenue through which top managers shape overall firm performance lies in their proficiency to foster and elevate these capabilities (Hermano & Martín-Cruz, 2016).

While the paragraph provided discusses the impact of top managers on project, portfolio, and firm performance through the development of operational and dynamic capabilities, it does not explicitly mention the term "agility model." However, the concept of agility, particularly organizational agility, is often associated with dynamic capabilities. Dynamic capabilities, as mentioned in the paragraph, involve an organization's ability to adapt and respond effectively to changes in its environment. The agility model is a framework that emphasizes an organization's ability to be flexible, responsive, and adaptive in the face of uncertainty and change. The paragraph's focus on operational and dynamic capabilities aligns with the broader theme of agility, as organizations with strong capabilities in these areas are better positioned to navigate uncertainties and changing circumstances.

Achieving a successful digital transformation necessitates the acquisition of diverse skills and capabilities tailored to the unique needs and circumstances of each organization. However, the significance of these skills varies based on the specific context of the organization. Attempting to cultivate an extensive array of skills

simultaneously, particularly when faced with constraints such as limited time and resources, can pose challenges and hinder the effectiveness of the digital transformation process (Carcary et al., 2016). In the context of digital transformation, agility often refers to an organization's ability to adapt quickly to changing circumstances, technologies, and market demands. The sentence alludes to the need for adaptability by cautioning against the simultaneous development of too many skills, which could potentially hinder the organization's ability to navigate the complexities of a digital transformation effectively. While not directly using the term "agility model," the content aligns with the principles of agility by highlighting the importance of flexibility and strategic focus in the face of resource constraints during digital transformation efforts.

As articulated by Spralls et al. (2011), dynamic capability stands as a foundational tenet within the core philosophy, emerging as a pivotal strategic asset for companies. This significance becomes particularly evident when evaluating its profound impact on market entry, serving as a fundamental component of organizational agility. This perspective, advocated by Hunt and Madhavaram (2020), underscores dynamic capability's role in enhancing business processes and overall performance. The sentence explicitly mentions "dynamic capability" and emphasizes its role as a crucial strategic asset for companies. The dynamic capability approach is a theoretical framework in strategic management that focuses on an organization's ability to adapt, integrate, and reconfigure its resources in response to a changing environment

In the seminal work conducted by Sunday and Vera (2018), a robust conceptual framework was established, centering on the fundamental concept of dynamic capabilities. Their investigation delved into the intricacies of applying dynamic capabilities in the analysis of the adoption process of Emerging Information and Communication Technologies (EICT). The findings illuminated the iterative nature of this adoption process, unveiling nuanced insights into the transformation of various factors at distinct stages, both in isolation and in concert.

### **2.5.2 Agility Framework in Librarianship**

As mentioned in the web of Mendix (2020), agile is considered a collection of values and principles that foster a mindset enabling us to approach our work innovatively, extending beyond traditional project management. The agile framework

emphasizes customer satisfaction, collaboration, communication, teamwork, high-quality outcomes, and structured follow-up practices. Forsman (2014) shared that managing an organization focused on agile can be demanding. Senior management must handle resource allocation, provide input for prioritization, engage in sprint planning, and assess business value. This necessity creates transparency within the organization, revealing its inner workings.

Haricombe and Lusher (1998) wrote "Creating the Agile Library" to help libraries adapt to fast changes due to new technology. The book encourages creativity, innovation, and taking risks to meet users' needs. It explains how to prepare for change and use new technologies. The authors predicted the impact of digital content and virtual environments on libraries. They urged libraries to adapt to stay relevant, offering practical advice on making libraries more flexible and responsive.

Post (2020) recommended twelve agile principles:

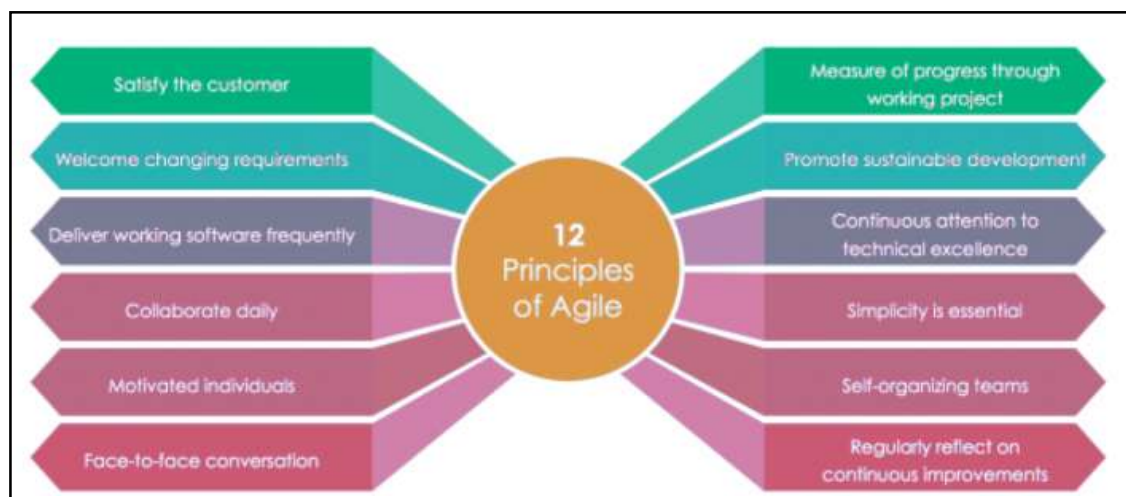


Figure 2.9 Twelve principles of agile

Agility finds profound relevance in the dynamic landscape of libraries, where change is constant, and user needs are continually evolving. The principles of agile leadership, tailor-made for navigating volatile, uncertain, complex, and ambiguous (VUCA) environments, align seamlessly with the challenge librarians face. Much like adept gardeners, agile leaders in the library play a vital role in cultivating an environment conducive to growth and adaptability. By nurturing and coaching their teams, agile librarians decentralize decision-making, recognizing that the team's collective insights can better navigate the intricacies of the information landscape. Additionally, they remain vigilant in acknowledging and avoiding their own biases and

cognitive traps, ensuring a more objective and responsive approach to the ever-changing needs of library users. In essence, the agility exhibited by librarians, guided by the principles of agile leadership, positions them as dynamic stewards of information, capable of thriving in the face of uncertainty and proactively meeting the evolving demands of their user community.

Buck and Nunn (2021) stated that libraries and librarians need to adapt swiftly and redefine their roles as educators and facilitators within flexible learning environments. As library collections become digital, there is also a growing demand for digital library spaces, services, and digitally proficient librarians.

### 2.5.2.1 Core Agility Concept

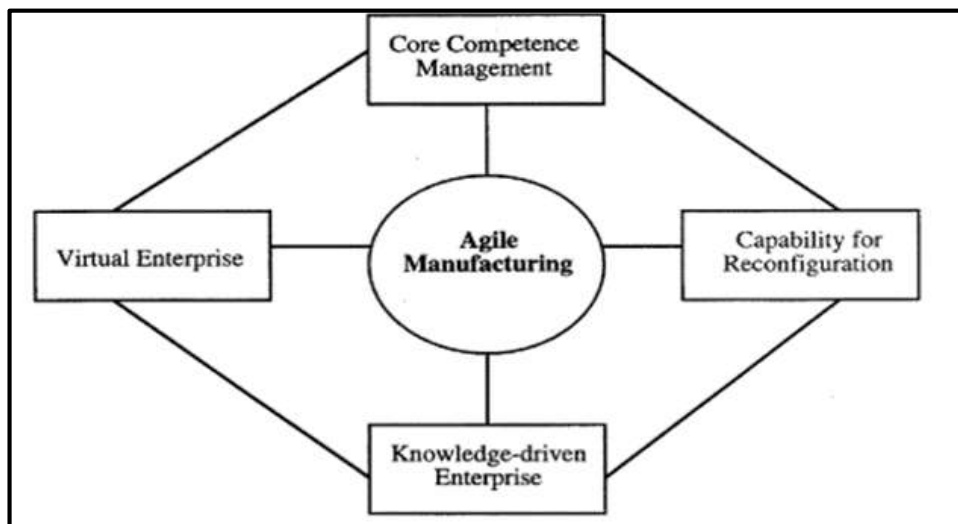


Figure 2.10 Core Agility Concept

In 1992, Youssef pioneered the conceptualization of agility, propounding a comprehensive framework that elucidates the intricate dynamics between manufacturers, customers, and suppliers. This framework serves as the foundational structure for understanding competition within the agile paradigm. The term "elemental skill" pertains to the discrete resources encapsulated within individuals, encompassing personnel, machinery, and managerial expertise. Furthermore, micro-agility delves into the organizational level, encapsulating the enterprise as a whole, while macro-agility extends its purview to the inter-enterprise domain. A pivotal facet of this paradigm is the concept of core competence, intricately linked to both the workforce and the

products of the corporation. Core competence manifests itself at two distinct yet interrelated levels: the individual and the firm. This multi-tiered perspective provides a nuanced understanding of the intricacies inherent in the agile paradigm, emphasizing the holistic integration of individual skills, organizational adaptability, and the broader competitive landscape.

Indeed, the paragraph is directly related to the agility model as introduced by Youssef in 1992. The enhancements emphasize the interconnectedness of various elements within the agility framework. The paragraph outlines the agility concept, delineates the key components such as elemental skill, micro-agility, and macro-agility, and underscores the significance of core competence at both individual and organizational levels. By providing a more detailed and articulate exposition, the improved paragraph offers a richer understanding of how Youssef's agility model encapsulates the interactions between manufacturers, customers, suppliers, and the competitive landscape.

In the realm of core agility concepts, Gligor and Bozkurt (2021) conducted a study revealing compelling insights into the pivotal role of perceived social media agility in shaping customer-based brand equity (CBBE). The study posits that this influence is not only direct but also manifests indirectly through the conduit of heightened customer engagement. Notably, the research underscores a heightened positive impact of perceived social media agility on CBBE, particularly among customers characterized by an openness to change. Intriguingly, despite the variance in customers' change-seeking behaviour, the strength and direction of the perceived social media agility's impact on customer engagement remain consistent. This elucidation aligns with the fundamental tenets of agility, emphasizing the adaptability and responsiveness inherent in social media interactions and their profound implications for both brand equity and customer engagement dynamics.

### **2.5.3 Relationship Quality Framework in Library Setting**

The concept of relationship quality has emerged as a pivotal aspect within the realm of relationship management, as emphasized by both researchers and practitioners. This term is commonly delineated through three primary dimensions: engagement, satisfaction, and trust. In the context of business-to-business (B2B) interactions within electronic media, trust is construed as a metric encompassing the adherence to

commitments and maintaining confidential collaboration with business partners. It is indicative of the confidence one party places in the reliability and integrity of the other.

The dimension of engagement signifies the partner's commitment to sustaining the relationship, coupled with their willingness to invest efforts in its perpetuation (Chou et al., 2015; Rauyruen & Miller, 2007). Finally, satisfaction, as defined within relationship quality, pertains to the comprehensive evaluation of customer contentment derived from their collective experiences with a company (Garbarino & Johnson, 1999; Williams & Naumann, 2011). The multifaceted nature of relationship quality, encapsulating these dimensions, underscores its pivotal role in elucidating and fostering the intricacies of effective and enduring relationships within diverse contexts, including the intricate landscape of electronic media.

As posited by Gronroos (2000), cultivating a symbiotic relationship between two entities contributes intrinsic value to both the supplier and the recipient of goods or services. Moreover, Cavanagh (2016) underscores the transformative potential of social media platforms such as Twitter, enabling libraries not only to fortify existing connections but also to forge novel relationships, thereby empowering them to establish vibrant communities.

Following the findings of Palla and Sheikh (2021) study, a predominant utilization of social networking platforms among students is observed for the fulfilment of educational requirements. The study underscores that these platforms serve as conduits for students to share knowledge and information, thereby augmenting academic achievement and refining writing and reading proficiencies. Consequently, students are increasingly integrating social networks as technical tools tailored to meet their diverse information needs. This evolution positions these networks not only as instrumental tools within academic institutions but also as valuable assets contributing to the broader societal fabric. In considering the implications for relationship quality, the direct engagement facilitated by social networks may foster collaborative learning environments, potentially enhancing the overall quality of educational relationships among students and with the broader academic community.

In the scholarly discourse presented by Anwar and Zhiwei (2020), the profound influence of social media on libraries is expounded, elucidating its role in establishing connectivity between libraries and users across diverse platforms. This transformative impact is manifested through the broadening of library services, the facilitation of user-librarian interactions, and the extension of library outreach to a global scale.

Noteworthy social media platforms such as Facebook and mobile-based networks emerge as instrumental tools, affording users convenient avenues to access library services and information. The consequential ramifications include a paradigm shift in user expectations and perceptions of librarians' competencies, concurrent with the promotion of online reference services and product advocacy. In summation, the advent of social media stands as a revolutionary force, reshaping the modality through which libraries interact with users and deliver services in the contemporary landscape of the 21st century.

Huang et al. (2017) investigated how academic librarians and users interact on social media platforms such as Twitter and Weibo, as well as the perceptions of these interactions. The researchers analysed 1600 microblog posts from twenty university library Weibo accounts and twenty library Twitter accounts in English-speaking countries. The results showed that librarians in English-speaking countries mainly use social media to share library-related news and respond to user inquiries, while Chinese librarians often use Weibo for direct communication with users and for disseminating library news. This research provides valuable insights into the dynamics of librarian-user interactions on social media and can help libraries enhance user engagement through these platforms.

Relationship quality can be critical through the expressions of relationship trust, commitment and satisfaction (Abid et al., 2021). Online customer relationships can be strengthened by offering relevant and valuable content (Steinhoff et al., 2018). Social media also effects the quality of connections. For example, fans who followed the official Facebook page of National Basketball Association (NBA) team enjoy a higher quality of relationships (Achen, 2016). Since the impact of social media engagement on relationship, relationship quality is recognized, it is necessary to understand the content-based factors that improve relationship quality. Relationship quality is a composite or multi-dimensional construct that captures various dimensions of a relationship and shows its strength (Palmatier et al., 2006). Relationship quality leads to positive customer outcomes (Roy & Eshghi, 2013). There is no consensus as to which dimensions make up relationship quality. However, relationship trust, commitment, and satisfaction are the most commonly used variables to represent relationship quality (Clark et al., 2017).

As elucidated through interviews conducted by Benn and McLoughlin (2013), an interviewee expressed pronounced satisfaction with Facebook and Twitter platforms,

attributing it to the platforms' capacity to elicit direct reference inquiries. Moreover, the respondent underscored the efficacy of converting user-generated posts or tweets into discernible reference questions and corresponding answers. These testimonial underscores the integral role of social media platforms, such as Facebook and Twitter, in fostering a robust relationship between librarians and users, wherein the seamless conversion of user-generated content into reference queries reflects a dynamic and interactive engagement that enhances the overall quality of the librarian-user relationship.

The concept of "trust" is crucial for building social capital in libraries. It plays a vital role in connecting library staff with external stakeholders, especially the local community. Trust strengthens neighbourhood relationships, encourages collaboration with partners and colleagues, reduces conflicts, and can drive progress. Libraries that foster meaningful and personalized interactions with readers actively contribute to building a sense of community, trust, and active engagement, which enhances social capital. Trust in libraries can be related to service quality, trust in personnel, their expertise, willingness to help, and deeper community relationships. (Wojciechowska, 2021).

According to Magoi et al. (2020) the success in the social media sphere is increasingly dependent on credibility and trust. Trust in social media is synonymous with credibility and reliability, and is associated with sharing accurate and timely information, insights, engaging with followers regularly, and being active within similar communities to build outreach and reputation (Bryson, 2017). In the domain of social media and online social networking, a fundamental element shaping their functionality is the concept of trust. The significance of trust in these networks is underscored by Grabner-Kräutle and Bitter (2015). Establishing equilibrium in the inherently open landscape of social networks is imperative for organizations, necessitating the cultivation of trust communities. These communities serve as bastions fostering an atmosphere wherein members can openly articulate their thoughts, viewpoints, and experiences with sincerity and transparency. The construction of such communities is grounded in principles such as authenticity, open sharing, common interests, and mutual respect, as expounded by Sherchan et al. (2013). This interconnectedness underscores the pivotal role of trust in facilitating meaningful relationships within the realm of social media and online social networking. Within the framework of relationship trust, Lankes (2008) proposed that authority emerges as a dependable foundation, capable of stepping

in as a trustworthy source to supplement an individual's personal judgment in the process of making decisions concerning credibility.

In the realm of relationship trust, librarians bear the responsibility of formulating a strategic approach to distinguish reliable content and filter out misinformation or inadequacies within the domain of social media usage in academic libraries, as underscored by Bradley (2015). Relationship trust is defined as the reliance on the reliability and integrity of the exchange partner (Morgan & Hunt, 1994). Various operationalizations of trust exist in the literature, with elements such as reliability, trustworthiness, and sincerity considered essential dimensions (Morgan & Hunt, 1994; Garbarino & Johnson, 1999). Trust is characterized as a crucial component for sustaining long-term business relationships, signifying one party's confidence in the other party's commitment to its promises. Individuals maintain long-term relationships because trust diminishes insecurity and the likelihood of opportunistic behaviour (Chenet et al., 2010).

Trust in relationship need to be strengthened with activities involving librarians and users such as research done by Vårheim (2014). Among first-generation Mexican immigrants engaged in English as a second language (ESL) classes, computer classes, and civics classes across six US public libraries, a nuanced exploration of trust dynamics unfolds. Initially exhibiting limited trust beyond their familial and social circles, these participants underwent a transformation in trust dynamics following their active involvement in library programs. The heightened trust extended to encompass the library institution itself, the librarians facilitating these programs, their fellow students, and fellow library users, as discerned in the study conducted by Vårheim (2014). This shift in trust dynamics among first-generation Mexican immigrants underscores the influential role of library programs in shaping and fostering relationship quality within a community context.

Commitment is an ongoing desire to maintain a special relationship (Palmatier et al., 2006). As Garbarino and Johnsons (1999) mentioned that the conceptualisation of relationship commitment is based on a sense of belonging, pride, loyalty and duration of the relationship. Chenet et al. (2010) describe commitment as a long-term orientation toward a business relationship that is based on emotional bonds and the belief that staying in the relationship will provide benefits that another may not. Once a client is committed to the relationship, they feel close to the business partner and loyalty is further enhanced. To establish a library that can collaborate effectively with universities

and the academic community, it is imperative to have a team of professional librarians with exemplary work ethics, characterized by honesty, dedication, loyalty, and a strong commitment to personal growth and lifelong learning (Hayani et al., 2021). Achieving effective social media engagement demands a substantial investment of staff time and strong commitment from management. This dedication is essential to enhance the library's reputation in the eyes of its users.

As for Kamarudin et al. (2020), they shared their perspectives on social media. Actually, the librarian also acts as an admin for their library social media. The librarian must aware any feedback from users. They often feel the need to constantly monitor incoming notifications, which can have several negative consequences. This constant vigilance can make them unaware of their immediate surroundings, diminish their social interactions, compromise their privacy when interacting with visitors, reduce their overall performance and productivity, and even lead to health issues such as eye strain and poor posture. The management of social media accounts by librarians or library staff, as highlighted by Kamarudin et al. (2020), not only underscores the challenges they face but also emphasizes the significance of maintaining a healthy work-life balance, fostering employee well-being, and ultimately supporting the commitment librarians have towards their professional roles and responsibilities.

Relationship satisfaction, as defined by Palmatier et al. (2006), represents consumers' overall contentment with the relationship. Verma et al. (2016) emphasize the pivotal role of relationship satisfaction as the most crucial variable in driving online customer loyalty. A widely accepted philosophy asserts that a company's success and profitability hinge on customer satisfaction, underscoring its importance (Clemes et al., 2008). Moreover, user satisfaction, a key metric for assessing the effectiveness of library services, is defined as a personal, emotional response to a library service or product (Cullen, 2001).

Hassanzadeh et al. (2020) suggest that customer satisfaction significantly influences libraries as service organizations. Therefore, it is crucial that service levels and support standards surpass user community expectations. Academic librarians and information specialists bear the responsibility of providing the essential context for interaction and communication with library users on these social networks. According to Hernon and Altman (2010), satisfaction is characterized as an emotional response, representing the extent of contentment or discontentment following a particular transaction or service encounter. The statement by Hernon and Altman (2010) addresses

satisfaction as an emotional response to specific transactions or service encounters. In the context of libraries, this could be the user's overall satisfaction with the library services received.

Tetteh and Nyantakyi-Baah (2019), referencing Sriram and Rajev (2014) and Abagai (1993), determined that the presence of competent staff, available knowledge materials, and an appropriate physical environment are pivotal factors ensuring user satisfaction. In the library context, these factors are essential elements in the user-service provider relationship. If users are satisfied with the expertise of the staff, the availability of relevant materials, and the physical environment of the library, it likely contributes to an overall positive relationship satisfaction.

### 2.5.3.1 Customer Relationship Management Model

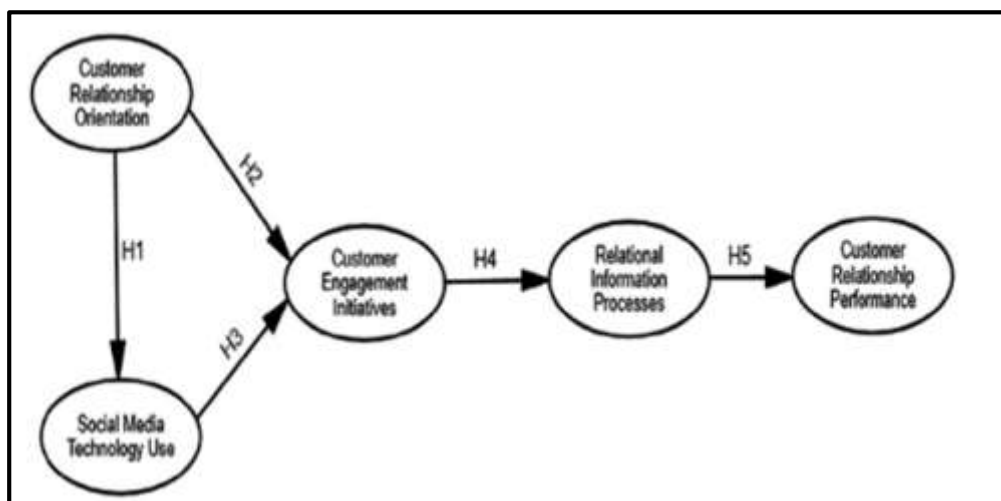


Figure 2.11 Customer Relationship Management Model

The model, initially formulated by Jayachandran et al. (2005), elucidates the nuanced interplay involving librarian relationship orientation, information exchange processes, and the integration of Library Relationship Management (LRM) technology within the strategic framework of Librarian-User Relationship Management (LURM). Significantly, the construct assessing the use of LRM technology has been refined to assess the integration of contemporary communication tools, such as social media, into librarian-user interactions. In response to evolving patterns of user engagement, a novel construct named the user interaction initiative has been introduced to gauge the levels of involvement and interaction between librarians and users, dynamics significantly influenced by the capabilities of modern communication technologies. Additionally, the

information exchange processes construct has undergone refinement to capture, integrate, and access user-related information specifically derived from various interaction channels, reflecting the evolving landscape of information management within the context of librarian-user relationships.

In the context of fostering a quality relationship between librarians and users, the concept of Customer Relationship Management (CRM) takes on a crucial role. As elucidated by Lucidchart.com (n.d.), CRM, which stands for Customer Relationship Management, serves as the foundational strategy for libraries aspiring to cultivate a user-centric culture. This approach revolves around the effective management and optimization of existing and prospective librarian-user relationships. Put simply, the success of librarian-user relationship quality hinges on a profound understanding of individual users and the user community at large. By meeting user requirements, exceeding expectations, and delivering added value, libraries employing CRM principles can forge robust connections. Ultimately, libraries excelling in cultivating quality relationships with users gain a competitive edge, positioning themselves as preferred resources and fostering a sense of engagement and satisfaction among their user based.

In the realm of fostering quality relationships between librarians and users, Pokharel (2011) insights on Customer Relationship Management (CRM) gain particular relevance. While the term CRM might appear deceptively straightforward, its multifaceted nature is underscored by diverse definitions and implementations. Presently, a spectrum of conceptual interpretations surrounds CRM, ranging from IT-centric initiatives aimed at enhancing librarian-user interactions to more holistic approaches emphasizing the cultivation of enduring relationships. This holistic perspective aligns with the profound sentiments expressed by Barnes (2004), highlighting a sincere commitment to establishing meaningful connections with users. Leveraging CRM principles in librarian-user interactions can prove instrumental in cultivating strong and enduring relationships. Strategies centered on service excellence and customer intimacy not only contribute to positive word-of-mouth, a potent form of advertising, but also underscore the pivotal role of librarians in building a resilient brand that resonates positively with users. As such, Pokharel's insights offer valuable considerations for libraries aiming to elevate the quality of relationships with their user community.

Soraya and Sazali (2023) investigation delve into the application of Customer Relationship Management (CRM) as a strategic framework within the Medan City library. The primary focus is on fulfilling the diverse needs of library customers, acquainting them with the array of library services, and fortifying enduring customer relationships. Employing a qualitative research approach, the study gathers data through interviews and employs descriptive analysis to discern patterns and draw comparisons with pertinent theoretical frameworks. Notably, the research reveals that the Medan Regional Library adeptly implements CRM, aligning seamlessly with Lukas (2001) three pivotal dimensions people, processes, and technology. Moreover, the library emerges successful in navigating the crucial facets of fostering customer loyalty, reflecting the efficacy of its CRM strategy in building and sustaining strong connections with library patrons.

Agariya and Singh (2013) scrutinize the definition of Customer Relationship Management (CRM) by adopting a dual perspective, incorporating insights from relationship marketing theory and resource-based theory. The latter theory categorizes resources controlled by an organization, highlighting their role in implementing strategies geared towards operational efficiency. In the trajectory of marketing evolution, a discernible shift has transpired from conventional marketing approaches to a more customer-centric paradigm. This contemporary approach underscores the significance of cultivating customer relationships and comprehending their expectations. The effectiveness of this transformative shift is gauged by the organization's adeptness in both acquiring and retaining customers, leading to the conceptual emergence of CRM. Positioned as a strategic concept, CRM is dedicated to the meticulous management and fortification of customer relationships, with an overarching goal of ensuring sustained customer satisfaction.

Seeman and O'Hara (2006) delineate Customer Relationship Management (CRM) as a multifaceted set of functions intricately designed to deliver and integrate products and services meticulously tailored to meet the unique needs of customers while surpassing their expectations. This strategic approach is underpinned by the overarching goal of fostering a heightened level of customer satisfaction. The application of CRM can manifest through direct interactions with customers or leverage technology to streamline processes and elevate the delivery of services.

Juwitasary (2022) asserts that modern companies extend beyond the conventional use of social media for digital marketing and brand elevation; they are

actively prioritizing customer loyalty by strategically implementing Customer Relationship Management (CRM) strategies. In response to the challenges posed by the pandemic, businesses are compelled to refine their CRM approaches by seamlessly integrating social media, thereby embracing the capabilities of Social CRM technology. This pivotal shift not only enables companies to gain a competitive edge through heightened brand awareness, community building, and optimized advertising but also facilitates active engagement with potential customers. Juwitasary et al. (2022) further identify three predominant frameworks which is Technology, Organization, Environment (TOE), Technology Acceptance Model (TAM), and IS Success Model commonly employed to measure the impact of social media on the performance of CRM models, emphasizing the evolving landscape where social media plays a crucial role in shaping and enhancing customer relationships.

In their exploration of electronic customer relationship management (e-CRM), Anaam et al. (2020) shed light on the interconnected dynamics between technological, organizational, and individual factors. Their findings reveal a notable positive correlation between these factors and not only customer satisfaction but also perceived usefulness. Significantly, the study establishes a direct and positive relationship between perceived usefulness and employees' job satisfaction. This underscores the pivotal role of e-CRM in influencing the satisfaction levels of both customers and employees within the unique context of Malaysia's mobile telecommunications industry. The research contributes valuable insights by delving into the impact of individual factors on employee satisfaction, thereby enriching our understanding of the intricate dynamics at play in the realm of electronic customer relationship management.

Ly and Nguyen (2022) illuminate the escalating significance of Customer Relationship Management (CRM) as an indispensable business strategy in their comprehensive study. The scholarly contribution transcends existing research gaps by introducing a robust conceptual framework tailored specifically for the aviation industry. Within this framework, particular attention is given to the pivotal role of knowledge sharing within CRM, the discernible influence of CRM practices on team innovation, and the nuanced mediating effect of team innovation on overall team performance. This study not only extends the theoretical foundations by applying the opportunity-ability-motivation theory but also enriches the scholarly discourse in both marketing and aviation management. By addressing critical intersections between CRM, knowledge sharing, innovation, and performance within the aviation sector, Ly

and Nguyen provide a valuable resource that advances our understanding of strategic CRM applications in complex industry contexts.

The noteworthy work conducted by Dewnarain et al. (2019) delves into the dynamic realm of customer relationship management (CRM) and, notably, its evolution into social customer relationship management (SCRM or CRM 2.0). This study aptly underscores the intersectionality of financial considerations and interactive dimensions within this transformative evolution. The focal point of the investigation is a comprehensive conceptual model, skilfully crafted to elucidate the intricate interplay between CRM, social media, customer engagement, positive word of mouth, and brand loyalty. In doing so, the authors illuminate the multifaceted landscape of contemporary consumer relationships, positioning their work as a cornerstone in the edifice of hospitality CRM and marketing communication theory. One of the distinctive contributions of this research lies in its potential to guide practitioners in the hospitality industry towards economic advantages, specifically in the realms of cultivating brand loyalty and fostering positive word of mouth through the strategic utilization of SCRM. As such, the study not only enriches the theoretical foundations of CRM and marketing but also serves as a practical compass for those navigating the intricacies of contemporary consumer engagement in the ever-evolving digital landscape.

In their insightful investigation, Al-Arafati et al. (2019) illuminate a pivotal facet of customer relationship management (CRM) system implementation. Their findings underscore the paramount importance of output quality as a decisive factor in shaping customer satisfaction within this framework. Moreover, the study unveils a nuanced relationship, positioning output quality as a potent mediator that intricately connects top management support to customer satisfaction in the context of CRM implementation. This nuanced understanding not only refines our comprehension of the intricate dynamics at play but also provides practical insights for organizations aiming to optimize customer satisfaction through judicious management of both output quality and top-level support.

In their book chapter, Gallego-Gomez et al. (2021) delve into a comprehensive exploration of the ramifications of CRM system implementation within the banking industry, specifically focusing on its influence on dynamic capabilities. Through rigorous investigation, the authors pinpoint distinct dynamic capabilities that arise as a consequence of CRM implementation. Employing advanced analytical tools such as structural equation modeling (SEM) on a representative sample of banking firms, they

validate a robust theoretical model. The study's outcomes underscore the considerable potential of CRM implementation to augment dynamic capabilities within the sector, providing invaluable practical insights for companies aiming to strategically leverage this pivotal relationship.

The discussion presented by Zeng (2022) explicitly mentions "customer relationship marketing," which is a term closely associated with CRM, the broader context of understanding customer needs, effective communication, and maintaining customer relationships aligns with the fundamental principles of CRM. In the realm of B2B international marketing, CRM plays a pivotal role in managing and optimizing interactions with customers. It involves strategies and technologies aimed at fostering positive customer experiences, understanding their needs, and building long-term relationships. The improved paragraph underscores the importance of nurturing customer relationships in the international trade context, and the principles discussed align with the core tenets of CRM in a business-to-business setting.

Marques et al. (2021) discusses the application of CRM in the hospitality industry as a means of enhancing client retention and gaining a competitive edge. The paragraph highlights the theoretical framework that explores concepts like relational marketing and CRM, emphasizing their relevance to the hospitality field. The specific focus on the Estoril Coast in Portugal and the surveys conducted among local hotels serve to provide practical insights into the utilization of CRM in the industry. The findings underscore the significance of relationship marketing, which aligns with the core principles of CRM in fostering and managing relationships with customers. Overall, the paragraph presents a cohesive narrative that links the theoretical aspects of CRM to their practical implementation within the hospitality sector.

Perry (2022) outlines a consistent pattern among the four most widely adopted CRM models, which involves a sequential process of understanding customers, categorizing them, initiating communication, and subsequently leveraging acquired insights to refine internal processes and optimize overall strategies. Dewnarain et al. (2021) delve into an investigation of customer brand engagement within the hospitality industry, establishing crucial connections between customer engagement, positive word of mouth, and brand loyalty. Grounded in the principles of social customer relationship management theory, the research meticulously collected data from 373 hotel customers in Mauritius. The discerned outcomes suggest that engaging in social CRM activities can catalyse service innovation and elevate customer engagement with the hotel brand.

The study, grounded in social customer relationship management theory, provides insights into how CRM strategies, particularly those involving social interactions, can impact service innovation and customer engagement with the hotel brand.

Ang (2011) illuminated a prevalent managerial challenge related to the optimal utilization of social media. This predicament often arises from the conflation of customers and online community members within the overarching umbrella term 'social CRM.' Ang (2011) proposes a more precise nomenclature, advocating for the term 'community relationship management' (CoRM), which better encapsulates the dynamics inherent in online communities. In such digital spheres, organizations stand to gain multifaceted advantages, including the facilitation of marketing research, cultivation of brand advocates, strategic advertising, product innovation, service cost reduction, loyalty and sales enhancement, and heightened overall visibility. Adopting the concept of CoRM proves instrumental for organizations seeking to harness the full spectrum of benefits that online communities offer.

Guha et al. (2018) investigation, centered on interviews with Australian SME owners, delves into the realms of social Customer Relationship Management (CRM) and customer engagement. The study illuminates a significant trend wherein customers employ social media platforms to share content and exert positive influence on others. However, the research highlights a critical disparity, revealing that SMEs frequently grapple with resource constraints, along with challenges in data management and privacy. To address these hurdles and unlock the full potential of social CRM, the study advocates for the adoption of automated methods that seamlessly integrate social data with CRM systems. Such an approach offers SMEs a strategic pathway to overcome challenges and harness the transformative capabilities inherent in social CRM.

### 2.5.3.2 An Extended Model of Consumer Behaviour for Social Media Brand Communities

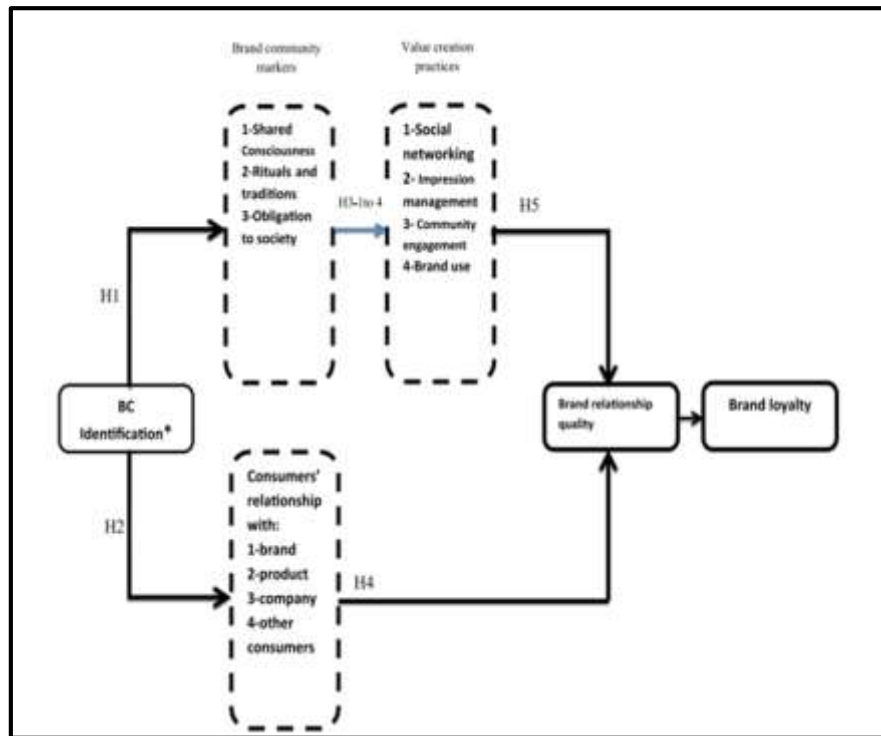


Figure 2.12 An Extended Model of Consumer Behaviour for Social Media Brand Communities

Within the context of a customer-centric brand community, beyond the observable markers that signify members' sentiments and commitments to the brand community, four pivotal relationships with elements within the community have been identified by scholars such as Fournier (1998) and McAlexander et al. (2006). These fundamental relationships encapsulate the connections between the brand, product, marketer, and consumer. Since the seminal work of McAlexander et al. (2006), a brand community is conceptualized as the amalgamation of these entities and the intricate relationships interwoven among them. Termed as the foundational building blocks, these relationships form the bedrock of a branding community.

A critical proposition in this theoretical framework posits that, for these foundational blocks to coalesce and construct a cohesive branding community, individuals must undergo a transformative process of identification. This entails a cognitive and affective categorization of oneself as an integral part of a larger collective, coupled with a deep commitment to its collective well-being and integrity. This profound identification, as delineated by McAlexander et al. (2006) as the kinship

between members or alternatively termed as "We-Ness" by Muniz and O'Guinn (2001), signifies an initial and indispensable stage in the intricate process of community building.

#### **2.5.4 Variable Identification**

Informed by an extensive review of existing literature, the study delineates key variables, wherein the independent variables encompass facets of social media capability specifically, relationship capability, service innovation capability, and tools capability. While the dependent variables under scrutiny encompass dimensions of librarians' agility and relationship quality. This construct aligns with the theoretical framework guiding the investigation, notably grounded in the Dynamic Capability Approach, Technology Acceptance Model and Customer Relationship Management Model.

Social media capability is selected as an independent variable due to its profound impact on reshaping the dynamics of interactions between companies and their customers, as highlighted by Bornhofen (2012). Librarians' agility assumes a crucial role in maintaining essential library services and facilities within organizational frameworks. Coordination by library administration is emphasized to ensure harmonious efforts among stakeholders, mitigating conflicting roles. Drawing on insights from Gallivan, Spitler, and Koufaris, as cited in Holden (2012), the introduction of innovations like social media is facilitated by organizational support or informal assistance from colleagues. In this study, three independent variables are examined: (i) relationship capability, (ii) service innovation capability and (iii) tools capability. Librarians' agility is contingent upon social media capabilities, fostering value co-creation and enhancing the quality of relationships between librarians and users. The dependent variable of relationship quality, encompassing trust, commitment, and satisfaction, is a multidimensional construct capturing diverse facets of a relationship's strength (Palmatier et al., 2006). This construct, as noted by Roy and Eshghi (2013), leads to positive customer outcomes. Among the variables representing relationship quality, trust, commitment, and satisfaction are commonly employed, echoing the findings of Clark et al. (2017).

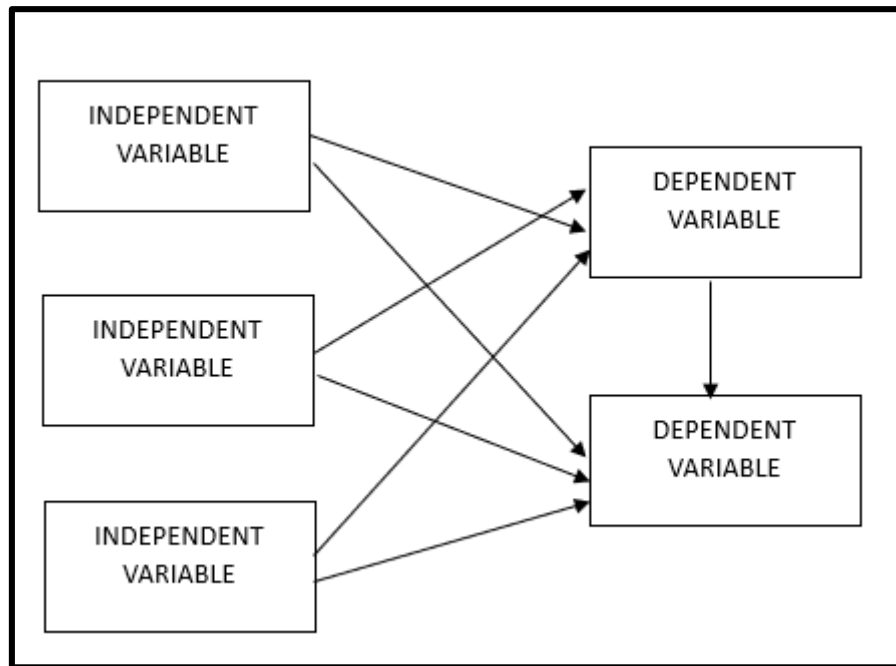


Figure 2.13 Variable Identification

Employing the hypothetico-deductive method as detailed by Sekaran and Bougie (2016). This study scrutinizes variables to elucidate their contributions in delineating the causative factors of a given problem and devising potential solutions. Theoretically, an intricate web of correlations among these variables is woven, accompanied by insightful explanations detailing their potential influence on the prevailing situation. From this postulated network of relationships, specific hypotheses or informed judgments can be derived. For instance, at this juncture, we may posit the involvement of certain elements based on the identified patterns and connections.

Cooper and Schindler (2006) assert that a descriptive study primarily aims to address inquiries related to the who, what, when, where, and occasionally how aspects of a phenomenon. In contrast, an explanatory study, often referred to as a causal study, delves into the intricate analysis of how and, significantly, 'why' questions. This type of investigation specifically endeavours to unravel cause-and-effect relationships between various variables under scrutiny. Building on this perspective, Zikmund et al. (2009) highlight the multitude of variables that a research study may encompass:

- a. Independent variable (s)
- b. Dependent variable (s)
- c. Moderating variable (s)
- d. Mediating variable (s) and
- e. Extraneous variable

In the realm of empirical research, an independent variable assumes the role of the predictor variable, posited as the instigator of change in the dependent variable, also known as the criterion variable. In an illustrative scenario, consider the hypothetical relationship between advertising expenditures and sales growth here, "advertising expenditures" represents the independent variable, while "sales growth" serves as the dependent variable. Beyond this dichotomy, the interplay of variables is further nuanced by moderator and mediator variables. A moderator, as expounded by Sekaran and Bougie (2010), exerts a substantial contingent influence on the relationship between the independent and dependent variables.

This dynamic interaction, denoted statistically as an "interaction effect" (Cohen et al., 2002), is exemplified in the context of advertising expenditures and sales growth, where the "type of media" might be construed as a moderator, shaping the nature of the observed relationship. Concurrently, a mediating variable, alternatively termed a mediator or intervening variable, assumes the crucial function of establishing a causal link between the independent and dependent variables. Extending our example, the concept of "product awareness" may be contemplated as a mediating variable, elucidating the underlying mechanism through which advertising expenditures influence sales growth.

Recognizing the subtleties inherent in variable measurement is paramount for researchers. Variables may manifest as unidimensional, such as age or occupation, or multi-dimensional constructs, exemplified by personality, job stress, or motivation. For the latter, operational definitions must be meticulously developed, as articulated by Cooper and Schindler (2006). The nature and complexity of variables necessitate a judicious approach to measurement, underscoring the researcher's proficiency in navigating the intricate landscape of empirical inquiry.

Upon formulating hypotheses or delineating research questions, a researcher gains clarity regarding the pertinent variables in their research endeavour. Equally crucial for the researcher is the understanding of how these variables will be quantified and the nature of data to be collected for each. The data may assume various forms, ranging from nominal and ordinal to interval or ratio, as elucidated by Zikmund et al. (2009):

- (a) A nominal scale is one in which letters or numbers assigned to objects, people or places only help us in their identification, or categorization, e.g., gender, employment status.

- (b) An ordinal scale is one that arranges objects, people or places according to their magnitude in a particular order, e.g., students' academic status in a college: freshman, sophomore, junior and senior.
- (c) An interval scale is a scale that not only arranges objects, people or places according to their magnitude in a particular order, but also distinguishes this ordered arrangement in units of equal intervals e.g., the temperature scale (thermometer). However, interval scale does not have a natural zero.
- (d) A ratio scale is a scale that possesses all the characteristics of above scales and also has an absolute (natural) zero e.g., salary, sales

### 2.5.5 Proposed Conceptual Framework

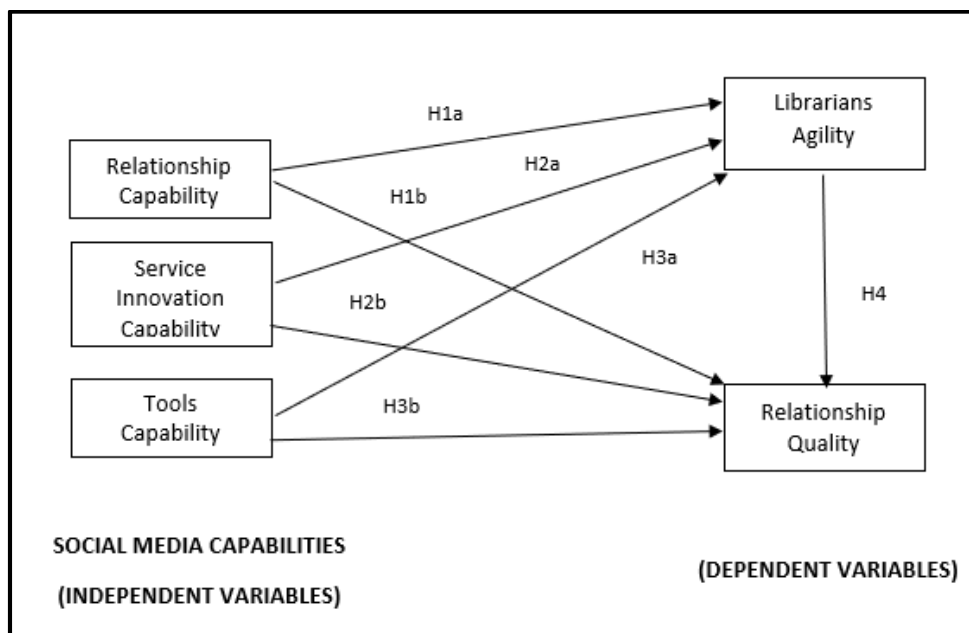


Figure 2.14 Proposed Conceptual Framework

The study's hypotheses can be divided into nine (7) main ideas based on the developed theoretical framework

- a. H1a - Relationship capability has a significant positive effect on librarians' agility.

McCann and Barlow (2015); Davis (1986); Barney (1991); Wang et al. (2017) noted that audience orientation and user-generated content are standard features of many types of social media. Anybody may share content that he or she created or picked from existing content on virtual social networking with others. Wang et al. (2017)

classified the relationship capability in strategic level which is change to networking focused paradigm and community-embedded organizational culture. Kietzman et al. (2011) identified that relationship capability builds from interacting with each other using social media.

- b. H1b - Relationship capability has a significant positive effect on relationship quality

Relationship capability the ability to develop and maintain strong interpersonal and institutional connections is central to cultivating high-quality relationships. Munshi and Liu (2022) found that libraries that actively manage relational networks improve user loyalty and engagement through sustained trust. Jusoh et al. (2023) observed that relationship-oriented marketing practices significantly enhanced user satisfaction and perceived emotional support in academic libraries. Bakar and Hamzah (2024) highlighted that community engagement initiatives improved communication and trust between users and library staff, strengthening relational quality. Rahman and Ismail (2020) emphasized that trust and interpersonal rapport core components of relationship capability led to better user retention in digital library environments. Finally, Cambridge (2022) underscored that strong relationship capability correlates with improved stakeholder perception and loyalty across nonprofit and public service institutions, including libraries.

- c. H2a - Service innovation capability has a significant positive effect on librarians' agility

Rowley (2011) stated that a library's capacity to innovate depends on its employees' and customers' knowledge and skills, culture, IT adoption and new service development processes. Islam et al. (2015) identified that service innovation is vital to the library's continued success, as evidenced by the fact that 24 per cent of participants (four) agreed, with 71 per cent (12) strongly agreeing. However, Jin and Choi (2019) improvements in product innovation have been found to have a favourable influence on business performance. Dossena, Mochi, and Bissola (2020) thought nowadays, restaurant managers are primarily concerned with a limited set of social media skills related to relationship and marketing capacities; nevertheless, some use social media to drive organizational transformation and innovation.

- d. H2b - Service innovation capability has a significant positive effect on relationship quality

Service innovation capability enhances a library's ability to deliver personalized, timely, and relevant services, thereby fostering stronger relationships with users. Husain et al. (2023) demonstrated that service innovations particularly through social media platforms improved user trust and emotional engagement in Malaysian academic libraries. Wang et al. (2018) supported this, showing that innovative service customization in the hospitality industry elevated perceived service quality and loyalty, a concept transferable to library contexts. Similarly, Yeh (2017) emphasized that when libraries implement innovative and user-responsive services, they achieve greater user satisfaction and relational depth. Lee and Song (2022) also found that Korean academic libraries that pursued service innovation reported significantly higher levels of user loyalty and trust. Finally, Chong et al. (2021) highlighted that technological service enhancements (like live chat and AI tools) led to improved communication quality, directly influencing relationship satisfaction.

e. H3a- Tools capability has a significant positive effect on librarians' agility

Trainor et al. (2014) indicated that social media viewed as a tool that helps a firm to develop long-lasting customer relationships. Jacobson (2011) identified that many libraries are using Facebook as a marketing tool. Chu and Du (2013) found that most library employees thought social networking technologies were valuable, although reluctance among librarians and limited engagement by users (i.e. students) were seen as roadblocks. A'dillah et al. (2016) identified that Facebook provides the most significant impact as promotional tool, disseminating information, medium in answering user inquiries and offers instant feedback on the promotional activities. However, Marion et al. (2014) identified that social networking tools like weblogs and Twitter negatively impact management evaluation while having no impact on new product development (NPD) team collaboration and concepts/prototypes generated.

f. H3b- Tools capability has a significant positive effect on relationship quality

Tools capability defined as the ability to effectively utilize digital platforms and technologies contributes directly to better user interactions and stronger relationships. Khin and Niyomyart (2021), through a meta-analysis, confirmed that digital tools indirectly enhance stakeholder trust by improving responsiveness and reliability. Nasir and Ibrahim (2023) showed that chatbot-enabled services in libraries improved patron satisfaction through instant and consistent service delivery. Amin and Roslan (2024) found that cloud-based collaboration tools enabled more efficient librarian-user communication, improving perceived service quality and trust. Goh and Mohamed

(2020) linked successful tool adoption to stronger user confidence and relational satisfaction in academic libraries. Additionally, Ciampi et al. (2021) noted that organizations using tools for data-driven personalization and interactive interfaces reported stronger stakeholder engagement and relationship longevity.

g. H4- Librarians' agility has a significant positive effect on relationship quality.

Saha et al. (2017) have identified the impact of organizational performance on both organizational agility and the efficacy of human resources. The capacity of elucidated by Alavi et al. (2014), manifests in employees' adeptness at swiftly perceiving external changes and responding precisely through the collection, interpretation, and utilization of pertinent information. Agility encompasses the pivotal aspect of promptly recognizing external changes, implicating that employees must access copious information from diverse locations, as indicated by the studies conducted by Ma and Karaman (2017).

#### **2.5.6 Previous Studies on Social Media in Academic Libraries**

Social media is a ubiquitous presence across various sectors worldwide, with libraries being no exception to its widespread adoption. Libraries have harnessed the power of social media for diverse purposes, leveraging its unique combination of "high tech," interactivity, and the human touch to extend their information resources and services beyond traditional confines (Sharyna & Basri, 2018). Research conducted by Choi and Joo (2021) reveals that public libraries in the United States recognize social media as a pivotal tool for library marketing and express intentions to intensify its use. A similar sentiment is echoed in South Africa, as findings from a study by Rabatseta et al. (2021) indicate that social media is extensively employed for marketing library services, disseminating announcements, and enhancing service delivery. Meanwhile, in Ghana, academic libraries have embraced social media applications, particularly Facebook, to facilitate the provision and accessibility of library services and resources, as well as to engage with their user base (Mensah & Onyancho, 2021).

In light of the research conducted by Esew et al. (2021), they observed that a significant majority of students at the University of Lagos and the Kashim Ibrahim Library express a strong preference for utilizing WhatsApp as their primary platform for accessing information services provided by their respective libraries. This finding underscores the prominence of WhatsApp as a preferred medium for library-related

interactions among these students. Moreover, the study's recommendations offer valuable insights for library professionals at both the Kashim Ibrahim Library and the University of Lagos Library. The researchers propose that librarians should increase their utilization of social media platforms. By embracing social media more actively, librarians can explore additional opportunities for engaging with patrons and fulfilling the diverse requirements of their library users. This shift toward enhanced social media engagement aligns with the evolving information-seeking behaviour of today's library clientele, thereby enhancing the overall effectiveness of library services.

Social media is widely recognized as a powerful force in today's world, affecting daily life and being actively embraced by a multitude of organizations, institutions, and enterprises, as noted by Uche and Udo-Anyanwu (2019). In this digital age, organizations and institutions leverage various social media channels to engage with their clientele in real time, transcending geographical boundaries, as Esew et al. (2021) suggested. When we specifically examine academic libraries, it becomes apparent that the adoption of social media is a common phenomenon on a global scale. However, the extent of its acceptance can vary from one library to another, contingent upon the integration of information and communication technology (ICT) into their services. Adewojo and Mayowa-Adebara (2016) have highlighted the advantages of incorporating social media in academic libraries. Among these benefits, social media platforms allow library staff to remain up-to-date with the latest developments in their field. This, in turn, supports the provision of services that effectively cater to the diverse needs of library consumers. Therefore, the integration of social media capabilities in academic libraries not only keeps libraries in tune with the changing times but also enhances their ability to meet the evolving demands of their users.

A research study conducted by Tella et al. (2013) engaged the participation of 200 academic librarians, aiming to investigate the role of social networking sites (SNSs) in their professional advancement. The findings of this study revealed that social media platforms are recognized as dependable sources of educational information, offering valuable opportunities for knowledge dissemination. The act of knowledge sharing is acknowledged as a pivotal facet of career development within the library profession, as it fosters creativity and innovation, thus contributing significantly to professional growth and advancement in this field. Professional development often encourages librarians to explore innovative approaches and solutions. This creativity and problem-solving mindset are fundamental to agility, enabling librarians to respond effectively to

complex issues and emerging demands within the library setting. Many professional development activities involve knowledge sharing among librarians. Sharing insights and experiences fosters a collaborative and learning-oriented culture, which, in turn, enhances the agility of the entire library team in addressing challenges and opportunities.

Despite the numerous publications on social media research, the literature indicates that social media in the library setting in the developing world is still in its early stages, particularly in establishing social media authority and trust activities (Magoi et al., 2019). The study by Okuonghae (2018) also found that the level of librarians' awareness of the use of social media for informal academic communication is low. Further, it is worth noting that while the study by Okuonghae (2018) revealed a low level of awareness among librarians regarding the use of social media for informal academic communication, recent research conducted by Alley and Hanshew (2022) in U.S. academic libraries indicates a growing trend in the use of platforms like TikTok for creating engaging and humanizing videos, particularly focusing on highlighting library collections and spaces. This shift toward more humanizing and entertaining content in academic libraries aligns with the evolving social media landscape.

The rising popularity of social media has significantly impacted service providers, including academic libraries, by enhancing their capacity to elevate user awareness regarding library services, resources, events, and new acquisitions, among other facets. As noted by Mensah and Onyanha (2022), this evolution underscores the growing indispensability of social media as a tool within the professional realm of library services. According to the study conducted by Mogale and Bobape (2023), respondents at the University of Limpopo displayed a high level of familiarity with popular social media platforms such as Facebook, Twitter, Instagram, and WhatsApp. These platforms were predominantly used for personal purposes. In their professional roles, these academic librarians engaged with users within educational institutions, including schools and faculties. They effectively utilized platforms like the library blog and Facebook to promote and market library services. However, the widespread use of social media among academic librarians in their workplace has encountered several challenges. These obstacles encompass restrictions on social media usage during work hours, a notable lack of knowledge or training on how to harness social media effectively for professional purposes, the absence of institution-wide social media policies, and a deficiency of managerial support, particularly in terms of training and

resources for leveraging social media in their roles as librarians. As scrutinized in the study by Howard et al. (2018), students' heightened concerns about privacy when using social media underscore the importance of well-defined social media policies within educational institutions. Such policies serve as a framework for addressing privacy issues and ensuring responsible and secure use of social media platforms among students and staff.

In a recent study by Magoi and Echezona (2022), the authors highlighted the pervasive issue of misinformation on social media platforms. The rapid dissemination of vast amounts of data on the Internet has given rise to spurious content and website impersonation. In response to this trend, academic libraries and their dedicated librarians are adopting a cautious and skeptical approach when evaluating information obtained from the social media landscape. Librarians, who serve as information professionals, are responsible for meticulously verifying the legitimacy and credibility of the materials they encounter. This vigilant stance is vital in preventing the proliferation of inaccuracies, rumors, and disinformation, which can swiftly propagate through social media. Through these efforts, librarians aim to preserve the authority, credibility, and trustworthiness of the social media facets of their libraries. The accuracy of the information available to library patrons hinges on this rigorous fact-checking and verification process. Librarians play an indispensable role in promoting a more informed and educated society by ensuring the dissemination of accurate and reliable information.

Within the urban landscape of Kerman City, a study conducted by Saadat Nasab (2015) reveals that social networks serve as a platform for the exchange of knowledge, experiences, ideas, group activities, and leisure among both librarians and patrons of public libraries. Furthermore, Agyekum et al. (2016) emphasize the multifaceted utility of social networks within the librarian community. Librarians employ these platforms not only to disseminate library materials, news, and events and engage in group discussions but also to disseminate information regarding public libraries and share electronic resources.

## **2.6 Overview of Studies on Social Media Use in Academic Libraries**

Social media is very important in the 21<sup>st</sup> century since the openness of data allows researchers to access information more easily. According to Chore (2023), social

media is the most effective way to connect with library patrons, as it enables easy sharing and receiving of information. In addition, lockdown challenges hindered globally library access, prompting libraries to promote digital services, launch online exhibition, enhance website content, and support the Let's Read Together campaign during pandemic. While Powers et al. (2025) shared that social media can be a great tool in getting network and build two-way communication. As noted by Chore (2023) social media is also as virtual environments that improve service delivery. Dr Maya in her talk session during International Book Fair 2022 at Putra World Trade Centre (PWTC), KL on June, 2022 shared that the social media as an essential platform for the growth of the library (Tengku Zarith Sofia, 2022). Other than that, social media act as a promotion for sustainable development goals as explained by Tengku Adil (2016).

### **2.6.1 Findings on The Impact of Social Media on Librarianship**

Social media has greatly influenced libraries by improving community interaction, increasing access to digital materials, and fostering digital literacy. Libraries now use social platforms to communicate with patrons, promote their offerings, and advocate for support. However, they face challenges like dealing with the flood of information and adjusting to users' growing expectations for immediate access and quick responses. In essence, social media presents both opportunities and difficulties as libraries work to modernize and stay relevant in their communities. According to Chi (2020), social media is an essential tool that enables libraries to reach their targeted and potential users. Platforms such as Facebook, WhatsApp, Twitter, LinkedIn, WeChat, wikis, Instagram, and YouTube provide convenience for library patrons by facilitating access to services through the use of these adopted tools and technologies. Based on Anwar and Zhewei (2021), social media has become a major part of society, transforming both our personal and professional standards of living.

During pandemic Covid-19, social media has been used dramatically by libraries around the world. This can be look from several literatures from Google Scholar. According to Tamaro (2020), Italian libraries used social media for online communication with communities during Covid-19. The Australian Library and Information Association (2020) created a webpage to share updates on library services and news related to their Covid-19 response. While Brown (2020) mentioned that libraries in the USA have shut down their physical education locations while making

their digital services accessible. Other than that, the Medical Library Association (2020) has developed a resource guide on its website for health sciences librarians and information professionals. Adil (2020) recommended that Pakistani librarians assist users by curating lists of online resources on library websites, providing information literacy instruction via social media, and creating online institutional repositories or library guides. While the results found by scholar Rafiq et al. (2021) that the library professionals more involve on open digital contents, updating library websites, downloading and sending books/articles, answering queries of users. Somehow, Javed et al. (2023) found that social media negatively impact to librarians' performance. While Akagha (2021) focused on the extensively use of social media by librarians at Federal University of Technology Library but did not address the challenges they faced.

Persson and Sveningsson (2016) observed that Linköping University Librarians assist researchers stay updated with advancements in their fields and increase the visibility of their work through the use of social media. Other researchers believe that the use of social media in libraries requires a standardized policy that all librarians can refer to for guidance. According to Khan and Du (2017) found that majority female librarians at Pakistan are aware of social media adoption and frequently use it for their professional development.

## **2.6.2 Gaps and Limitations in Existing Literatures**

By conducting a title search on the use of social media in libraries through online databases and Google Scholar, numerous relevant studies were found. This indicates that previous researchers have extensively explored this topic. However, this thesis specifically examines the impact of social media on enhancing the efficiency of librarians, with a focus on twenty public universities in Malaysia. The gaps found in existing literature where past research has not thoroughly explored the extent of social media proficiency among librarians in academic libraries or the key factors that contribute to their agility in performing tasks. Some previous studies fail to address the library policies required for effective social media use in libraries. In this study, library policy is viewed as a moderator between librarians' agility and relationship quality between librarian and user.

## **2.7 Conclusion**

This chapter explained the research topic consists of the previous study with a theoretical review from various researchers. The justification of research content, research design and methodology will discuss further in Chapter 3.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

The chapter includes the research methodology used in the research study. The chapter has been divided into ten sections. The research approach follows the introductory section; research methodology; research design; production of questionnaire; population; sample and collection of data; data analysis strategy; research ethics; research questions and research method mapping and; finally overview of the chapter.

#### **3.2 Ontological and Axiological Assumptions of the Research Method**

Philosophically, notwithstanding, it is important to understand the research phenomena at large, this research also makes claims about what knowledge is (ontology), what values go into it (axiology), how research is written (rhetoric), and the method of studying the inquiry (methodology). Creswell (2003) explains that there are three approaches to research – qualitative, quantitative, and mixed methods strategy – as explained in Table 3.1. It is noted that the qualitative and quantitative approaches have been used and well discussed for decades by scholars, however, mixed mixed-methods strategy is noted to be new and still developing in its form and substance. Hence, Creswell (2003) suggest three questions for the design of the research as follows:

1. What knowledge claims are being made by the researcher (including theoretical perspective)?
2. What strategies of inquiry will inform the procedures?
3. What methods of data collection and analysis will be used?

When designing the research, these three alternative inquiries proposed by Cresswell (2003) play a significant role in identifying the quality of the research findings. Different types of research problems call for a different type of approach.

Table 3.1  
Comparison between qualitative, quantitative and mixed methods research approach

Strategy of inquiry	Method	Usage
<i>Qualitative research approach</i>		
Ethnographic design	<ul style="list-style-type: none"> <li>Emerging methods</li> <li>Open-ended questions</li> <li>Field observation and data documentation</li> <li>Text and image analysis</li> </ul>	<ul style="list-style-type: none"> <li>Collect meaning of concept from the participants</li> <li>Focus on a single concept and phenomenon</li> </ul>
Narrative design	<ol style="list-style-type: none"> <li>Open-ended interview and audio -visual data</li> <li>Text and image analysis</li> </ol>	<ul style="list-style-type: none"> <li>Bring personal value into the study</li> <li>Study the context or setting participants</li> <li>Validate the accuracy of findings</li> <li>Make interpretations of the data</li> <li>Create an agenda for change/reform</li> </ul>
<i>Quantitative research approach</i>		
Experimental design Quasi-experimental design	<ul style="list-style-type: none"> <li>Predetermined</li> <li>Closed-ended questions</li> <li>Performance, attitude, observation and census data</li> <li>Statistical analysis</li> </ul>	<ul style="list-style-type: none"> <li>Test to verify theories or explanations</li> <li>Identify variables to study</li> <li>Relate variables in questions or hypotheses</li> <li>Use standards of validity and reliability</li> <li>Observe and measure information numerically</li> <li>Use unbiased approach</li> <li>Employ statistical procedures</li> </ul>
<i>Mixed-methods research approach</i>		
Mixed-methods design	<ul style="list-style-type: none"> <li>Both predetermined and emerging methods</li> <li>Both open-and-closed ended questions</li> <li>Multiple forms of data drawing on all possibilities</li> <li>Statistical and text analysis</li> </ul>	<ul style="list-style-type: none"> <li>Collect both quantitative and qualitative data</li> <li>Develop a rationale for mixing</li> <li>Present visual picture of the procedure in the study</li> <li>Employ the practices of both qualitative and quantitative research</li> </ul>

(Source: Creswell, 2017)

### **3.3 Exploratory Research**

As its name implies, the objective of exploratory research is to explore a problem or situation to provide insights and understanding. According to Cavana et al. (2001), exploratory research is undertaken when little is known about the situation at hand or when the information is available on how similar problems or research items have been resolved in the past. Thus, for this research, extensive preliminary works need to be undertaken to gain familiarity with the social media phenomena and understand the occurrence before a model is developed. Fundamentally, this research is undertaken to better comprehend the impact of social media towards librarians' agility and relationship quality (librarian-user), which is the focus of this study.

Exploratory research encompasses secondary data, pilot surveys, expert surveys, focus group and unstructured observation (Malhotra, Birks, & Wills, 2013). This research uses quantitative method strategy in which applied the pre-test expert, pilot study, and actual study. Certainly, for this research, exploratory study will help the grasp the phenomenon of interest for advancing knowledge through theory building and hypothesis testing.

### **3.4 Research Approach**

According to Creswell and Creswell (2017), quantitative analysis is a method of testing objective hypotheses by analysing the relationship between variables, and these variables, in turn can be measured on instruments so that numbered data can be analysed using statistical method. Quantitative method answers the question of what and how. The list of determinants was further broken down into the four dimensions of social media capability, librarians' agility, and relationship quality. An expert assessment form was created consisting of four sections: Demographic Profile, Social Media Capability, Librarians' Agility, and Relationship Quality. The review form is distributed to four expertise (see Appendix) which is two from academicians (senior lecturers at Faculty of Information Management, University Technology MARA) and two from non-academicians (senior librarians at University of Malaya Library).

### 3.5 Quantitative Research

The second stage of the quantitative method approach is survey research, which is the systematic gathering of data from respondents to understand and predict aspects of the population of interest. It also implies that the data is gathered through a questionnaire (Tull & Hawkins, 1987). In this survey research, respondents are required to answer a range of questions in respect of their behaviour, awareness, attitudes, motivations, intentions, demographics, and lifestyle (Malhotra, 2007). Survey methods can be categorised according to the mode used to administer the questionnaire. Survey questionnaires may be managed in four major modes: (i) personal interviews, (ii) mail interviews, (iii) telephone interviews, (iv) electronic interviews via email or through the internet. The survey method has several advantages (Malhotra, 2007), such as:

- i.) The questionnaire is easy to manage
- ii.) The data gathered are trustworthy because the responses are limited to the alternatives stated
- iii.) The variability in the results that may be caused by differences in interviewers could be reduced due to fixed-response questions
- iv.) Analysis, coding and interpretation of data obtained are quite straightforward

Nonetheless, survey research comes with its share of drawbacks, as highlighted by Malhotra (2007):

- i. Respondents may be incapable or unwilling to give inquired information especially if the information requested is sensitive or private
- ii. Structured questions and fixed-response alternatives may affect the validity of particular data, such as feelings and beliefs
- iii. Stating the precise words of questions is not simple
- iv. Question wording may have a major effect on response
- v. Misunderstanding cannot be detected and corrected
- vi. It may not be feasible to check the seriousness or honesty of responses

Notwithstanding the aforementioned, Bryman and Bell (2007) point out that surveys are a suitable and helpful method of gathering data under three conditions:

- i. When the research objectives need quantitative data

- ii. When the information insight is logically precise and well known to the respondents
- iii. When the researcher has substantial previous knowledge of certain problems and the variety responses likely to come out

### **3.6 Sampling Design**

Sampling is a crucial method for increasing the validity of the collected data and ensuring that the sample is representative of a population. It is a procedure that uses a small number of units of a given population as a basis for drawing conclusions about the whole population as a basis for drawing conclusion about the whole population (Cavana et al., 2001; Zikmund et al., 2003). Execution of the sampling process requires a detailed specification of how the sampling design decision should be made with respect to the population, sampling frame, sampling unit, sampling technique and sample size (Malhotra, 2007). Cavana et al. (2001) stress that the reason for sampling is that it saves time, cost and human resources. Studying the sample rather than the entire population leads to more reliable results because fatigue is reduced, resulting in fewer errors in collecting data, especially when the elements involve a large number.

Attributes or characteristics in the population are generally normally distributed. The sample has to be chosen in such a way that the distribution of the characteristics of interest follows the same type of normal distribution in the sample as it does in the population. The more representative the sample is of the population, the more generalizable are the findings of the research (Malhotra, 2007). According to Cavana et al. (2001), there are two types of sampling: (i) non-probability and (ii) probability sampling. In non-probability sampling, the representatives do not have a known or predetermined chance of being selected as subjects whereas probability sampling is used when the representativeness of the sample is of importance in the interest of wider generalisability. Each of these sampling methods has different strategies, where, for qualitative, as discussed earlier, non-probability sampling was applied; however, for the quantitative research, this research opts for probability sampling. It is important for the quantitative stage to use probability sampling because of the need for highly accurate estimates of the target population in order to test the research framework and its hypotheses.

Malhotra (2007) explains that there are four general types of probability sampling: (i) simple random sampling, (ii) systematic sampling, (iii) stratified sampling, and (iv) cluster sampling. Among these probability sampling methods, this research uses stratified sampling because of conducting this research specifically on social media users. stratified sampling is defined by Malhotra (2007, p384) as:

*A probability sampling technique that uses a two-step process to partition the population into sub-populations or strata. Elements are selected from each stratum by a random procedure (Malhotra, 2007).*

Malhotra (2007) adds that the variables used to partition the population into strata are referred to as stratification variables. The criteria for the selection of these variables consist of (i) homogeneity, (ii) heterogeneity, (iii) relatedness, (iv) cost. The elements within a stratum should be as heterogeneous as possible. The stratification variables should also be closely related to the characteristics on interest. The more closely these criteria are met, the greater the effectiveness in controlling the extraneous sampling variation. The best number of strata should not be more than six as anything beyond this number will affect the sampling precision. From the stratified sampling, the stratified variables identified were then sampled using simple random sampling. Simple random sampling is defined as:

*Technique in each element on the population has a known and equal probability of selection. Every element is selected independently of every other element and the sample is drawn by a random procedure from a sampling frame (Malhotra, 2007, p382).*

Table 3.2  
List of items

Dimension	Operational definitions	Determinant	Number of items
Relationship Capability	Connected networks that involve multiple business interactions and conversation through different channels. (Hollebeek, 2019)	Review like effects, generate knowledge about changes in the market, evaluate technical feasibility, analyze the changes in relationship management, ensure output network, knowledge sharing in organization, exploit internal and external information	5

Dimension	Operational definitions	Determinant	Number of items
Service Innovation Capability	The new concept of service is being implemented or significantly improved. (Wilkinson, Dainty, Neely, Brax, & Jonsson, 2009)	Develop and provide new product and services, adopts innovation work designs, using technology, commercialize new product, appearance of product, improve customer relationship, encourage collaborations	5
Tools Capability	Tool to contact end customers promptly and directly with relatively low costs and high efficiency. (Kaplan & Haenlein, 2010)	Scheme IT standardization, integrate IT, understand trend IT, strategic core competence, IT strategy	5
Librarians' Agility	Refers to the ability to react to and adapt changes appropriately and promptly and allows employees to capitalize changes and turn them into opportunities and development. (Alavi, Wahab, Muhamad, & Shirani, 2014)	<ul style="list-style-type: none"> <li>• Sensing agility</li> <li>• Decision making agility</li> <li>• Acting agility</li> </ul>	6
Relationship Quality	Relationship quality is the combination of networking, conversation and community building (Habibi et al., 2016)	<ul style="list-style-type: none"> <li>• Trust</li> <li>• Commitment</li> <li>• Satisfaction</li> </ul>	6

### 3.7 Research Design

In accordance with the scholarly insights of Sekaran and Bougie (2010), progression beyond the establishment of the research theoretical framework invariably directs scholarly endeavors toward the pivotal domain of crafting the research design. This phase, heralded as the architectonic blueprint of investigative endeavors, encapsulates a comprehensive plan of action, delineating the array of activities to be systematically undertaken. In consonance with the erudition of Fraenkel and Wallen (2010), the research design stands as an intricately organized methodology, orchestrated with the precision requisite for furnishing a holistic and cogent response to the overarching research inquiries. Echoing this sentiment, Holmes (2010) contributes to the discourse by emphasizing that the research design serves as a deliberate and purposive framework, intricately tailored to facilitate the nuances of a scholarly inquiry. Of paramount importance in the labyrinthine trajectory of research design is the consequential decision-making juncture concerning the selection of a research

approach. This pivotal choice, as underscored by the scholars, holds sway over the manner in which pertinent information germane to the study is to be elicited. Notably, the research design process unfolds as an intricate tapestry of interrelated decisions, each weaving into the fabric of methodological rigor and scholarly coherence.

As Jaakkola (2020) suggested that research design explains how the ingredients of the study were selected, acquired, and analysed to effectively address the research problem, and reviewers can evaluate the robustness of the process by reference to established conventions in the existing literature. Pinsonneault and Kraemer (1993) stated that a research design is the strategy to address. Suggestion from expertise saying that there is no definite right and wrong approach for any one research task. What is important is for the researchers to adopt an approach that would best provide them with answers to their research questions and/or issues under investigation (Gerson & Horowitz, 2002). The components of research design were specified by Sekaran and Bougie (2010) are: purpose of study, unit of analysis, types of investigation, sampling design, extent of researcher interference, time horizon, study setting, measuring and measures, data collection and data analysis. This study used Sekaran and Bougie (2010) approach to research design due its scope (Table 3.3).

Table 3.3  
Research Design

<b>Component of Research Design</b>	<b>Choice of this study</b>
Purpose of research	This study aims to investigate the influence of social media capability on librarians' agility, to measure the effect of librarians' agility on relationship quality and to determine the influence of librarians' agility on relationship quality moderated by library policy
Types of investigation	It is a correlational study as it will examine the relationship between variables (constructs)
Unit of analysis	Individual i.e., the person (i.e., the librarians) working in the university academic libraries in Malaysia
Sampling	Stratified sampling i.e., refers to a group of non-probability sampling technique in which units are selected because they have characteristics that you need in sample.
Time Horizon	Cross sectional i.e., snapshot method in which data collected at one time

<b>Component of Research Design</b>	<b>Choice of this study</b>
Study setting	Non-contrived: data collected in a natural environment, without artificial set-up (using a questionnaire)
Instrument for Data Collection	Questionnaire – research instrument consisting of a number of questions or other types of inputs for collecting information from the respondent

### **3.8 Questionnaire Development**

According to ReadexResearch (2023), planning a survey requires many steps and decisions along the way: “How many people do I need to survey? How am I going to distribute the survey?” And, while people often figure out what questions they want to ask, many overlook the importance of expert, unbiased questionnaire design. When you want to ask questions with the purpose of reliably representing a large group of people and even making high-stakes decisions based on the answers, it’s important that your questions avoid bias and are not open to personal interpretation. More importantly, they need to gather the information you think they do. In short, ask clear questions that gather straightforward answers instead of riddles that require mental gymnastics. Questionnaire development is more of a science than an art, and reliance on people with research experience can make the difference between a lacklustre or downright disastrous effort and one that turns you into a hero. Here are just a few examples of how attention to the questionnaire can impact the overall project.

According to Ohab (2010), research questions and hypotheses provide a sound conceptual foundation for a research project. Well thought out research questions provide focus to a researcher and determine what, when, where and how the data will be collected and provide an important link between conceptual and logistic aspects of research project (Ohab, 2010). While according to Stuermer (2009), developing research questions is the most important task in your research project as it influences every aspect of your research including; theory to be applied, method to be used, data to be gathered and unit of analysis to be assessed etc. To collect data regarding social media capability in academic libraries, a structured questionnaire will be used. Questionnaire is a useful tool to collect descriptive data (Creswell and Creswell, 2017). Figure 3.1 summarize the process and procedures of questionnaire development conducted in this study.

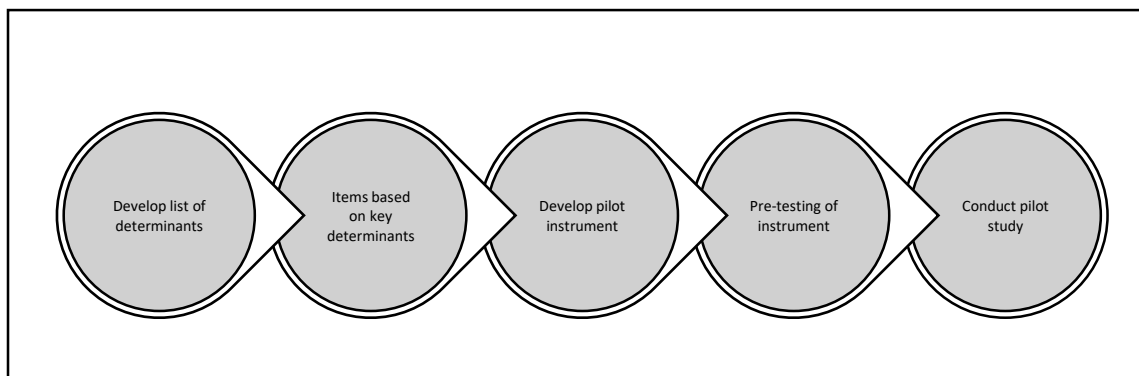


Figure 3.1: Questionnaire Development Process

The questionnaire consists of five sections. The first section is used to collect bibliographic information, while the second section is used to manage social media capability data in academic libraries among librarians. The following three sections were then used to assess the agility of the librarians’ agility. The four sections are used to collect relationship quality data.

Table 3.4  
Structure and content of questionnaire

Section	Content
A	Demographic information <ul style="list-style-type: none"> <li>• Age</li> <li>• Gender</li> <li>• Length of service</li> <li>• Type of university</li> <li>• Job status</li> <li>• Qualification</li> <li>• Do you use social media in your profession</li> <li>• What purpose do you use social media</li> <li>• What social media tools do you use</li> <li>• What do you use these tools for</li> <li>• How long have you been using social media tools (any tool)</li> </ul>
B	Social Media Capabilities <ul style="list-style-type: none"> <li>• Relationship capability</li> <li>• Service innovation capability</li> <li>• Tools capability</li> </ul>
C	Librarians’ Agility <ul style="list-style-type: none"> <li>• Sensing agility</li> <li>• Decision-making agility</li> <li>• Acting agility/Practicing</li> </ul>
D	Relationship Quality <ul style="list-style-type: none"> <li>• Trust</li> <li>• Commitment</li> <li>• Satisfaction</li> </ul>

Table 3.5  
Questionnaire sample from previous research

Concept	Variables	Items	Sources
	Relationship capability	<ul style="list-style-type: none"> <li>customer relation and retention</li> <li>recognised ability through network</li> <li>introduced new customer-based tools which enabled customers to interact with other members in social networks</li> </ul>	Olanrewaju & Hossain (2018), Kargaran, Pour & Moeini (2017), McCann & Barlow (2015), Trainor, Andzulis, Rapp, & Agnihotri (2014), Kietzmann, Hermkens, McCarthy, & Silvestre (2011), Najaf Lu, Shami, & Sohrabi (2013)
	Service innovation capability	<ul style="list-style-type: none"> <li>Librarian understanding on service innovation</li> <li>Ways and barriers</li> <li>Innovation, R&amp;D, impact innovation</li> <li>Indicate extent of changes (new product/processes added)</li> </ul>	Islam, Agarwal & Ikeda (2015), Jin & Choi (2019), Garcia-Morales, Martín-Rojas & Lardón-López (2017)
	Tool capability	<ul style="list-style-type: none"> <li>Identifying using typology 'social media cluster'</li> </ul>	Vanwynsberghe, Boudry, Vanderlinde & Verdegem (2014)
Librarians' agility		<ul style="list-style-type: none"> <li>Identifying the effects two applications in promoting library service</li> <li>Workforce agility scale (Proactivity, adaptability, resilience)</li> </ul>	A'dillah, Intan Nurbaizura, Sufy Rabea Adawiya, & Muhammad Faizal (2016), Sherehiy (1998)
Relationship quality	Trust	<ul style="list-style-type: none"> <li>Trust-creating activities (involve authority for content)</li> <li>Correlation analysis (trust, commitment, communication, conflict, and handling)</li> </ul>	Magoi, Abrizah & Yanti Idaya Aspura (2020), Ibrahim et al. (2015)
	Commitment	<ul style="list-style-type: none"> <li>Identifying the reasons for workplace social media participation</li> </ul>	Munene and Nyaribo (2013), Ibrahim, Hamid, Babiker, & Ali (2015)
	Satisfaction	<ul style="list-style-type: none"> <li>Identifying satisfaction using likert-scale</li> </ul>	Sumaedi & Bakti, 2013, Ozkaya, LaRose & Jung Oh (2014)

### 3.9 Scaling

Likert-scale instruments are most frequently used to measure psychological constructs (see Messick, 1989, for a detailed discussion of the notion of construct), which is one aspect of a person's affect or cognition that can be operationalized and measured. Joshi et al. (2015) suggested that the original Likert scale is a set of statements(items) offered for a real or hypothetical situation under study. Participants are asked to show their level of agreement (from strongly disagree to strongly agree) with the given statement (items) on a metric scale. Here all the statements in combination reveal the specific dimension of the attitude towards the issue, hence, necessarily inter-linked with each other (Singh, 2006). Since the advent of Likert scale in 1932, there have been debates among the users about its best possible usability in term of reliability and validity of number of points on the scale (Colman, Norris, & Preston, 1997; Preston and Colman, 2000; Chang, 1994; Cox, 1980). Likert (1932,7) in his original paper, discussed about the infinite number of definable attitudes existing in a given person with possibility of grouping them into "clusters" of responses. He further conversed about the assumption of his "survey of opinions" on which he provided his results and psychological interpretations (Likert, 1932).

The key assumptions of his survey being firstly, the presentation of item on scale are such that, so as to allow the participants to choose clearly opposed alternatives. Secondly, the conflicting issues chosen were empirically important issues thus, results themselves constituting an empirical check on the degree of success. Thus, it is argued in particular context of clustering of attitudes. Considering reliability of the responses from participants in a survey, chances are that the 7-point scale may perform better compared to 5-point scale owing to the choice of items on scale defined by the construct of survey. The 7-point scale provides more varieties of options which in turn increase the probability of meeting the objective reality of people. As a 7-point scale reveals more description about the motif and thus appeals practically to the "faculty of reason" of the participants (Chang, 1994, Cox, 1980). A Likert scale is a psychometric scale that has multiple categories from which respondents choose to indicate their opinions, attitudes, or feelings about a particular issue (Nemoto & Beglar, 2014). There is already much discussion about using different Likert scales;5 point and 7-point Likert scales are used for this study. These have already been validated by previous researchers who adopted the instruments items. In this study, scale "1= Strongly Disagree, 2= Disagree,

3= Somewhat Disagree, 4= Not Sure, 5= Somewhat Agree, 6= Agree, 7= Strongly Agree” was adapted in survey questionnaires.

### **3.10 Data Coding**

According to Othman (2013), coding is simply the process of identifying categories or themes that exist in a manuscript or text. Before that, the manuscript was usually broken up into easily readable lines. Codes are obtained from phrases, keywords, words or statements that represent something similar or opposite in the manuscript. This code can be marked with a line, a coloured marker pen or given a specific label. Meanings on the same or opposite codes can be included in a category. This category or theme can be further divided into subcategories and subthemes to facilitate the interpretation of qualitative data. The coding process can be divided into three commonly used stages, namely open coding, axial coding, and selective coding. Open coding is the first phase of analysing data independently and openly without any focus on identifying indicators that lead to the discovery of a specific code.

Open coding can be done through descriptions of the room. The indicator shows that there are objects that can be coded as t-shirts, jeans, iPads and badminton trophies. While axial coding is a step to identify relationships between codes that have been identified during open coding. the word axial can be understood as something that is formed and is around an axis. For the analogy of axial coding, codes that carry the same meaning can be categorized as clothing categories, gadget categories, sports equipment categories and academic materials categories. Next, selective coding involves the process of selecting and identifying key categories that are interrelated or integrated to give a more complete meaning and storyline to the research question or phenomenon being studied. In the example of selective coding, the categories of clothing, sports equipment and academic materials are selected as categories to give the story line. with the combination of these three categories, the room is likely to be occupied by a student, a single male who is also a teacher.

Data coding involves assigning numerical values to the questions contained in the survey instrument. Coding the data was done by assigning the code to each individual response for each question within the survey (Malhotra, 2007; Hair et al., 2010). The scheme for categorizing the questionnaires was used as the basis for coding in accordance with the theme set from the actual data. Before that, the manuscript was

usually broken up into easily readable lines. In addition, in order to ensure that human error was avoided, an online survey was considered to be the best solution to this problem. For the online survey, the data were collected and entered in a spreadsheet by the system itself; therefore, human error was not possible. All questions in the questionnaires were coded as presented in Table 3.6.

Table 3.6  
Latent variable coding

<b>Latent Variables</b>	<b>Code</b>
Relationship Capability	RC
Service Innovation Capability	SIC
Tools Capability	TC
Relationship Quality	RQ

### 3.11 Pre-Test Instrument

The second step conducted was refining the instrument's statements by conducting content validity through a pre-test expert validation form. During the preliminary examination of the questionnaire, the following steps are carried out: (i) firstly, the evaluation is carried out with the main supervisor, (ii) secondly, the instrument is sent to experts for feedback. The selection of the expertise is based on the length of service and the level of study. The experts were invited via their official email and they came from a library background which is two of them were senior lecturers at public universities in Malaysia and the other two were senior librarians at academic libraries in Malaysia (Table 9). The experts were asked to assess the instrument's statements for relevancy and clarity, appropriateness of the dimension used to measure the level of social media capability, and suitability of each statement. Each expert gives their comments and ticks the appropriateness of the instruction and questionnaire items listed in the pre-test expert validation form. Pretesting is a test of the appropriateness and understanding of the question in the survey. The aim of pretesting is not to act as data collection but to identify feedback and identify a problem in the questions. Pretesting helps the researcher to identify any problems such as misleading questions, grammatical errors, incomplete questions, and misspellings. Kianpour et al. (2017) suggested three is the minimum number of the panel for pretesting the instrument. On

the other hand, Babonea and Voicu (2011) suggested that the number of a panel of experts should be three to eight expertise. This method of validity instrument same as that studied by Donadon et. al (2020) that the content validity was performed by an expert committee consisting of two clinical psychologists who also worked as researchers and university professors.

Table 3.7  
List of panel experts

No	Panel experts	Time frame to study the instrument
1	Associate Professor – 1 (Universiti Teknologi Mara)	8 weeks
2	Senior lecturer (Dr) – 1 (Universiti Teknologi Mara)	8 weeks
3	Senior librarian (S44) – 1 (Universiti Malaya)	1 day
4	Senior librarian (S44) – 1 (Universiti Teknologi Mara)	1 week

In an earnest endeavour to bolster both the content and construct validity of this study, a meticulous pretesting protocol for the research instrument is slated for implementation. The pivotal role of content validity in this undertaking cannot be overstated, as it serves as a linchpin for evaluating not only the aptness of individual scale items but also the overall comprehensiveness of the dimensions under scrutiny. By subjecting the instrument to a rigorous content validity assessment, this research study aim to ensure that each scale item contributes meaningfully to the measurement of the targeted dimensions, thereby fortifying the robustness of the entire measurement tool.

Simultaneously, the pursuit of construct validity assumes paramount importance in my methodological framework. This facet of validation is geared towards establishing the appropriateness of the scale's representation, affirming its capacity to effectively measure the intended constructs. The process of scrutinizing construct validity delves into the nuanced interplay of theoretical concepts, affirming that the chosen measurement tool aligns harmoniously with the underlying theoretical framework. Through this process, the foundation upon which the subsequent analysis and interpretation of data will rest is strengthened, ensuring a methodologically sound and substantively meaningful research endeavour.

To have valid and reliable data a primary questionnaire was prepared using google form keeping the sole purpose of the study in mind. Data was collected using the pre-tested questionnaire and before finalizing the questionnaire, necessary corrections, and modifications were done based on the pre-test experience. The questionnaire link was sent to each participant with an email. The first page of the questionnaire had detailed information regarding the purpose of the study, ethical approval was also taken from each respondent, and instructions were also given regarding how to withdraw the provided information (If anyone wishes). The answers of the respondents were kept private.

Pre-testing or piloting procedure is used to recognize the faults in the questions, perplexity in questions, or whatever that can be a barrier to data collection through questionnaire. For this study, the pretesting will be done by both academicians and librarian-officers via online surveys. After all the valuable suggestions, amendments and changes will be incorporated in the questionnaire.

Table 3.8  
Operational definition and measurement for social media capabilities

Operation definition	Measurement	Sources
<b>SOCIAL MEDIA CAPABILITIES</b>		
<b>Relationship Capability (RC)</b> – Relationship capability define as connected networks that involve multiple business interactions and conversations through different channels.	RC1 – We proactively review the likely effects of changes in our library environment on customers  RC2 – We proactively generate knowledge about the changes in the market characteristics and trends  RC3 – We continuously evaluate the technical feasibility of developing new services  RC4 – We continuously analyse the changes in the relationship environment which can affect our library  RC5 – We ensure that the output of our work is disseminated across the organization	Marchand, Hennig-Thurau & Flemming (2020); Trainor, Rapp, Agnihotri (2014); Foltean, Trif, and Tuleu (2019); Zhan and Hyun (2017); Jermisitti parset, Sutduean, and Sriyakul (2018); Wali and And-Wali (2018); Bhatti, Farhan, Ahmad, and Sharif (2019); Zhan, and Hyun (2017); Reinartz, Kraft, and Hoyer (2004); Chang, Shen, and Liu (2016); Agnihotri et al. (2016)
<b>Service Innovation Capability (SIC)</b> – Service innovation capability define as the new concept of service is being implemented or significantly improved.	SIC1 – Our library reduces the developing time of new products and services  SIC2 – Our library is flexible to provide products and services according to the demands of the customers	Marchand, Hennig-Thurau, and Flemming (2021); Glynn (1996); Hipp and Grupp (2005);

<b>Operation definition</b>	<b>Measurement</b>	<b>Sources</b>
	<p>SIC3 – Our library develops in-house solutions to improve our information processes</p> <p>SIC4 – Our library actively works to constantly adjust information processes</p> <p>SIC5 – Our library adopts innovative work designs</p>	<p>Nijssen, Hillebrand, Vermuelen, and Kemp (2006); Vargo and Lusch (2008); Miles (1993); White (2001); Li et al. (2012); Liang et al. (2012); Rowley (2011)</p>
<p><b>Tools Capability (TC)</b> -Tools capability define as tool to connect end customers promptly and directly with relatively low costs and high efficiency.</p>	<p>TC1 – We have our scheme for IT standardization</p> <p>TC2 – We have ability to integrate IT</p> <p>TC3 – We understand the trend of IT</p> <p>TC4 – We have ability to integrate functional requirement</p> <p>TC5 – We have ability to leverage information technology as strategic core competence</p>	<p>Marchand Hennig-Thurau and Flemming (2020); Jue, Marr, and Kassotakis (2009); Read et al. (2012); Brook (2012); Fernandez (2009); Anari, Asemi, Asemi, and Abu Bakar (2013); Hinchliffe, and Leon (2011); Arumugam and Balasubramani (2019)</p>
<i>LIBRARIANS' AGILITY</i>		
<p><b>Sensing Agility (SA)</b> – Sensing agility is the organizational ability to investigate and monitor events and changes in the environment (changes in customer preferences, movements of new competitors, new technologies) in good time.</p>	<p>SA1 – The organization has been fast in terms of detecting changes that occur in customer preferences for products</p> <p>SA2 – The organizations has been fast detect changes that occur in customer preferences for products</p> <p>SA3 – The organization has been fast to detect changes in technology</p>	<p>Park (2011)</p>
<p><b>Decision Making Agility (DMA)</b> – Decision making agility is the ability to gather, restructure, and evaluate relevant information from various sources to explain the impact of the business on time and identity opportunities and risks based on the interpretation of events.</p>	<p>DMA1 – The organization analyses important events concerning customers, competitors, and technology without any delay</p> <p>DMA2 – The organization detect the opportunities and threats to changes in customers, competitors, and technology in time</p> <p>DMA3 – The organization carries out a specific action plan in order to meet customer needs without any delay</p>	<p>Wageeh (2016)</p>
<p><b>Acting Agility or Practicing (AA)</b> – Acting agility or practicing is the task of action consists of a series of activities to reassemble organizational resources and modify business processes based on the working principles resulting from the decision-making task to react to changes in the environment.</p>	<p>AA1 – The organization can reconfigure its resources in the proper time</p> <p>AA2 – The organization can re-adjust operations carried out in a timely manner</p> <p>AA3 – The organization can use new technology in the proper time</p>	<p>Eisenhardt and Martin (2000); Wageeh (2016)</p>

Operation definition	Measurement	Sources
<i>RELATIONSHIP QUALITY</i>		
<b>Relationship Trust (RT)</b> – Relationship trust is the reliability and integrity of the exchange partner.	RT1 – Our user makes beneficial decisions to us under any circumstances RT2 – Our user is willing to assistance us without exception RT3 – Our user is sincere at all times RT4 – We and our user have friendly relations	Morgan and Hunt, (1994); Rapp, Trainor, and Agnihotri (2010); Han, Lee, and Seo (2008)
<b>Relationship Commitment (RC)</b> – Relationship commitment is a constant desire to maintain a special relationship.	RC1 – We and our user do our best to maintain the relationship RC2 – The relationship between us and our user is strengthened RC3 – We and our user always try to keep each other’s promises RC4 – We and our user are willing to continue the relationship	Palmatier et al. (2006); Rapp, Trainor, and Agnihotri (2010); Han, Lee, and Seo (2008)
<b>Relationship Satisfaction (RS)</b> – Relationship satisfaction is the consumer’s overall satisfaction with the relationship.	RS1 – Relatively to your competitive, how well does your library perform on customer satisfaction, customer loyalty and customer organization RS2 – Our company objectives are driven by customer satisfaction RS3 – Our competitive advantage is based on understanding customers’ RS4 – We frequently measure customer satisfaction	Bontis et al. (2007).

Buschle et al. (2022) suggested that the aforementioned methods are useful for identifying problematic questions, but using open pretesting can reveal considerably more about the mechanisms and causes of any possible problems. Once the broad structure of the questionnaire, including the subjects and concepts, has been created, the emphasis moves to creating and perfecting individual questions. This is when open pretesting approaches become extremely relevant. Open pretesting allows for a deeper understanding of why some questions might not work as anticipated. This strategy improves the effectiveness of the questionnaire by enabling more thorough feedback.

According to ReadexResearch (2023), always asked, “What’s the best sample size?” Seems simple enough, but it isn’t. Larger is better, because the more responses you have, the lower your margin of error (MOE). However, ReadexResearch realize there sometimes is the need to balance precision with budget. For many applications, an acceptable MOE is five percent. At this level of precision, the survey is likely to be

both economical and useful. In addition to considering your acceptable MOE, researcher need to know who the data is going to represent before determining sample size. If the data just needs to represent the population as a whole, a smaller sample size may fit the bill. If, however, it is desirable to represent certain groups within the population (younger versus older, different job functions then there's more to mull over.

### **3.12 Ethics Committee**

This research is being conducted in partial fulfillment of the requirement for the award of the Doctor of Philosophy (PhD) degree and aims to explore “Social media capabilities among academic librarians’ in Malaysia: impacts on librarians’ agility and librarian-user relationship quality.” This research involves collecting data through online questionnaires and distributed to librarians.

Each respondent will be specifically informed of the research purposes and their right to participate voluntarily or to leave at any point without any form of retribution. A letter of consent and an informed consent form will be distributed in order to ensure that the respondent's knowledge and consent are legally obtained. Data gathered will be ensured to remain confidential and to only be used for academic purposes only. Personal details will remain confidential and kept securely at all times during the research.

Obtaining ethics committee approval for questionnaires is an essential requirement for any PhD project that involves human participants. This approval confirms that the study’s design, data-gathering methods, and survey items comply with established ethical standards, including respect for participants’ rights, privacy, and voluntary participation. By examining the questionnaire, the ethics committee evaluates whether the questions are suitable, non-sensitive, and unlikely to cause emotional, social, or cultural discomfort. Such review is vital in protecting vulnerable groups and ensuring that all individuals involved are treated with fairness and care. Additionally, ethical clearance strengthens the legitimacy and scholarly reliability of the research, demonstrating to examiners, supervisors, and the wider academic community that the study has been conducted responsibly. It also shields both the researcher and the institution from possible legal or reputational issues linked to unethical data collection. Beyond compliance, ethics approval encourages openness and responsible research practice, helping maintain public confidence in academic work. In essence, securing approval from the ethics committee is not merely an administrative step but a crucial

process that upholds research integrity and prioritises participant well-being throughout the study.

It is the researcher's aim to carry out the study in conformity with ethical principles such as informed consent, protection of privacy, no-harm to respondents and equitability in participation. Formal clearance was gained from the UiTM Research Ethics Committee on 28 June 2022, whereby this research has met the intended research ethics requirements.

### **3.13 Pilot Study**

The data for this study was collected by way of a survey questionnaire administered on 30 academic librarians at Tun Abdul Razak Library, University Technology Mara (UiTM), Shah Alam, Selangor started on 28 April 2022 until 23 May 2022. The age-range of the respondents was between 21 to more than 49 years old. The sample consisted of 8 male and 22 females. Librarians were instructed in the survey to choose level of social media capability where it influences librarians' agility and relationship quality (librarian – user). A quantitative approach and the questionnaires were shared using google drive to librarians at Tun Abdul Razak Library, UiTM. The answered data was used to draw the data for the study.

### **3.14 Reliability of The Instrument: Pilot Study**

The highest consistency is for social media capability, librarians' agility, and relationship quality variables which represent more than 0.8 scores respectively, while the lowest consistency values is relationship capability variables which is 0.756. Sekaran (2000) argued that the minimum accepted level is 0.60; otherwise, the instrument is considered poor, while Dillon, Madden and Firtle (1994) indicated that scores over 0.50 are acceptable. Detailed Cronbach alpha scores base is presented in Table 3.9.

According to Hair et al. (2019), the measurement model is evaluated in this study using four criteria: discriminant validity, convergent validity, model fit evaluation, and reliability indicator of the variables/items observed (Henseler, Ringle, & Sinkovics, 2009: 2014). The values of the reliability and validity constructs were compared to the genuine values of the population model, which is more efficient and

useful in establishing which estimating procedures are trustworthy when analysing measurement models, which is one of the goals of this research. Many studies consider that reliability and validity are important qualities in SEM context analysis in order to ensure that the route coefficients acquired may be universally accepted for managerial decisions or for the progression of dynamics (Afthanorhan, Awang, & Aimran, 2020; Basheer et al., 2021). The value of outer loading and CR define the construct's reliability. Meanwhile, the AVE value determines the convergent validity. The value of outer loading is used to determine the indicator's dependability. The indicators are conditionally approved for the constructions that hold the indicators through the CR and AVE values (Hazirah, Dzin, & Lay, 2021; Raof et al., 2021; Basheer et al., 2021)

Cronbach's Alpha and composite reliability, according to Hair et al. (2019), must be more than 0.7 and 0.95, respectively, for internal consistency dependability. The study's Cronbach's Alpha and composite reliability ratings were all more than 0.7, indicating that all variables showed good internal consistency dependability.

Table 3.9  
Reliability of Instrument Measure

Measures	No. of variables	No. of items	Cronbach's Alpha
Social Media Capability			
Relationship capability	1	5	0.756
Service innovation capability	1	5	0.899
Tools capability	1	5	0.772
Librarians' agility			
Sensing agility	1	3	0.919
Decision making agility	1	3	0.958
Acting agility/Practising	1	3	0.879
Relationship quality			
Relationship trust	1	4	0.807
Relationship commitment	1	4	0.813
Relationship satisfaction	1	4	0.965

### 3.15 Survey Questionnaire

After revision, there are 40 items, including demographic profile questions (see Appendix), in the questionnaires to be used for the actual data collection. The

questionnaires distributed to both the control and treatment groups were retrieved, and it was noted that all were adequately completed.

Estimation of sample size in research using Krejcie and Morgan is a commonly employed method. Krejcie and Morgan (1970) used the following formula to determine sampling size.

$s$	=	$X^2NP(1-P)/d^2(N-1) + X^2P(1-P)$
$s$	=	required sample size
$X^2$	=	the table value of chi-square for one degree of freedom at the desired confidence level
$N$	=	the population size
$P$	=	the population proportion (assumed to be .50 since this would provide the maximum sample size)
$d$	=	the degree of accuracy expressed as a proportion (.05)

Figure 3.2 The minimum sample from Krejcie and Morgan (1970)

Based on Krejcie and Morgan's (1970) table for determining sample size, for a given population of 450, a sample size of 208 would be needed to represent a cross section of the population.

### 3.16 Data Analysis

The following was the main statistical techniques used to analyse the data and obtain the results of the study:

- a) Descriptive statistics to analyse the respondent's profile
- b) Cronbach's Alpha, a reliability measures that indicates how well a set of items related to each other's (that is if the items have internal consistency). A higher value of Cronbach's Alpha (0.6 or higher) indicates higher reliability of the item's measures
- c) Structural Equation Modelling (SEM) using SMARTPLS to estimate the causal-effect relationship among multiple and interrelated variables.

<b>Objectives</b>	<b>Hypotheses</b>	<b>Analysis Type</b>
To determine the level of relationship capability on librarians' agility	H1	Inferential analysis
To examine the level of service innovation capability on librarians' agility	H2	
To investigate the level of tools capability on librarians' agility	H3	
To analyze the effect of librarians' agility on relationship quality	H4	

Figure 3.3 The objectives, hypotheses and analysis type

### 3.17 Validity and Reliability of Scale

Messick (1989) stated that validity is “an integrated evaluative judgment of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of inferences and actions based on test scores and other modes of assessment” (p. 13). Thus, it is essential that any interpretation of a test score must be defended using both theory and empirical evidence. It is a necessary step to assess the validity and reliability of data for the valid results. For the present research study validity test before distribution of questionnaire will be important to avoid ambiguity in questions that may lead to misinterpretation. In this research, two types of validity were used, namely the face and content validity. Content validity means extent to which a measure embodies all aspects of a construct while face validity means the test will measure is supposed to measure. In order to maximize the validity of this study, the researcher will adopt three methods discussed above, including literature reviews, pretesting and pilot study.

### 3.18 Conclusion

This chapter discussed the research design precisely to understand how present study will achieve the research objectives. Using positivist paradigm, a quantitative survey will be conducted. Survey instrument will be developed based on previous studies. Pretesting and pilot testing will be performed to assure the quality of measures and also the validity and reliability of the instrument. Lastly, the data analysis plan for the study will include both descriptive and inferential analysis.

## **CHAPTER 4**

### **FINDINGS**

#### **4.1 Introduction**

This chapter examines the results of the study. The results from pre-test and pilot test also shared in this chapter. Before the presentation of the descriptive statistics for all the constructs, the data preparation which includes the data screening and cleaning was conducted to ensure that the data is independent and identical. The demographics of the respondents who participated in the field study were also exhibited. Both statistical software, IBM-SPSS 26.0 and SMARTPLS 4.0 were utilized to complete the data analysis on the field data to answer all research questions of this research.

#### **4.2 Survey Analysis**

Studying web-based surveys, also known as online or Internet surveys, has yielded numerous intriguing findings. As we needed data from across Malaysia and potentially beyond, an online survey was considered to provide broader access to information from diverse geographical samples. Furthermore, taking into account cost and time considerations, existing literature indicated that online surveys were not only cost-effective but also expedited data collection.

This section presents the data analysis for the online survey in accordance with the analysis techniques presented in Chapter 3, section 3.16. An online questionnaire was used to measure the theoretical constructs. Pretesting and pilot testing took place before the actual online survey research was released to the target population. Four questionnaires were sent out for pretesting. After slight modification was done, 30 questionnaires were sent out online for pilot testing. Based on the feedback received from the pilot study, another round of purification and modification was undertaken, after which, the actual survey research was immediately released online; as summarised in Table 4.1.

Table 4.1  
Data collection for survey research

Quantitative stage	Respondents	Date
Pre-Testing (Online)	4	19/1-2/4/22
Pilot Testing (Online)	30	28/4-23/5/22
Actual (Online)	200	2/8-21/9/22

The purpose of the online survey was to gather data that examine the social media capabilities in academic libraries that influence librarians' agility and relationship quality (librarian-user) and also to test the hypotheses. The survey analysis provides further insights and valuable statistical findings. The relationship between social media capabilities and librarians' agility and relationship quality were examined in a structural model form at the end of the analysis. In the following section, the data were prepared by coding, editing, cleaning and analysed.

### 4.3 Pre-Test Result

The pre-test has been done started on 19/1/22 until 2/4/22, there are four experts from academics and senior librarians to give a comment of the relevancy and clarity of the items. The template of the assessment for relevancy and clarity of the item's questionnaire was disseminated to the experts. The template of the assessment provided by the office of Faculty of Information Management, University of Technology Mara. The assessment relevancy of the item's questionnaire used scale "1=Not relevance at all, 2=Item need some revisions, 3=Relevant but need minor revision, 4=Very relevant." While the assessment clarity of the item's questionnaire used scale "1=Not clear, 2=Item need some revision, 3=Clear but need minor revision, 4=Very clear."

The form consists of research title, research objectives, research questions and theoretical framework of the study. There are eleven sections (A-K) in that form consists of Section A: Demographic profile, Section B: Relationship Capability coded as RC (five items), Section C: Service Innovation Capability coded as SIC (five items), Section D: Tools Capability coded as TC (five items), Section E: Librarians' Agility (Sensing Agility) coded as SA (three items), Section F: Librarians' Agility (Decision Making Agility) coded as DMA (three items), Section G: Librarians' Agility (Acting Agility or Practising) coded as AA (three items), Section H: Relationship Quality (Relationship Trust) coded as RT (four items), Section I: Relationship Quality

(Relationship Commitment) coded as RC (four items), Section J: Relationship Quality (Relationship Satisfaction) coded as RS (four items). The expert also has to state and tick the appropriate answer (overall time taken to complete the instrument, font size recommendation, language use for questionnaire) including their signature and date of assessment at the form (Appendices). The relevancy of the 36 items has been done by the expertise and including with their comments.

#### 4.4 Assessment of the Relevancy of the Items Relationship Capability (RC) From Expertise

Table 4.2  
Assessment of the relevancy of the items Relationship Capability (RC) from expertise

Relationship Capability (RC)	Expert 1	Expert 2	Expert 3	Expert 4
RC1-We proactively review the likely effects of changes in our library environment on customers	3= Relevant but need minor revision	4=Very relevant	4=Very relevant	4=Very relevant
RC2-We proactively generate knowledge about the changes market characteristics and trends	3= Relevant but need minor revision	4=Very relevant	4=Very relevant	4=Very relevant
RC3-We continuously evaluate the technical feasibility of developing new services	3= Relevant but need minor revision	4=Very relevant	4=Very relevant	4=Very relevant
RC4-We continuously analyse the changes in the relationship environment which can affect our library	3= Relevant but need minor revision	4=Very relevant	4=Very relevant	4=Very relevant
RC5-We ensure that the output of our work is disseminated across the organization	3= Relevant but need minor revision	4=Very relevant	4=Very relevant	4=Very relevant

Items for Relationship Capability (RC), the expert 1 rated scale 3=Relevant but need minor revision for RC1 to RC5. While expert 2,3, and 4 rated scale 4=Very relevant for items RC1 to RC5. The expert 1 give a comment for item RC1:

“Items are too general and not associated with operational definition, more specifically connected networks,”

The expert 1 give a comment for item RC2:

“Items do not relate to the operational definition”

Regarding the comment from expertise 1, all items has been improved with more specific and relate with the operational definition of Relationship Capability (RC). This will help respondents understand with the questionnaires.

Table 4.3  
Items for Relationship Capability

<b>Items Relationship Capability (RC) - Before</b>	<b>Items Relationship Capability (RC) - After</b>
RC1-We proactively review the likely effects of changes in our library environment on customers	RC1 – Social media as connected network help us in integration with users
RC2-We proactively generate knowledge about the changes market characteristics and trends	RC2 – Social media as connected network help us in communicate with users
RC3-We continuously evaluate the technical feasibility of developing new services	RC3 - Social media as connected network help us generate knowledge with users
RC4-We continuously analyse the changes in the relationship environment which can affect our library	RC4 - Social media as connected network help us evaluate the technical feasibility of developing new services
RC5-We ensure that the output of our work is disseminated across the organization	RC5 - Social media as connected network help us analyse the relationship with users

#### 4.5 Assessment of the Relevancy of the Items Service Innovation Capability (SIC) From Expertise

Table 4.4  
Assessment of the relevancy of the items Service Innovation Capability (SIC) from expertise

<b>Service Innovation Capability (SIC)</b>	<b>Expert 1</b>	<b>Expert 2</b>	<b>Expert 3</b>	<b>Expert 4</b>
SIC1-Our library reduces the developing time of new products	3= Relevant but need minor revision	4=Very relevant	4=Very relevant	2=Item need some revisions

<b>Service Innovation Capability (SIC) and services</b>	<b>Expert 1</b>	<b>Expert 2</b>	<b>Expert 3</b>	<b>Expert 4</b>
SIC2-Our library is flexible to provide products and services according to the demands of the customers	3= Relevant but need minor revision	4=Very relevant	4=Very relevant	3= Relevant but need minor revision
SIC3-Our library develops in-house solutions to improve our information processes	3= Relevant but need minor revision	4=Very relevant	4=Very relevant	4=Very relevant
SIC4-Our library actively works to constantly adjust information processes	3= Relevant but need minor revision	4=Very relevant	4=Very relevant	4=Very relevant
SIC5-Our library adopts innovative work designs	3= Relevant but need minor revision	4=Very relevant	4=Very relevant	4=Very relevant

Items for Service Innovation Capability (SIC), the expert 1 rated scale 3=Relevant but need minor revision for items SIC1 to SIC5. The expert 4 rated scale 2=Item need some revisions for item SIC1 and 3=Relevant but need minor revision for SIC2. Expert 2,3 rated all 4=Very relevant for items SIC1 to SIC5. While items SIC3 to SIC5 rated scale 4=Very relevant by expert 4. For item SIC1 only the expert 1 and expert 2 give a comment:

“Items are too general and do not relate with the social media capability in the context of service innovation” (expert 1)

“Include some examples of what the new product and services is” (expert 2)

Regarding the comment from expertise 1 and 2, all items has been improved with more specific and relate with the context of Service Innovation Capability (SIC). This will help respondents understand with the questionnaires.

Table 4.5  
Items for Service Innovation Capability

Items Service Innovation Capability (SIC) - Before	Items Service Innovation Capability (SIC) - After
SIC1-Our library reduces the developing time of new products and services	SIC1 – Our library shared new products (ex. kindle) and services (ex. shelf check machine) via social media
SIC2-Our library is flexible to provide products and services according to the demands of the customers	SIC2 – Our library is flexible in introducing the product & services via social media
SIC3-Our library develops in-house solutions to improve our information processes	SIC3 – Our library develops in-house solutions to improve the product & services via social media
SIC4-Our library actively works to constantly adjust information processes	SIC4 – Our library actively works to constantly adjust the product & services via social media
SIC5-Our library adopts innovative work designs	SIC5 – Our library adopts innovative work in designing the product & services via social media

#### 4.6 Assessment of the Relevancy of the Items Tools Capability from Expertise

Table 4.6  
Assessment of the relevancy of the items Tools Capability (TC) from expertise

Tools Capability (TC)	Expert 1	Expert 2	Expert 3	Expert 4
TC1-We have our scheme for IT standardization	2= Item need some revisions	4=Very relevant	4=Very relevant	4=Very relevant
TC2-we have ability to integrate IT	2= Item need some revisions	4=Very relevant	4=Very relevant	3= Relevant but need minor revision
TC3-We understand the trend of IT	2= Item need some revisions	4=Very relevant	4=Very relevant	4=Very relevant
TC4-We have ability to integrate functional requirement	2= Item need some revisions	4=Very relevant	4=Very relevant	4=Very relevant
TC5-We have ability to leverage information technology as strategic core competence	2= Item need some revisions	4=Very relevant	4=Very relevant	4=Very relevant

Items for Tools Capability (TC), expert 1 rated scale 2= Item need some revisions for item TC1 to TC5. The expert 2, 3 and 4 rated scale 4=Very relevant for items TC1 to TC5 except TC2 rated scale 3= Relevant but need minor revision by expert 4. The comments were given by expert 2 and 3 for items TC1, TC4, and TC5.

For TC1, expert 2 give a comment:

“Simple explanation what you mean with scheme is highly recommended”

For TC4, expert 2 give a comment:

“Explanation what you mean with functional requirement is highly

recommended”

For TC5, expert 3 give a comment:

“A lot of inhouse system develop by staff expert (an example of systems such as RDMS, EIS, EKMM)”

Regarding the comment from expertise 2 and 3, all items has been improved with detail explanation, easy to understand and relate with the context of Tools Capability (TC). This will help respondents answer the questions very well.

Table 4.7  
Assessment of the relevancy of the items Tools Capability (TC) from expertise

Items Tools Capability (TC) - Before	Items Tools Capability (TC) - After
TC1-We have our scheme for IT standardization	TC1 – Our library fully used the social media in connecting customer need
TC2-we have ability to integrate IT	TC2 – Our library staff have the technical capabilities in handling the social media
TC3-We understand the trend of IT	TC3 – Our library use varieties of social media to advertise the program and resources
TC4-We have ability to integrate functional requirement	TC4 – Our library used social media tools as their main means of communication
TC5-We have ability to leverage information technology as strategic core competence	TC5 – Our library used social media tools to encourage library programme facilities while also increasing the library’s visibilities

#### 4.7 Assessment of the Relevancy of the Items Librarians’ Agility (Sensing Agility-SA) from Expertise

Table 4.8  
Assessment of the relevancy of the items Librarians’ Agility (Sensing Agility - SA) from expertise

Librarians’ Agility (Sensing Agility-SA)	Expert 1	Expert 2	Expert 3	Expert 4
SA1-We have our scheme for IT standardization	Not answer	4=Very relevant	4=Very relevant	4=Very relevant
SA2-We have ability to integrate IT	Not answer	4=Very relevant	4=Very relevant	4= Very relevant
SA3-We understand the trend of IT	Not answer	4=Very relevant	3= Relevant but need minor revision	4=Very relevant

Items Librarians' Agility (Sensing Agility coded as SA), expert 1 did not answer for SA1 to SA3. Expert 2,3, and 4 rated scale 4=Very relevant for SA1 to SA3. And expert 3 rated scale 3=Relevant but need minor revision for item SA3. The expert 3 give a comment for item SA1:

“Example of technology”

Regarding the comment from expertise 3, all items has been improved to be relate with the context of Librarians' Agility (Sensing Agility - SA). This will help respondents answer the questions very well.

Table 4.9

Items for Librarians' Agility: Sensing Agility (before and after)

Items Librarians' Agility (Sensing Agility - SA) - Before	Items Librarians' Agility (Sensing Agility - SA)- After
SA1 - The organization has been fast in terms of detecting changes that occur in customer preferences for products	SA1 – The organization has been fast in terms of detecting changes that occur in customer preferences for products
SA2 - The organization has been fast in terms of detecting changes that occur in customer preferences for products	SA2 – The organization has been fast in terms of detecting changes that occur in customer preferences for products
SA3 - The organization has been fast to detect changes in technology	SA3 – The organization has been fast to detect changes in technology

#### 4.8 Assessment of the Relevancy of the Items Librarians' Agility (Decision Making Agility-DMA) from Expertise

Table 4.10

Assessment of the relevancy of the items Librarians' Agility (Decision Making Agility - DMA) from expertise

Librarians' Agility (Decision Making Agility-DMA)	Expert 1	Expert 2	Expert 3	Expert 4
DMA1-The organization analyses important events concerning customers, competitors, and technology without any delay	4=Very relevant	3= Relevant but need minor revision	3= Relevant but need minor revision	3= Relevant but need minor revision
DMA2-The organization detect the opportunities and	4=Very relevant	3= Relevant but need minor	4=Very relevant	4= Very relevant

<b>Librarians' Agility (Decision Making Agility-DMA)</b>	<b>Expert 1</b>	<b>Expert 2</b>	<b>Expert 3</b>	<b>Expert 4</b>
threats to changes in customers, competitors and technology in time		revision		
DMA3-The organization carries out a specific action plan in order to meet customer needs without any delay	4=Very relevant	3= Relevant but need minor revision	4=Very relevant	3= Relevant but need minor revision

For items Librarians' Agility (Decision Making Agility coded as DMA), expert 2,3, and 4 rated scale 3= Relevant but need minor revision for item DMA1. For item DMA3, expert 4 rated scale 3= Relevant but need minor revision. Expert 2 rated scale 3= Relevant but need minor revision for items DMA1 to DMA3. Expert 1 rated scale 4=Very relevant for items DMA1 to DMA3. Expert 3 rated scale 4=Very relevant for items DMA2 and DMA3. Expert 4 rated scale 4=Very relevant for item DMA2.

For the comment, expert 2 and 3 shared their comments for item DMA1 only:

“If possible, change the world delay to something that is measurable” (expert 2)

“Analysis of effect or impact of the program” (expert 3)

Regarding the comment from expertise 3, all items has been improved to be relate with the context of Librarians' Agility (Decision Making Agility - DMA). This will help respondents answer the questions very well.

Table 4.11

**Items for Librarians' Agility: Decision Making Agility**

<b>Items Librarians' Agility (Decision Making Agility - DMA) - Before</b>	<b>Items Librarians' Agility (Decision Making Agility - DMA)- After</b>
DMA1 – The organization analyses important events concerning customers, competitors, and technology without any delay	DMA1 – The organization analyses important events concerning customers, competitors, and technology without any delay
DMA2 – The organization detect the opportunities and threats to changes in customers, competitors, and technology in time	DMA2 – The organization detect the opportunities and threats to changes in customers, competitors, and technology in time
DMA3 – The organization carries out a specific action plan in order to meet customer needs without any delay	DMA3 – The organization carries out a specific action plan in order to meet customer needs without any delay

#### 4.9 Assessment of the Relevancy of the Items Librarians' Agility (Acting Agility or Practicing - AA) from Expertise

Table 4.12

Assessment of the relevancy of the items Librarians' Agility (Acting Agility or Practicing Agility - AA) from expertise

Librarians' Agility (Acting Agility or Practicing-AA)	Expert 1	Expert 2	Expert 3	Expert 4
AA1- The organization can reconfigure in the proper time	4=Very relevant	3= Relevant but need minor revision	4= Very relevant	3= Relevant but need minor revision
AA2- The organization can re-adjust operations carried out in a timely manner	4=Very relevant	3= Relevant but need minor revision	4=Very relevant	4= Very relevant
AA3- The organization can use new technology in the proper time	4=Very relevant	3= Relevant but need minor revision	4=Very relevant	3= Relevant but need minor revision

For items Librarians' Agility (Acting Agility or Practicing which coded as AA), expert 2 rated scale 3= Relevant but need minor revision for items AA1 to AA3. Expert 4 rated scale 3= Relevant but need minor revision for item AA1 and AA3. Expert 3 rated scale 4=Very relevant for items AA1 to AA3. Expert 4 rated scale 4=Very relevant for item AA2.

The comment only for item AA1 which from expert 2:

“Proper time requires an explanation”

Table 4.13

Items for Librarians' Agility: Acting Agility

Items Librarians' Agility (Acting Agility - AA) - Before	Items Librarians' Agility (Acting Agility - AA)- After
AA1 – The organization can reconfigure its resources in the proper time	AA1 – The organization can reconfigure its resources in the proper time
AA2 – The organization can re-adjust operations carried out in a timely manner	AA2 – The organization can re-adjust operations carried out in a timely manner
AA3 – The organization can use new technology in the proper time	AA3 – The organization can use new technology in the proper time

#### 4.10 Assessment of the Relevancy of the Items Relationship Quality (Relationship Trust – RT) from Expertise

Table 4.14

Assessment of the relevancy of the items Relationship Quality (Relationship Trust - RT) from expertise

Relationship Quality (Relationship Trust-RT)	Expert 1	Expert 2	Expert 3	Expert 4
RT1- Our user makes beneficial decisions to us under any circumstances	4=Very relevant	1= Not relevance at all	3= Relevant but need minor revision	3= Relevant but need minor revision
RT2- Our user is willing to assistance us without exception	4=Very relevant	3= Relevant but need minor revision	3= Relevant but need minor revision	3= Relevant but need minor revision
RT3- Our user is sincere at all times	4=Very relevant	1= Not relevance at all	3= Relevant but need minor revision	3= Relevant but need minor revision
RT4- We and our user have friendly relations	4= Very relevant	4= Very relevant	4=Very relevant	3= Relevant but need minor revision

For items Relationship Quality (Relationship Trust codes as RT), expert 1 rated scale 4=Very relevant for items RT1 to RT4. While expert 4 rated scale 3=Relevant but need minor revision. For items RT1 and RT3 was rated 1=Not relevance at all. For this section, the expert 2 give a comment for items RT2 and RT4:

Item RT2 - “Our user is willing to provide assistance to use” (expert 2)

ItemRT4–“Consider using good instead of friendly”(expert2)

Table 4.15

Items for Relationship Quality: Relationship Trust

Items Relationship Quality (Relationship Trust - RT) - Before	Items Relationship Quality (Relationship Trust - RT)- After
RT1 – Our user makes beneficial decisions to use under any circumstances	RT1 – Our user makes beneficial decisions to use under any circumstances
RT2 – Our user is willing to provide assistance to us without exception	RT2 – Our user is willing to provide assistance to us
RT3 – Our user is sincere at all times	RT3 – Our user is sincere at all times
RT4 - We and our user have friendly relations	RT4 - We and our user have friendly relations

#### 4.11 Assessment of the Relevancy of the Items Relationship Quality (Relationship Commitment -RC) from Expertise

Table 4.16

Assessment of the relevancy of the items Relationship Quality (Relationship Commitment - RC) from expertise

Relationship Quality (Relationship Commitment- RC)	Expert 1	Expert 2	Expert 3	Expert 4
RC1- we and our user do our best in maintain the relationship	4=Very relevant	1= Not relevance at all	3= Relevant but need minor revision	3= Relevant but need minor revision
RC2- the relationship between us and user is strengthened	4=Very relevant	3= Relevant but need minor revision	3= Relevant but need minor revision	3= Relevant but need minor revision
RC3- we and our user always try to keep each other's promises	4=Very relevant	1= Not relevance at all	3= Relevant but need minor revision	3= Relevant but need minor revision
RC4- we and our user are willing to continue the relationship	4= Very relevant	4= Very relevant	4=Very relevant	3= Relevant but need minor revision

For items Relationship Quality (Relationship Commitment – RC), expert 2 give a comment to RC3 and RC4:

RC3 – “Uses expectation rather than promises” (expert 2)

RC4 – “Overall this section: requires rewriting” (expert 2)

Table 4.17

Items for Relationship Quality: Relationship Commitment

Items Relationship Quality (Relationship Commitment - RC) - Before	Items Relationship Quality (Relationship Commitment - RC)- After
RC1 – We and our user do our best in maintain the relationship	RC1 – We and our user do our best in maintain the relationship
RC2 – The relationship between us and user is strengthened	RC2 – We and our user have sense of belonging to strengthened the relationship
RC3 – We and our user always try to keep each other's promises	RC3 – We and our user always try to keep each other's expectations
RC4 - We and our user are willing to continue the relationship	RC4 - We and our user are willing to continue the relationship

#### 4.12 Assessment of the Relevancy of the Items Relationship Quality (Relationship Satisfaction -RS) from Expertise

Table 4.18

Assessment of the relevancy of the items Relationship Quality (Relationship Satisfaction - RS) from expertise

<b>Relationship Quality (Relationship Satisfaction-RS)</b>	<b>Expert 1</b>	<b>Expert 2</b>	<b>Expert 3</b>	<b>Expert 4</b>
RS1- relatively to your competitive, how well does your library perform on customer satisfaction, customer loyalty, and customer organization	4=Very relevant	3= Relevant but need minor revision	3= Relevant but need minor revision	3= Relevant but need minor revision
RS2- Our company objectives are driven by customer satisfaction	4=Very relevant	4=Very relevant	3= Relevant but need minor revision	4=Very relevant
RS3- Our competitive advantage is based on understanding customers'	4=Very relevant	4=Very relevant	3= Relevant but need minor revision	4=Very relevant
RS4- We frequently measure customer satisfaction	4= Very relevant	4= Very relevant	4=Very relevant	4=Very relevant

For relationship quality (relationship satisfaction), the expert 2 and 3 give a comment on item RS1 and RS2:

RS1 – “I am not sure respondent will be able to answer this question unless they/the organization did a competitors review analysis” (expert 2)

RS2 – “The objective influence by several factors” (expert 3)

Table 4.19

Items Relationship Quality: Relationship Satisfaction

<b>Items Relationship Quality (Relationship Satisfaction - RS) - Before</b>	<b>Items Relationship Quality (Relationship Satisfaction - RS)- After</b>
RS1 – Relatively to your competitive, how well does your library perform on customer satisfaction, customer loyalty and customer organization	RS1 – Our priority is on customer satisfaction
RS2 – Our company objectives are driven by customer satisfaction	RS2 – Our library objectives are driven by customer satisfaction
RS3 – Our competitive advantage is based on understanding customers'	RS3 – Our competitive advantage is based on understanding customers'
RS4 - We frequently measure customer satisfaction	RS4 - We frequently measure customer satisfaction

#### 4.13 Assessment of the Clarity of the Items Relationship Capability (RC) with The Comments from Experts

Table 4.20  
Assessment of the clarity of the items Relationship Capability (RC) from expertise

Relationship Capability (RC)	Expert 1	Expert 2	Expert 3	Expert 4
RC1- Ensuring information disseminate through social media is consistently available	2=Item need some revision	4=Very clear	4=Very clear	4=Very clear
RC2- Making information available through social media available in other formats for those who lack equal access due to infrastructure, ability, language or literacy	2=Item need some revision	4=Very clear	4=Very clear	4=Very clear
RC3- Maintaining consistency of access for government agencies and for members of the public	2=Item need some revision	4=Very clear	4=Very clear	4=Very clear
RC4- Archiving information disseminated through social media for permanent access and retrieval	2=Item need some revision	4=Very clear	4=Very clear	4=Very clear
RC5- Preventing release of sensitive or secret information	2=Item need some revision	4=Very clear	4=Very clear	4=Very clear

The comment from experts for the clarity of the items of RC same as comment from experts for the relevancy of the items of RC.

#### 4.14 Assessment of the Clarity of the Items Service Innovation Capability (SIC) with The Comments from Expert

Table 4.21  
Assessment of the clarity of the items Service Innovation Capability (SIC) from expertise

Service Innovation Capability (SIC)	Expert 1	Expert 2	Expert 3	Expert 4
SIC1- Ensuring information disseminate through social media is consistently available	2=Item need some revision	3=Clear but need minor revision	4=Very clear	2=Item need some revision
SIC2- Making information available	2=Item need some revision	4=Very clear	4=Very clear	3= Clear but need minor

<b>Service Innovation Capability (SIC)</b>	<b>Expert 1</b>	<b>Expert 2</b>	<b>Expert 3</b>	<b>Expert 4</b>
through social media available in other formats for those who lack equal access due to infrastructure, ability, language or literacy				revision
SIC3- Maintaining consistency of access for government agencies and for members of the public	2=Item need some revision	4=Very clear	4=Very clear	4=Very clear
SIC4- Archiving information disseminated through social media for permanent access and retrieval	2=Item need some revision	4=Very clear	4=Very clear	4=Very clear
SIC5- Preventing release of sensitive or secret information	2=Item need some revision	4=Very clear	4=Very clear	4=Very clear

The comment from experts for the clarity of the items of SIC same as comment from experts for the relevancy of the items of SIC.

#### **4.15 Assessment of the Clarity of the Items Tools Capability (TC) with The Comments from Experts**

Table 4.22

Assessment of the clarity of the items Tools Capability (TC) from expertise

<b>Tools Capability (TC)</b>	<b>Expert 1</b>	<b>Expert 2</b>	<b>Expert 3</b>	<b>Expert 4</b>
TC1- Ensuring information disseminate through social media is consistently available	2=Item need some revision	3=Clear but need minor revision	4=Very clear	3= Clear but need minor revision
TC2- Making information available through social media available in other formats for those who lack equal access due to infrastructure, ability, language or literacy	2=Item need some revision	4=Very clear	4=Very clear	3= Clear but need minor revision
TC3- Maintaining consistency of access for government agencies and for members of the public	2=Item need some revision	Not answer	4=Very clear	4=Very clear
TC4- Archiving information disseminated through social media for permanent access and retrieval	2=Item need some revision	3= Clear but need minor revision	4=Very clear	4=Very clear
TC5- Preventing release of sensitive or secret information	2=Item need some revision	4=Very clear	4=Very clear	4=Very clear

The comment from experts for the clarity of the items of TC same as comment from experts for the relevancy of the items of TC.

#### 4.16 Assessment of the Clarity of the Items Librarians' Agility (Sensing Agility-SA) from Experts

Table 4.23

Assessment of the clarity of the items Librarians' Agility (Sensing Agility -SA) from expertise

<b>Librarians' Agility (Sensing Agility-SA)</b>	<b>Expert 1</b>	<b>Expert 2</b>	<b>Expert 3</b>	<b>Expert 4</b>
SA1-We have our scheme for IT standardization	Not answer	4=Very clear	4=Very clear	4=Very clear
SA2-We have ability to integrate IT	Not answer	4=Very clear	4=Very clear	4= Very clear
SA3-We understand the trend of IT	Not answer	4=Very clear	3= clear but need minor revision	4=Very clear

The comment from experts for the clarity of the items of SA same as comment from experts for the relevancy of the items of SA.

#### 4.17 Assessment of the Clarity of the Items Librarians' Agility (Decision-Making Agility) with The Comments from Experts

Table 4.24

Assessment of the clarity of the items Librarians' Agility (Decision Making Agility -DMA) from expertise

<b>Librarians' Agility (Decision Making Agility-DMA)</b>	<b>Expert 1</b>	<b>Expert 2</b>	<b>Expert 3</b>	<b>Expert 4</b>
DMA1-The organization analyses important events concerning customers, competitors, and technology without any delay	4=Very clear	3= Clear but need minor revision	3= Clear but need minor revision	3= Clear but need minor revision
DMA2-The organization detect the opportunities and	4=Very clear	3= Clear but need minor revision	Not answer	4= Very clear

<b>Librarians' Agility (Decision Making Agility-DMA)</b>	<b>Expert 1</b>	<b>Expert 2</b>	<b>Expert 3</b>	<b>Expert 4</b>
threats to changes in customers, competitors and technology in time				
DMA3-The organization carries out a specific action plan in order to meet customer needs without any delay	4=Very clear	3= Clear but need minor revision	Not answer	3= Clear but need minor revision

The comment from experts for the clarity of the items of DMA same as comment from experts for the relevancy of the items of DMA.

#### **4.18 Assessment of the Clarity of the Items Librarians' Agility (Acting Agility or Practicing-AA) with The Comment from Experts**

Table 4.25

Assessment of the clarity of the items Librarians' Agility (Acting Agility or Practicing-AA) from expertise

<b>Librarians' Agility (Acting Agility or Practicing-AA)</b>	<b>Expert 1</b>	<b>Expert 2</b>	<b>Expert 3</b>	<b>Expert 4</b>
AA1- The organization can reconfigure in the proper time	4=Very clear	3= Clear but need minor revision	4= Very clear	3= Clear but need minor revision
AA2- The organization can re-adjust operations carried out in a timely manner	4=Very clear	3= Clear but need minor revision	2=Item need some revision	4= Very clear
AA3- The organization can use new technology in the proper time	4=Very clear	3= Clear but need minor revision	1=Not clear	3= Clear but need minor revision

The comment from experts for the clarity of the items of AA same as comment from experts for the relevancy of the items of AA.

#### 4.19 Assessment of the Clarity of the Items Relationship Quality (Relationship Trust-RT) with The Comment from Experts

Table 4.26

Assessment of the clarity of the items Relationship Quality (Relationship Trust -RT) from experts

<b>Relationship Quality (Relationship Trust-RT)</b>	<b>Expert 1</b>	<b>Expert 2</b>	<b>Expert 3</b>	<b>Expert 4</b>
RT1- Our user makes beneficial decisions to us under any circumstances	4=Very clear	1= Not clear	3= Relevant but need minor revision	3= Clear but need minor revision
RT2- Our user is willing to assistance us without exception	4=Very clear	3= Clear but need minor revision	3= Relevant but need minor revision	3= Clear but need minor revision
RT3- Our user is sincere at all times	4=Very clear	1= Not clear	2= Item need some revision	3= Clear but need minor revision
RT4- We and our user have friendly relations	4= Very clear	3= Clear but need minor revision	4=Very clear	3= Clear but need minor revision

The comment from experts for the clarity of the items of RT same as comment from experts for the relevancy of the items of RT. Assessment of The Clarity for The Items Relationship Quality (Relationship Commitment-RC) with The Comments from Experts

Table 4.27

Assessment of the clarity of the items Relationship Quality (Relationship Commitment -RC) from experts

<b>Relationship Capability (RC)</b>	<b>Expert 1</b>	<b>Expert 2</b>	<b>Expert 3</b>	<b>Expert 4</b>
RC1- Ensuring information disseminate through social media is consistently available	4=Very clear	1=Not clear	4=Very clear	4=Very clear
RC2- Making information available through social media available in other formats for those who lack equal access due to infrastructure, ability, language or literacy	4= Very clear	1=Not clear	4=Very clear	4=Very clear
RC3- Maintaining consistency of access for government agencies and for members of the public	4= Very clear	3=Clear but need minor revision	4=Very clear	4=Very clear
RC4- Archiving information disseminated through social media for permanent access and retrieval	4= Very clear	3= Clear but need minor revision	4=Very clear	4=Very clear

<b>Relationship Capability (RC)</b>	<b>Expert 1</b>	<b>Expert 2</b>	<b>Expert 3</b>	<b>Expert 4</b>
RC5- Preventing release of sensitive or secret information	2=Item need some revision	4=Very clear	4=Very clear	4=Very clear

The comment from experts for the clarity of the items of RC same as comment from experts for the relevancy of the items of RC.

#### **4.20 Assessment of the Clarity of the Items Relationship Quality (Relationship Satisfaction-RS) with The Comments from Experts**

Table 4.28

Assessment of the clarity of the items Relationship Quality (Relationship Satisfaction -RS) from experts

<b>Relationship Quality (Relationship Satisfaction-RS)</b>	<b>Expert 1</b>	<b>Expert 2</b>	<b>Expert 3</b>	<b>Expert 4</b>
RS2- Our company objectives are driven by customer satisfaction	4=Very clear	4=Very clear	3= Clear but need minor revision	4=Very clear
RS3- Our competitive advantage is based on understanding customers	4=Very clear	4=Very clear	3= Clear but need minor revision	4=Very clear
RS4- We frequently measure customer satisfaction	4= Very clear	4= Very clear	4=Very clear	4=Very clear

The comment from experts for the clarity of the items of RS same as comment from experts for the relevancy of the items of RS.

Following the completion of the pre-test, the instrument was refined to ensure clarity, reliability, and relevance of all measurement items. Feedback obtained from the pre-test participants enabled the identification of ambiguous statements, redundant items, and potential issues related to wording or structure. These adjustments strengthened the content validity of the questionnaire and enhanced its overall suitability for the main data collection. Once the instrument demonstrated satisfactory face and content validity, it was deemed ready for large-scale administration to the targeted respondents. This step is critical, as a well-validated instrument forms the foundation for accurate and meaningful structural analysis.

After the pre-test refinement, the study proceeded with data analysis using Partial Least Squares–Structural Equation Modelling (PLS-SEM), a robust multivariate method appropriate for complex models and predictive-oriented research. PLS-SEM was employed to assess both the measurement model and the structural model, enabling

the examination of relationships among constructs while accounting for measurement error. The analysis began with evaluating indicator reliability, convergent validity, and discriminant validity to confirm that the constructs were empirically sound. Subsequently, the structural model was tested to determine the strength and significance of hypothesised paths. This analytic approach allowed for a comprehensive understanding of the factors influencing the research variables and provided empirical evidence aligned with the study's theoretical framework.

#### **4.21 Partial Least Square (PLS) – Structural Equation Modelling**

The PLS-SEM approach was chosen because it is suitable for use in research models involving latent constructs, complex relationships, and medium-sized samples. Through this method, two main models were analyzed, namely the Measurement Model which assesses the reliability and validity of the constructs, and the Structural Model which tests the strength and direction of the relationships between the constructs. These results are provided in stages in this chapter, beginning with a determination of the validity and reliability of items in the measurement model and then proceeding to a test of relationships among variables in the structural model. It also report on direct, indirect, and total effects on each construct.

##### **4.21.1 Measurement Model Evaluation**

The assessment of a measurement model is imperative in ensuring constructs that can be used in a study model are valid and reliable. In PLS-SEM, two main factors that are taken into account while assessing a measurement model are convergent reliability and a construct's indicators' relative contribution. This assessment is achieved by comparing indicators' values of outer weight and outer loading to their construct.

##### **4.21.2 Convergent Reliability Using Outer**

During the pre-test and subsequent measurement model assessment, one item from the Library Agility construct item LA\_3 was dropped. The decision was driven by the item's weak psychometric performance compared to the other items within the same construct. As shown in the cross-loading results, the retained Library Agility items

(LA\_1, LA\_2, LA\_4, LA\_5, and LA\_6) demonstrated strong loadings on their intended construct, with values ranging from 0.766 to 0.892.

These indicators also showed substantially lower cross-loadings on other constructs, confirming good discriminant validity. In contrast, the removed item did not achieve the minimum acceptable loading threshold and exhibited weaker correlations with the Library Agility factor, thereby reducing the construct's internal consistency. Dropping the item improved both the composite reliability and the convergent validity of the measurement model, ensuring that only robust and theoretically aligned indicators were retained for the PLS-SEM analysis.

Following the removal of the problematic item, the refined measurement model demonstrated satisfactory reliability and validity, allowing the study to proceed with the structural model analysis using Partial Least Squares–Structural Equation Modelling (PLS-SEM). The strong loadings of the remaining indicators across all constructs such as Relationship Capability (0.845–0.917), Relationship Quality (0.814–0.891), Service Innovation Capability (0.883–0.928), and Tools Capability (0.866–0.915) further reinforce the robustness of the measurement model used for hypothesis testing. With the improved model specification, PLS-SEM could accurately estimate the relationships among constructs, enhancing the reliability of conclusions drawn regarding the determinants of librarians' agility. The refinement process thus ensured that the final structural analysis was based on a valid, stable, and well-performing measurement model.

The outer loading measures how well all indicators reflect their represented construct. All indicators have high convergent reliability as per results of this research because all values of outer loading have exceeded 0.70, which is its required minimum. For instance, Librarians' Agility construct is explained by five indicators (LA\_1 to LA\_6), out of which highest outer loading is achieved by LA\_2 (0.892) and lowest by LA\_6 (0.766), but both are above the minimum acceptable level. Likewise, Relationship Capability, Relationship Quality, Service Innovation Capability, and Tools Capability constructs exhibited loading values above 0.845 and as high as 0.928. This result indicates that all the items applied on the questionnaire possess a high capacity to reflect the studied constructs and hence validates the convergent validity of the measurement model.

Table 4.29  
Convergent Reliability Using Outer

	<b>Library Agility</b>	<b>Relationship Capability</b>	<b>Relationship Quality</b>	<b>Service Innovation Capability</b>	<b>Tools Capability</b>
LA_1	0.871	0.640	0.678	0.622	0.662
LA_2	0.892	0.582	0.617	0.553	0.594
LA_4	0.889	0.576	0.637	0.568	0.537
LA_5	0.860	0.691	0.618	0.694	0.645
LA_6	0.766	0.372	0.510	0.399	0.394
RC_1	0.608	0.904	0.631	0.766	0.777
RC_2	0.619	0.845	0.577	0.783	0.698
RC_3	0.622	0.915	0.655	0.793	0.793
RC_4	0.624	0.917	0.663	0.783	0.794
RC_5	0.570	0.884	0.638	0.802	0.798
RQ_1	0.720	0.663	0.843	0.582	0.602
RQ_2	0.631	0.548	0.881	0.481	0.514
RQ_3	0.556	0.581	0.891	0.511	0.554
RQ_4	0.575	0.559	0.888	0.522	0.547
RQ_5	0.642	0.647	0.825	0.597	0.592
RQ_6	0.545	0.625	0.814	0.607	0.626
SIC_1	0.593	0.779	0.597	0.883	0.739
SIC_2	0.602	0.802	0.578	0.909	0.798
SIC_3	0.639	0.814	0.568	0.918	0.794
SIC_4	0.610	0.802	0.633	0.911	0.859
SIC_5	0.617	0.798	0.554	0.928	0.833
TC_1	0.587	0.843	0.669	0.843	0.893
TC_2	0.625	0.709	0.545	0.753	0.866
TC_3	0.635	0.763	0.583	0.823	0.903
TC_4	0.555	0.786	0.614	0.790	0.906
TC_5	0.612	0.771	0.592	0.754	0.915

#### 4.21.3 Indicator Contribution via Outer Weight

Except for reliability, outer weight measurement is conducted to determine indicators that give the highest contribution toward constructing the construct. A high value of outer weight implies that an indicator makes a crucial contribution toward constructing a reflective construct.

Indicators LA\_1 (0.260) and LA\_5 (0.255) have the greatest contribution among others for Librarians' Agility construct, signifying responsive and adaptable aspects in portraying librarian agility. In Relationship Capability construct, indicators RC\_3 (0.230) and RC\_4 (0.232) have a significant contribution, whereas for Service

Innovation Capability, SIC\_4 (0.228) and SIC\_3 (0.222) are found as contributors. In Tools Capability construct, TC\_1 (0.233) and TC\_3 (0.226) have the maximum contribution on forming construct. Generally, the test of the measurement model validates that all used indicators are pertinent, stable, and give a clear indication of their corresponding constructs. These outcomes form a good foundation to move on to the analysis of the structural model in the following section.

Table 4.30  
Indicator Contribution via Outer Weight

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Standard Deviation (STDEV)</b>	<b>T Statistics ( O/STDEV )</b>	<b>P Values</b>
<b>LA_1 &lt;- Librarians' Agility</b>	0.260	0.260	0.012	21.158	0.000
<b>LA_2 &lt;- Librarians' Agility</b>	0.235	0.235	0.010	24.007	0.000
<b>LA_4 &lt;- Librarians' Agility</b>	0.236	0.236	0.012	19.412	0.000
<b>LA_5 &lt;- Librarians' Agility</b>	0.255	0.255	0.016	15.568	0.000
<b>LA_6 &lt;- Librarians' Agility</b>	0.176	0.176	0.015	11.715	0.000
<b>RC_1 &lt;- Relationship Capability</b>	0.223	0.224	0.010	22.895	0.000
<b>RC_2 &lt;- Relationship Capability</b>	0.215	0.215	0.012	17.630	0.000
<b>RC_3 &lt;- Relationship Capability</b>	0.230	0.230	0.010	23.378	0.000
<b>RC_4 &lt;- Relationship Capability</b>	0.232	0.232	0.008	27.701	0.000
<b>RC_5 &lt;- Relationship Capability</b>	0.218	0.218	0.010	22.249	0.000
<b>RQ_1 &lt;- Relationship Quality</b>	0.221	0.221	0.012	18.480	0.000
<b>RQ_2 &lt;- Relationship Quality</b>	0.190	0.190	0.008	24.218	0.000

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Standard Deviation (STDEV)</b>	<b>T Statistics ( O/STDEV )</b>	<b>P Values</b>
<b>RQ_3 &lt;- Relationship Quality</b>	0.183	0.184	0.008	24.297	0.000
<b>RQ_4 &lt;- Relationship Quality</b>	0.182	0.183	0.007	25.250	0.000
<b>RQ_5 &lt;- Relationship Quality</b>	0.205	0.204	0.011	18.289	0.000
<b>RQ_6 &lt;- Relationship Quality</b>	0.187	0.186	0.014	13.521	0.000
<b>SIC_1 &lt;- Service Innovation Capability</b>	0.218	0.218	0.010	22.273	0.000
<b>SIC_2 &lt;- Service Innovation Capability</b>	0.216	0.217	0.013	17.185	0.000
<b>SIC_3 &lt;- Service Innovation Capability</b>	0.222	0.222	0.009	25.256	0.000
<b>SIC_4 &lt;- Service Innovation Capability</b>	0.228	0.228	0.011	21.231	0.000
<b>SIC_5 &lt;- Service Innovation Capability</b>	0.215	0.215	0.009	24.098	0.000
<b>TC_1 &lt;- Tools Capability</b>	0.233	0.233	0.012	19.003	0.000
<b>TC_2 &lt;- Tools Capability</b>	0.217	0.217	0.010	22.179	0.000
<b>TC_3 &lt;- Tools Capability</b>	0.226	0.226	0.011	21.358	0.000
<b>TC_4 &lt;- Tools Capability</b>	0.217	0.217	0.011	20.406	0.000
<b>TC_5 &lt;- Tools Capability</b>	0.223	0.224	0.011	20.158	0.000

## 4.22 Structural Model Evaluation

After the validity and reliability of the constructs have been confirmed through the measurement model, the next step is to evaluate the relationships between latent constructs through the structural model. In the PLS-SEM approach, the structural model is used to assess the strength and direction of the relationships between constructs, as well as the model's ability to explain the variance of the endogenous constructs.

This analysis includes the evaluation of path coefficients, direct effects, indirect effects, and total effects. The following results are presented based on the study's hypothesis structure.

### 4.22.1 Path Coefficient

Path coefficient indicates the strength and directions of association between constructs. It was found that:

Librarians' agility has a significant direct effect on:

Table 4.31  
Path Coefficient

No	Relationship between construct	Path Coefficient ( $\beta$ )	Effect
1	Librarians' Agility → Relationship Capability	0.306	Positive significant
2	Librarians' Agility → Relationship Quality	0.436	Positive significant
3	Librarians' Agility → Service Innovation Capability	0.200	Positive significant
4	Librarians' Agility → Tools Capability	0.231	Positive significant
5	Relationship Capability → Relationship Quality	0.395	Positive significant
6	Service Innovation Capability → Relationship Quality	-0.127	Negative significant
7	Tools Capability → Relationship Quality	0.148	Moderate positive significant

It appears that Librarians' Agility has a significant influence on relationship capability, service innovation, and technology application, and hence Relationship Quality improvement. However, Service Innovation Capability's negative contribution

to Relationship Quality indicates that innovation elements should be incorporated in a careful consideration so that they will not compromise consumer relationship perceptions that exist currently.

#### 4.22.2 Indirect Effects

Indirect effect analysis shows contributions through intermediary variables:

Table 4.32

Indirect Effects

<b>Independent Variable Dependent Variable Indirect</b>	<b>Indirect Effect</b>	<b>Interpretation</b>
Relationship Capability → Relationship Quality	0.133	Strong relationships contribute significantly to relationship quality through the mediating construct.
Tools Capability →Relationship Quality	0.101	Effective use of technology contributes indirectly to improved relationships.
Service Innovation Capability → Relationship Quality	0.087	Service innovation also contributes to relationships, but to a lesser extent than other variables.

It also implies that a strong connection between librarians and people does not hinge on a single parameter, but also encompasses interaction of various other constructs such as technology and innovation capabilities.

#### 4.22.3 Total Effects

Total effects combine direct and indirect effects on the target construct:

Table 4.33

Total Effects

<b>Independent Variable Dependent Variable Indirect</b>	<b>Total Effect</b>	<b>Interpretation</b>
Relationship Capability → Relationship Quality	0.529	The ability to build and maintain relationships is the biggest contributor to relationship quality.
Librarians' Agility → Relationship Quality	0.436	Librarian agility contributes significantly to strengthening the user-library relationship.
Tools Capability → Relationship Quality	0.249	The use of tools and technology contributes moderately to the quality of relationships.
Service Innovation Capability → Relationship Quality	-0.04	Service innovations show small negative impacts, requiring a cautious approach in their implementation.

Overall, Relationship Capability made the largest contribution to Relationship Quality, followed by Librarians' Agility. This finding supports the hypothesis that the ability to build and maintain relationships is the dominant factor in strengthening the quality of library institutional relationships. However, the small negative influence of Service Innovation Capability requires further attention so that innovative elements can be integrated wisely without affecting users' perceptions of relationships.

#### 4.23 Inner Model Residual Descriptive

Table 4.34  
Inner Model Residual Descriptive

	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis	Skewness	Number of Observations Used
<b>Librarians' Agility</b>	0.000	0.073	-2.961	1.977	0.709	2.128	-0.747	189.000
<b>Relationship Quality</b>	0.000	0.012	-1.705	1.534	0.624	0.116	-0.053	189.000

Based on the descriptive table of residuals of the internal model, both of the significant constructs, Librarians' Agility and Relationship Quality, display average values of residuals of around zero,  $5.40e-17$  and  $3.17e-17$  respectively. These numbers are extremely small and approach zero. The near-zero residuals for both significant constructs Librarians' Agility and Relationship Quality indicate that the model's predictions closely align with the observed data. Such minimal discrepancies demonstrate a high degree of model accuracy and support the adequacy of the model fit.

Therefore, it is clear that overall model does not display bias when predicting expectations of the dependent variable. For the construct of Librarians' Agility, minimum and maximum values of residuals are -2.961 and 1.977 respectively, which disclose that a relatively wide dispersion of residuals is present and the standard deviation is 0.708. The median of residuals of 0.0726 and the negative value of skewness (-0.747) disclose that the distribution of residuals is skewed to the left. Being 2.128, excess kurtosis discloses that this distribution is sharper than the normal distribution (leptokurtic). For Relationship Quality construct, the residual range is smaller (-1.705 to 1.534) and has smaller standard deviation of 0.624. The median of residuals is almost zero (0.012), and the absolute value of the skewness is -0.053

indicating almost symmetrical residuals distribution. The excess kurtosis is also only 0.116 and shows that residuals distribution is almost like a normal distribution. Both of the constructs have stable residuals, unbiased and not far away from normality assumption and thus show that in predicting the structural model's variables the model is accurate. All of 189 observations were used, which shows that for both of the constructs sample size is consistent.

#### 4.24 Inner Model Residual Correlation

Table 4.35

Inner Model Residual Correlation

	<b>Librarians' Agility</b>	<b>Relationship Quality</b>
<b>Librarians' Agility</b>	1.000	0.000
<b>Relationship Quality</b>	0.000	1.000

Residual correlation table of inner model (Inner Model Residual Correlation) shows correlation of constructs “Librarians’ Agility” and “Relationship Quality” after performing structural model. Value of residual correlation found between these two constructs is  $-2.03e-15$  and it is almost zero. Value of this nature shows no significant correlation existing between constructs after adjusting for effect of model, further demonstrating no multicollinearity issue existing between these latent variables. In this context, the value of residual correlation approaching zero demonstrates stability of model and further demonstrates involved constructs are independently of structural relationship of each other. Thus, these results are confirming reliability and validity of model to depict relationship between investigated latent variables.

#### 4.25 Outer Model Residual Scores

Residual scores of the outer model analysis identify the level of preciseness of the PLS-SEM model to foretell each construct indicator's true value. Residuals are the difference between each actual observation and modelled observation; therefore, approaching zero identifies accurate prediction by the model, and a significantly large figure (positive or negative) identifies possible inaccuracy of prediction for a particular indicator. In this data set, some indicators have relatively higher residuals. For example,

Respondent 1 has a high residual on RC\_4 with -0.766 on it, which indicates that the model has overestimated negatively for the true value of the indicator. For Respondent 2, indicators for LA\_5 (0.728) and TC\_5 (0.551) had high positive residuals, which identify higher true values than those predicted by the model. For most indicators like LA\_6, RC\_2, and SIC\_2, residuals are negligible and around zero and identify acceptable model accuracy to predict values for such indicators. High and repetitive residuals for a specific indicator are an indication of unsuitability of an indicator or measures to be reconsidered. Residual score analysis is therefore of paramount importance in confirming accuracy in model predictions and identifying areas of weakness on the indicator level.

Table 4.36  
Outer Model Residual Scores

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
1	0.739	-0.136	-0.362	-0.273	-0.029	0.314	0.690	0.474	-0.766	-0.688	-0.025	-0.318	-0.429	0.953	0.017	-0.172	0.132	0.180	0.253	0.119	-0.703	-0.097	0.226	-0.006	-0.023	-0.090
2	-0.254	-0.089	-0.419	0.728	-0.002	-0.224	0.288	0.097	-0.102	-0.049	0.249	-0.036	-0.367	-0.193	0.197	0.074	0.191	0.422	0.507	-0.728	-0.370	0.447	-0.043	-0.534	-0.449	0.551
3	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
4	-0.033	0.064	-0.058	-0.080	0.157	-0.142	0.263	0.012	-0.098	-0.022	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
5	0.743	-0.169	-0.290	-0.304	-0.043	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
6	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
7	-0.337	-0.247	0.724	0.576	-0.975	-0.061	0.239	-0.074	-0.094	0.004	0.308	0.033	0.037	0.101	0.387	-0.954	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
8	-0.033	0.064	-0.058	-0.080	0.157	-0.142	0.263	0.012	-0.098	-0.022	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
9	1.354	0.457	0.333	-0.657	-2.100	-0.061	0.239	-0.074	-0.094	0.004	-0.621	0.256	0.262	0.325	0.595	-0.748	-0.207	0.012	0.094	-0.076	0.181	-0.307	0.022	-1.367	0.863	0.844
10	0.663	-0.250	-0.371	0.573	-0.977	-0.061	0.239	-0.074	-0.094	0.004	0.904	-0.540	-0.655	0.728	-0.192	-0.378	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
11	-0.262	-0.133	0.733	-0.270	-0.026	0.965	1.299	-0.943	-0.105	-1.164	-0.357	0.530	0.428	0.527	-1.514	0.611	-0.009	-0.818	0.299	0.128	0.388	0.957	-0.716	-0.088	-0.054	-0.160
12	-0.038	0.096	-0.130	-0.049	0.171	-0.142	0.263	0.012	-0.098	-0.022	0.368	0.093	-0.014	-1.194	0.401	0.207	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
13	0.796	-0.114	-0.236	0.704	-1.725	-0.061	0.239	-0.074	-0.094	0.004	-0.013	0.892	-1.737	0.966	0.029	-0.160	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
14	-0.029	0.031	0.014	-0.111	0.143	0.334	-1.419	0.325	0.307	0.391	0.132	-0.151	-0.149	-0.085	0.215	-0.010	-0.054	-2.078	0.059	0.989	1.038	0.225	0.353	-0.898	0.181	0.156
15	0.165	-0.686	0.077	0.152	0.350	-0.224	0.288	0.097	-0.102	-0.049	-1.526	0.504	0.513	0.576	-0.334	0.595	-0.207	0.012	0.094	-0.076	0.181	-0.187	0.324	-0.028	0.007	-0.099
16	1.110	1.197	-1.008	-0.898	-0.585	1.463	-0.364	0.430	-0.809	-0.731	-0.430	-0.741	0.464	0.526	0.782	-0.563	-0.051	-0.009	0.062	-0.071	0.072	-0.007	0.128	0.016	-0.054	-0.081
17	-0.465	0.650	0.526	-0.470	-0.204	-0.681	-0.139	-0.365	0.565	0.617	-0.363	-0.673	-0.900	0.520	0.804	0.605	0.151	0.199	-0.761	0.138	0.285	0.135	0.451	-0.920	0.212	0.147
18	0.095	0.232	0.005	0.082	-0.577	0.512	-0.139	0.673	-0.565	-0.495	-0.759	0.110	0.003	0.104	0.417	0.223	0.151	0.199	-0.761	0.138	0.285	-0.226	-0.696	-0.067	-0.032	1.011
19	-0.457	0.694	-0.626	0.528	-0.180	-0.224	0.288	0.097	-0.102	-0.049	0.029	-1.459	-0.486	0.933	0.025	0.984	0.551	-0.423	-1.379	0.551	0.705	0.515	-1.145	-0.535	0.597	0.537
20	0.046	0.146	0.023	-0.957	1.092	0.251	1.745	-0.460	-0.751	-0.697	-0.224	0.671	0.682	-0.537	-0.178	-0.364	-0.778	-0.395	0.727	0.552	-0.148	0.235	-0.249	-0.749	0.435	0.333
21	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
22	-0.603	-0.519	0.453	0.314	0.521	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
23	0.029	1.119	0.006	-0.018	-1.517	-0.061	0.239	-0.074	-0.094	0.004	0.347	0.071	-0.036	0.064	0.381	-0.925	-0.051	-0.009	0.062	-0.071	0.072	0.093	-0.572	0.186	0.170	0.105

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
24	0.099	0.200	0.077	0.051	-0.591	-0.061	0.239	-0.074	-0.094	0.004	0.347	0.071	-0.036	0.064	0.381	-0.925	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
25	0.394	-0.489	-0.714	0.342	0.533	-0.380	-0.973	0.809	-0.339	0.858	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.051	-0.009	0.062	-0.071	0.072	-0.770	-0.427	0.461	0.393	0.370
26	-0.240	0.879	-0.337	-0.249	-0.007	-0.224	0.288	0.097	-0.102	-0.049	0.920	0.670	0.569	-0.612	-0.220	-1.485	0.209	0.441	-0.507	-0.709	0.618	-1.121	0.585	-0.904	1.379	0.177
27	-0.246	-0.154	-0.275	0.666	-0.030	-0.595	-0.160	0.591	0.573	-0.465	-0.209	-0.509	0.698	-0.521	-0.163	0.764	-0.235	-0.198	-0.129	-0.260	0.848	0.322	-0.349	0.418	0.402	-0.810
28	0.302	-0.583	0.284	0.252	-0.413	-0.142	0.263	0.012	-0.098	-0.022	-0.583	0.294	0.189	0.289	0.589	-0.720	-0.606	0.634	0.712	-0.488	-0.239	-0.647	-0.123	0.654	-0.460	0.579
29	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
30	-0.250	-0.121	-0.347	0.697	-0.016	-0.061	0.239	-0.074	-0.094	0.004	-0.797	0.072	0.076	0.140	0.423	0.195	0.703	0.587	-0.380	-0.509	-0.374	-0.097	0.226	-0.006	-0.023	-0.090
31	-0.814	0.329	0.102	0.175	0.371	1.144	-0.561	0.276	0.076	-0.989	-0.519	0.359	0.143	0.279	-0.554	0.446	0.191	0.422	0.507	-0.728	-0.370	-0.399	0.118	-0.243	0.891	-0.316
32	-0.550	-2.373	0.371	1.391	1.467	0.074	0.465	-0.808	0.121	0.189	0.376	0.102	-0.005	1.376	-1.914	0.216	0.360	-0.619	0.490	-0.709	0.505	0.364	0.673	-0.688	0.444	-0.767
33	-0.029	0.031	0.014	-0.111	0.143	0.828	1.069	-1.251	-0.324	-0.240	0.132	-0.151	-0.149	-0.085	0.215	-0.010	-0.035	1.041	0.079	-1.116	0.090	-0.287	1.024	-0.199	-0.216	-0.285
34	-0.266	-0.101	0.661	-0.239	-0.012	0.646	0.087	-0.060	-0.351	-0.311	0.783	0.525	0.311	-0.834	-0.399	-0.514	0.393	0.630	-0.316	-0.519	-0.157	-0.187	0.324	-0.028	0.007	-0.099
35	-0.038	0.096	-0.130	-0.049	0.171	-0.142	0.263	0.012	-0.098	-0.022	0.210	-0.074	-0.295	-0.157	0.203	0.046	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
36	-0.038	0.096	-0.130	-0.049	0.171	-0.224	0.288	0.097	-0.102	-0.049	0.013	-0.279	-0.502	0.917	0.010	-0.144	-0.207	0.012	0.094	-0.076	0.181	-0.187	0.324	-0.028	0.007	-0.099
37	0.456	0.565	-0.650	0.403	-1.142	-0.224	0.288	0.097	-0.102	-0.049	-0.224	0.671	0.682	-0.537	-0.178	-0.364	-0.207	0.012	0.094	-0.076	0.181	-0.821	0.691	0.478	0.463	-0.748
38	-0.449	0.629	-0.482	0.466	-0.208	-0.358	0.061	0.831	-0.317	-0.233	0.333	0.059	0.063	0.127	-0.751	0.183	0.490	0.367	-0.602	0.333	-0.599	-0.367	-1.018	0.868	-0.298	0.782
39	-0.677	0.432	0.309	0.275	-0.391	0.055	-0.566	0.211	0.102	0.171	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.051	-0.009	0.062	-0.071	0.072	-0.860	-0.329	0.439	0.423	0.361
40	-0.042	0.129	-0.202	-0.018	0.185	-0.306	0.312	0.183	-0.107	-0.075	0.249	-0.036	-0.367	-0.193	0.197	0.074	-0.362	0.034	0.126	-0.081	0.289	-0.277	0.422	-0.050	0.038	-0.107
41	-0.033	0.064	-0.058	-0.080	0.157	-0.227	0.284	-0.944	-0.106	1.061	-0.797	0.072	0.076	0.140	0.423	0.195	0.746	-0.222	-0.142	-0.310	-0.058	-0.377	1.122	-0.220	-0.186	-0.293
42	-0.029	0.031	0.014	-0.111	0.143	0.791	0.021	-0.250	0.770	-1.388	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
43	-0.174	-0.007	-0.337	-0.149	0.933	-0.142	0.263	0.012	-0.098	-0.022	-0.759	0.110	0.003	0.104	0.417	0.223	-0.051	-0.009	0.062	-0.071	0.072	0.093	-0.572	0.186	0.170	0.105
44	0.532	0.679	-0.641	-0.442	-0.193	-0.461	0.066	-0.143	0.788	-0.281	0.210	-0.074	-0.295	-0.157	0.203	0.046	-0.207	0.012	0.094	-0.076	0.181	0.766	0.081	-0.281	-0.247	-0.355
45	-0.246	-0.154	-0.275	0.666	-0.030	-0.142	0.263	0.012	-0.098	-0.022	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.249	0.821	-0.143	-0.274	-0.135	-0.097	0.226	-0.006	-0.023	-0.090
46	-0.033	0.064	-0.058	-0.080	0.157	-0.061	0.239	-0.074	-0.094	0.004	1.101	-0.335	-0.447	-0.345	0.000	-0.188	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
47	-0.453	0.662	-0.554	0.497	-0.194	0.055	-0.566	0.211	0.102	0.171	-0.396	0.491	0.500	0.563	-1.508	0.583	-0.992	-0.615	0.504	1.394	-0.373	0.347	0.657	-0.705	-0.672	0.365
48	-0.262	-0.133	0.733	-0.270	-0.026	-0.142	0.263	0.012	-0.098	-0.022	-1.536	-0.702	0.503	0.566	0.819	0.586	1.301	-0.865	-0.792	0.107	0.254	0.437	0.559	-0.683	-0.702	0.374

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
49	0.316	0.385	0.366	-0.726	-0.418	-0.061	0.239	-0.074	-0.094	0.004	0.333	0.059	0.063	0.127	-0.751	0.183	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
50	0.095	0.232	0.005	0.082	-0.577	-0.142	0.263	0.012	-0.098	-0.022	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.132	0.180	0.253	0.119	-0.703	0.856	-0.016	-0.259	-0.277	-0.346
51	-0.033	0.064	-0.058	-0.080	0.157	-0.380	0.041	-0.228	0.792	-0.254	0.744	0.486	0.384	-0.798	-0.392	-0.542	-0.051	-0.009	0.062	-0.071	0.072	-0.326	0.004	-0.238	-0.256	0.825
52	-1.586	0.529	0.405	0.369	0.556	-0.142	0.263	0.012	-0.098	-0.022	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
53	-0.462	-0.339	-0.564	1.443	-0.203	-0.815	-0.365	0.369	0.350	0.433	0.333	0.059	0.063	0.127	-0.751	0.183	-0.463	0.601	-0.366	0.567	-0.360	-0.007	0.128	0.016	-0.054	-0.081
54	-0.474	-0.351	0.516	0.476	-0.213	-0.142	0.263	0.012	-0.098	-0.022	-0.005	-0.296	-0.408	-0.306	0.037	0.961	0.151	0.199	-0.761	0.138	0.285	0.116	0.432	0.209	-0.907	0.128
55	-0.033	0.064	-0.058	-0.080	0.157	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.287	0.159	0.221	0.124	-0.812	0.206	0.335	0.231	-0.937	0.137
56	0.302	-0.583	0.284	0.252	-0.413	-0.142	0.263	0.012	-0.098	-0.022	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.051	-0.009	0.062	-0.071	0.072	0.093	-0.572	0.186	0.170	0.105
57	-0.385	0.732	0.607	-1.347	0.730	-0.070	-1.596	-0.784	1.185	1.215	-0.382	0.504	0.401	0.500	-0.376	-0.526	0.537	0.597	-1.393	0.536	-0.278	0.116	0.432	0.209	-0.907	0.128
58	-0.383	-0.257	-0.482	0.566	0.732	-0.486	-0.971	-1.206	0.762	1.920	-0.025	-0.318	-0.429	0.953	0.017	-0.172	-0.051	-0.009	0.062	-0.071	0.072	-0.538	-0.202	-0.453	0.628	0.607
59	0.302	-0.583	0.284	0.252	-0.413	-0.599	-0.164	-0.450	0.569	0.644	-0.596	0.282	0.288	0.351	-0.542	0.389	-0.249	0.821	-0.143	-0.274	-0.135	0.415	-0.445	-0.706	0.374	0.351
60	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	-0.596	0.282	0.288	0.351	-0.542	0.389	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
61	-0.453	0.662	-0.554	0.497	-0.194	-0.577	-0.144	0.609	-0.540	0.665	-0.797	0.072	0.076	0.140	0.423	0.195	0.151	0.199	-0.761	0.138	0.285	0.071	-1.576	0.164	1.246	0.082
62	0.942	-0.919	-0.155	-0.073	0.150	-0.142	0.263	0.012	-0.098	-0.022	0.132	-0.151	-0.149	-0.085	0.215	-0.010	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
63	-0.033	0.064	-0.058	-0.080	0.157	0.809	0.038	-0.232	-0.342	-0.258	-0.020	0.884	-0.424	-0.322	0.022	-0.167	-0.254	-0.217	0.885	-0.279	-0.140	-0.770	-0.427	0.461	0.393	0.370
64	-1.607	-0.484	1.476	0.348	0.538	0.353	-0.388	-0.694	0.325	0.409	-0.421	0.465	0.474	0.537	-0.370	-0.554	0.104	-0.030	0.030	-0.066	-0.036	0.834	-1.020	-0.282	0.799	-0.369
65	0.107	0.244	-1.074	1.049	-0.567	-0.142	0.263	0.012	-0.098	-0.022	-0.371	-0.681	0.413	-0.769	0.797	0.598	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
66	-0.465	0.650	0.526	-0.470	-0.204	-0.142	0.263	0.012	-0.098	-0.022	-0.959	-0.100	-0.209	-0.108	1.383	0.030	0.346	0.400	0.475	-0.723	-0.478	0.093	-0.572	0.186	0.170	0.105
67	0.170	-0.719	0.149	0.121	0.336	-0.358	0.061	0.831	-0.317	-0.233	0.171	-0.112	-0.222	-0.121	0.209	0.018	0.132	0.180	0.253	0.119	-0.703	0.322	-0.349	0.418	0.402	-0.810
68	-0.029	0.031	0.014	-0.111	0.143	0.334	-1.419	0.325	0.307	0.391	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.301	-0.860	0.235	0.138	0.171	-0.007	0.128	0.016	-0.054	-0.081
69	1.414	-1.463	0.395	0.359	-1.182	-0.061	0.239	-0.074	-0.094	0.004	0.530	0.264	0.271	-0.947	-0.558	0.373	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
70	-0.470	-0.383	0.588	0.445	-0.227	-0.142	0.263	0.012	-0.098	-0.022	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
71	-0.033	0.064	-0.058	-0.080	0.157	0.077	0.468	0.233	0.124	-0.920	0.171	-0.112	-0.222	-0.121	0.209	0.018	1.325	1.408	1.493	-1.837	-2.355	-0.950	-0.231	0.417	0.454	0.352
72	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
73	0.515	-0.366	0.501	-0.494	-0.226	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
74	0.099	0.200	0.077	0.051	-0.591	-0.142	0.263	0.012	-0.098	-0.022	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
75	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
76	-0.038	0.096	-0.130	-0.049	0.171	-0.224	0.288	0.097	-0.102	-0.049	0.210	-0.074	-0.295	-0.157	0.203	0.046	-0.207	0.012	0.094	-0.076	0.181	-0.187	0.324	-0.028	0.007	-0.099
77	-0.586	0.526	-0.689	0.366	0.554	0.059	-0.563	1.253	0.106	-0.938	0.587	-0.874	-1.103	-0.963	0.615	1.532	-0.218	0.001	-0.952	0.975	0.169	-1.494	0.038	0.945	0.879	-0.289
78	-0.597	0.514	0.391	-0.601	0.544	0.253	-1.395	0.411	0.302	0.364	-0.593	0.285	-1.029	0.355	0.623	0.392	0.746	-0.222	-0.142	-0.310	-0.058	-1.050	0.469	0.247	0.230	0.166
79	0.042	0.178	-0.049	-0.925	1.106	-0.480	-0.965	0.877	0.769	-0.299	0.563	-0.899	0.192	0.292	-0.570	0.396	-1.357	1.076	0.125	-0.045	0.212	0.093	-0.572	0.186	0.170	0.105
80	-0.607	-0.487	0.381	0.345	0.535	0.055	-0.566	0.211	0.102	0.171	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
81	0.639	-0.165	0.493	-0.301	-0.946	0.229	0.711	-0.482	-0.773	0.394	0.210	-0.074	-0.295	-0.157	0.203	0.046	0.174	-0.629	0.490	0.318	-0.387	-0.187	0.324	-0.028	0.007	-0.099
82	-0.042	0.129	-0.202	-0.018	0.185	0.925	-0.766	0.054	-0.146	-0.091	0.045	-0.249	0.738	-0.408	-0.003	-0.123	0.407	-0.389	-0.302	-0.505	0.826	1.376	-1.292	0.336	0.372	-0.880
83	-0.038	0.096	-0.130	-0.049	0.171	-0.142	0.263	0.012	-0.098	-0.022	0.210	-0.074	-0.295	-0.157	0.203	0.046	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
84	-0.038	0.096	-0.130	-0.049	0.171	0.077	0.468	0.233	0.124	-0.920	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.051	-0.009	0.062	-0.071	0.072	0.132	0.448	0.226	0.209	-1.004
85	-0.038	0.096	-0.130	-0.049	0.171	-0.142	0.263	0.012	-0.098	-0.022	0.034	-0.258	-0.480	-0.342	0.031	0.989	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
86	-0.033	0.064	-0.058	-0.080	0.157	-0.142	0.263	0.012	-0.098	-0.022	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
87	0.170	-0.719	0.149	0.121	0.336	0.809	0.038	-0.232	-0.342	-0.258	-0.596	0.282	0.288	0.351	-0.542	0.389	-0.449	-0.418	-0.351	0.581	0.623	0.644	-0.223	-0.474	0.606	-0.564
88	-0.687	-0.568	0.299	1.222	-0.400	1.047	0.260	0.008	-1.232	-0.025	-0.421	0.465	0.474	0.537	-0.370	-0.554	-0.051	-0.009	0.062	-0.071	0.072	1.088	0.208	-1.173	-0.042	-0.109
89	-0.677	0.432	0.309	0.275	-0.391	0.353	-0.388	-0.694	0.325	0.409	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.162	0.211	0.284	-0.912	0.297	-0.557	-0.221	0.676	-0.491	0.588
90	0.876	-0.033	-0.154	-0.173	-0.791	0.137	-0.590	0.126	0.106	0.198	-0.005	-0.296	-0.408	-0.306	0.037	0.961	-0.051	-0.009	0.062	-0.071	0.072	0.437	0.559	-0.683	-0.702	0.374
91	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
92	-0.474	-0.351	0.516	0.476	-0.213	-0.142	0.263	0.012	-0.098	-0.022	-0.020	0.884	-0.424	-0.322	0.022	-0.167	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
93	-0.055	-0.949	1.012	-0.101	0.138	-0.142	0.263	0.012	-0.098	-0.022	0.352	1.273	-0.030	-1.211	0.386	-0.920	-1.801	0.438	0.503	0.403	0.442	-0.731	0.593	0.500	0.432	-0.739
94	0.563	-0.279	0.483	0.545	-1.895	0.137	-0.590	0.126	0.106	0.198	1.132	0.894	0.907	-0.312	-3.455	0.955	0.104	-0.030	0.030	-0.066	-0.036	0.183	-0.669	0.208	0.139	0.114
95	-0.125	-0.030	0.940	-0.170	-0.788	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
96	-1.719	0.393	0.270	0.238	1.304	0.728	0.063	-0.146	-0.346	-0.284	-0.730	0.140	-1.288	0.133	0.445	1.364	0.901	-0.243	-0.174	-0.305	-0.167	0.036	-1.610	1.276	-0.988	1.195
97	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
98	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
99	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
100	0.324	0.429	-0.786	0.272	-0.394	-0.142	0.263	0.012	-0.098	-0.022	0.739	-0.715	0.378	0.477	-0.398	-0.547	-0.051	-0.009	0.062	-0.071	0.072	0.116	0.432	0.209	-0.907	0.128
101	0.474	-0.408	-0.632	-0.535	1.467	-0.224	0.288	0.097	-0.102	-0.049	0.534	0.269	0.275	0.338	-1.716	0.377	-0.207	0.012	0.094	-0.076	0.181	0.766	0.081	-0.281	-0.247	-0.355
102	0.104	0.167	0.149	0.020	-0.605	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
103	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
104	0.408	0.478	-0.632	-0.635	0.527	0.159	0.444	0.148	0.128	-0.894	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.503	-0.652	-0.588	0.347	0.384	-0.007	0.128	0.016	-0.054	-0.081
105	0.228	0.368	0.141	0.213	-1.325	-0.164	-0.771	-0.010	-0.120	1.069	-0.797	0.072	0.076	0.140	0.423	0.195	0.346	0.400	0.475	-0.723	-0.478	0.112	-0.553	-0.943	1.288	0.124
106	0.369	0.439	0.420	0.282	-2.101	-0.061	0.239	-0.074	-0.094	0.004	0.509	0.243	0.249	0.312	-0.579	-0.760	0.104	-0.030	0.030	-0.066	-0.036	0.415	-0.445	-0.706	0.374	0.351
107	-0.341	-0.215	0.652	0.607	-0.961	0.074	0.465	-0.808	0.121	0.189	0.964	-0.480	-0.705	-0.567	-0.178	0.783	-1.004	0.225	0.298	0.164	0.311	-0.097	0.226	-0.006	-0.023	-0.090
108	-0.038	0.096	-0.130	-0.049	0.171	-0.224	0.288	0.097	-0.102	-0.049	-0.421	0.465	0.474	0.537	-0.370	-0.554	-0.207	0.012	0.094	-0.076	0.181	-0.187	0.324	-0.028	0.007	-0.099
109	1.004	0.136	-0.091	-0.011	-1.525	-0.246	-0.746	0.075	-0.124	1.043	-0.023	0.880	0.894	-0.326	-1.143	-0.170	0.348	-0.631	-0.556	0.342	0.493	-0.541	-0.205	0.693	0.625	-0.545
110	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
111	-0.038	0.096	-0.130	-0.049	0.171	-0.461	0.066	-0.143	0.788	-0.281	-0.914	1.142	1.046	-0.137	-0.941	0.064	-0.009	-0.818	0.299	0.128	0.388	-0.838	0.675	0.462	-0.653	0.384
112	-0.378	-0.290	-0.410	0.535	0.718	0.809	0.038	-0.232	-0.342	-0.258	-0.025	-0.318	-0.429	0.953	0.017	-0.172	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
113	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
114	0.527	-0.354	-0.578	0.473	-0.215	0.055	-0.566	0.211	0.102	0.171	-0.400	0.487	0.496	-0.722	-0.350	0.579	-0.265	-0.229	-0.160	0.771	-0.152	1.047	-0.814	-0.067	-0.084	-0.151
115	-0.378	-0.290	-0.410	0.535	0.718	0.137	-0.590	0.126	0.106	0.198	0.333	0.059	0.063	0.127	-0.751	0.183	0.146	-0.839	0.267	0.133	0.280	0.627	-0.239	-0.491	-0.510	0.569
116	0.063	1.191	-1.119	-0.905	1.125	0.137	-0.590	0.126	0.106	0.198	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.687	-0.463	-0.397	0.536	-0.391	0.183	-0.669	0.208	0.139	0.114
117	0.743	-0.169	-0.290	-0.304	-0.043	-0.595	-0.160	0.591	0.573	-0.465	-0.030	-0.322	-0.434	-0.332	1.174	-0.176	-0.463	0.601	-0.366	0.567	-0.360	-0.748	0.577	0.483	-0.684	0.393
118	-0.029	0.031	0.014	-0.111	0.143	-0.362	0.058	-0.210	-0.321	0.876	0.710	0.452	0.461	0.524	-1.544	-0.566	-0.849	0.204	0.266	0.169	0.203	-0.007	0.128	0.016	-0.054	-0.081
119	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
120	-0.673	0.400	0.381	0.244	-0.405	-0.061	0.239	-0.074	-0.094	0.004	0.705	0.448	0.456	-0.762	-0.386	-0.570	0.104	-0.030	0.030	-0.066	-0.036	-0.557	-0.221	0.676	-0.491	0.588
121	-0.810	0.296	0.174	0.144	0.357	-0.061	0.239	-0.074	-0.094	0.004	0.700	-0.754	0.451	0.514	-0.391	-0.575	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
122	0.408	0.478	-0.632	-0.635	0.527	-0.164	-0.771	-0.010	-0.120	1.069	0.333	0.059	0.063	0.127	-0.751	0.183	-0.820	0.414	0.489	0.353	-0.464	-0.136	-0.794	-0.046	-0.063	1.019
123	-0.383	-0.257	-0.482	0.566	0.732	-0.142	0.263	0.012	-0.098	-0.022	-0.421	0.465	0.474	0.537	-0.370	-0.554	-0.604	-0.397	-0.319	0.576	0.732	0.183	-0.669	0.208	0.139	0.114

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
124	-0.033	0.064	-0.058	-0.080	0.157	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
125	0.527	-0.354	-0.578	0.473	-0.215	0.034	-0.586	-0.848	1.211	0.150	-0.596	0.282	0.288	0.351	-0.542	0.389	-0.409	-0.196	0.917	-0.284	-0.032	-0.158	-1.798	-0.068	1.014	0.996
126	-0.166	-0.072	-0.193	-0.211	0.905	0.532	-2.249	0.525	0.507	0.584	0.132	-0.151	-0.149	-0.085	0.215	-0.010	-1.963	1.486	-1.539	1.454	0.543	-0.007	0.128	0.016	-0.054	-0.081
127	-0.038	0.096	-0.130	-0.049	0.171	0.728	0.063	-0.146	-0.346	-0.284	0.548	0.281	0.176	0.276	-0.585	-0.732	-0.207	0.012	0.094	-0.076	0.181	-0.187	0.324	-0.028	0.007	-0.099
128	-0.170	-0.039	-0.265	-0.180	0.919	-0.595	-0.160	0.591	0.573	-0.465	-0.209	-0.509	0.698	-0.521	-0.163	0.764	0.901	-0.243	-0.174	-0.305	-0.167	-0.097	0.226	-0.006	-0.023	-0.090
129	0.735	-0.104	-0.434	-0.242	-0.015	-0.978	-0.317	0.541	0.342	0.380	0.210	-0.074	-0.295	-0.157	0.203	0.046	-0.023	0.202	0.285	0.114	-0.595	0.045	0.549	-0.942	0.242	0.138
130	0.387	0.532	0.304	-1.540	0.545	-0.677	-0.136	0.677	0.569	-0.492	0.171	-0.112	-0.222	-0.121	0.209	0.018	0.934	1.006	-0.980	-0.116	-0.828	0.515	-1.145	-0.535	0.597	0.537
131	-0.607	-0.487	0.381	0.345	0.535	-0.577	-0.144	0.609	-0.540	0.665	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.254	-0.217	0.885	-0.279	-0.140	-0.097	0.226	-0.006	-0.023	-0.090
132	1.303	-0.586	-0.810	0.249	-0.415	0.615	0.871	0.610	-0.539	-1.560	-1.526	0.504	0.513	0.576	-0.334	0.595	0.703	0.587	-0.380	-0.509	-0.374	-0.007	0.128	0.016	-0.054	-0.081
133	0.236	0.303	0.285	0.151	-1.353	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
134	-0.046	0.162	-0.274	0.014	0.199	-0.142	0.263	0.012	-0.098	-0.022	-2.044	-2.433	1.060	1.157	1.395	1.189	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
135	0.540	0.614	-0.497	-0.504	-0.221	-0.061	0.239	-0.074	-0.094	0.004	-0.229	-0.531	0.676	0.738	-0.183	-0.369	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
136	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
137	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
138	0.165	-0.686	0.077	0.152	0.350	-0.744	-0.098	-0.261	-0.551	1.721	0.210	-0.074	-0.295	-0.157	0.203	0.046	-0.409	-0.196	0.917	-0.284	-0.032	-0.647	-0.123	0.654	-0.460	0.579
139	-0.773	0.371	1.236	0.216	-1.322	0.904	-0.786	-1.006	0.963	-0.112	0.548	0.281	0.176	0.276	-0.585	-0.732	-0.362	0.034	0.126	-0.081	0.289	-0.928	0.773	0.440	-0.623	0.375
140	-0.033	0.064	-0.058	-0.080	0.157	0.077	-0.546	1.271	-1.007	0.192	-0.167	-0.468	-0.692	-0.554	0.996	0.795	-1.009	-0.813	1.327	0.159	0.306	-0.306	1.006	0.930	-1.335	-0.304
141	0.378	-0.469	0.294	-0.594	0.536	-0.224	0.288	0.097	-0.102	-0.049	0.210	-0.074	-0.295	-0.157	0.203	0.046	-0.207	0.012	0.094	-0.076	0.181	-0.187	0.324	-0.028	0.007	-0.099
142	-0.906	0.235	1.100	0.085	-0.574	0.155	0.441	-0.894	0.125	0.216	0.705	0.448	0.456	-0.762	-0.386	-0.570	-0.604	-0.397	-0.319	0.576	0.732	0.605	-1.243	-0.513	0.567	0.546
143	0.399	0.544	-0.776	-0.573	0.555	0.728	0.063	-0.146	-0.346	-0.284	-0.185	0.709	0.609	-0.573	-0.184	-0.336	-0.237	-0.019	0.063	0.956	-0.819	0.940	-0.732	-0.105	-1.170	0.972
144	-0.118	0.051	1.904	-2.960	1.847	-0.469	0.361	0.355	-0.115	-0.129	1.452	1.226	1.131	1.228	-0.862	-4.310	2.030	-0.604	-0.488	-0.799	-0.102	-0.286	-0.199	1.228	-0.827	0.050
145	0.271	0.375	-0.840	-0.735	1.289	-1.569	-0.970	0.812	0.795	0.861	-0.596	0.282	0.288	0.351	-0.542	0.389	0.871	-0.274	-0.206	0.726	-1.167	-0.731	0.593	0.500	0.432	-0.739
146	0.394	-0.489	-0.714	0.342	0.533	-0.061	0.239	-0.074	-0.094	0.004	0.548	0.281	0.176	0.276	-0.585	-0.732	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
147	-0.383	-0.257	-0.482	0.566	0.732	1.679	-0.162	-0.390	-0.590	-0.519	-0.934	-0.073	-0.182	-0.082	0.245	1.167	-0.207	0.012	0.094	-0.076	0.181	-0.187	0.324	-0.028	0.007	-0.099
148	0.739	-0.136	-0.362	-0.273	-0.029	0.077	0.468	0.233	0.124	-0.920	-2.104	1.094	1.110	1.171	0.219	-1.085	-0.646	0.412	-0.557	0.378	0.415	-0.770	-0.427	0.461	0.393	0.370

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
149	-0.470	-0.383	0.588	0.445	-0.227	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
150	0.095	0.232	0.005	0.082	-0.577	-0.224	0.288	0.097	-0.102	-0.049	0.210	-0.074	-0.295	-0.157	0.203	0.046	0.591	-0.200	-0.111	-0.315	0.050	-0.647	-0.123	0.654	-0.460	0.579
151	-0.033	0.064	-0.058	-0.080	0.157	0.353	-0.388	-0.694	0.325	0.409	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.235	-0.198	-0.129	-0.260	0.848	-0.007	0.128	0.016	-0.054	-0.081
152	-0.581	0.493	-0.617	0.335	0.540	-0.595	-0.160	0.591	0.573	-0.465	0.530	0.264	0.271	-0.947	-0.558	0.373	0.503	-0.652	-0.588	0.347	0.384	-0.007	0.128	0.016	-0.054	-0.081
153	-0.033	0.064	-0.058	-0.080	0.157	-0.142	0.263	0.012	-0.098	-0.022	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.235	-0.198	-0.129	-0.260	0.848	-0.097	0.226	-0.006	-0.023	-0.090
154	0.743	-0.169	-0.290	-0.304	-0.043	0.137	-0.590	0.126	0.106	0.198	0.530	0.264	0.271	-0.947	-0.558	0.373	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
155	-0.383	-0.257	-0.482	0.566	0.732	-0.142	0.263	0.012	-0.098	-0.022	-0.759	0.110	0.003	0.104	0.417	0.223	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
156	0.095	0.232	0.005	0.082	-0.577	0.809	0.038	-0.232	-0.342	-0.258	-0.558	0.320	0.215	0.315	-0.548	0.417	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
157	-0.038	0.096	-0.130	-0.049	0.171	0.770	-1.013	-0.272	0.748	-0.296	-0.950	1.106	-0.199	-0.098	0.230	0.039	-1.004	0.225	0.298	0.164	0.311	1.491	-0.383	-0.765	-0.733	0.304
158	-0.138	0.068	0.724	-0.077	-0.746	0.465	-1.196	-1.449	0.518	1.684	0.210	-0.074	-0.295	-0.157	0.203	0.046	0.729	-1.272	-0.159	0.735	-0.075	-0.422	-0.886	-0.266	1.967	-0.339
159	0.099	0.200	0.077	0.051	-0.591	0.356	-0.385	0.347	0.329	-0.701	1.254	1.021	1.036	-1.465	0.150	-2.266	0.132	0.180	0.253	0.119	-0.703	-0.136	-0.794	-0.046	-0.063	1.019
160	-0.394	-0.269	0.598	-0.401	0.722	0.253	-0.381	-0.626	1.433	-0.748	-0.023	0.880	0.894	-0.326	-1.143	-0.170	-0.420	-0.208	-0.128	0.766	-0.044	0.116	0.432	0.209	-0.907	0.128
161	-0.038	0.096	-0.130	-0.049	0.171	-0.142	0.263	0.012	-0.098	-0.022	-0.583	0.294	0.189	0.289	0.589	-0.720	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
162	-0.611	-0.454	0.309	0.376	0.549	-0.142	0.263	0.012	-0.098	-0.022	-0.567	-0.886	0.205	0.305	0.604	0.408	0.167	1.249	-0.744	-0.907	0.302	0.135	0.451	-0.920	0.212	0.147
163	0.540	0.614	-0.497	-0.504	-0.221	-0.061	0.239	-0.074	-0.094	0.004	-0.033	-0.326	0.884	-0.336	0.009	-0.179	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
164	-0.033	0.064	-0.058	-0.080	0.157	-0.380	0.041	-0.228	0.792	-0.254	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
165	-1.048	-0.901	0.955	0.900	0.165	-0.142	0.263	0.012	-0.098	-0.022	-0.020	0.884	-0.424	-0.322	0.022	-0.167	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
166	0.091	0.265	-0.067	0.113	-0.563	-0.108	-0.517	0.383	0.094	0.118	-1.095	-0.244	0.855	0.953	-1.118	1.002	-0.576	-0.186	-0.097	0.761	0.065	-0.277	0.422	-0.050	0.038	-0.107
167	1.088	0.185	0.062	-0.919	-0.604	0.751	-2.044	0.747	0.729	-0.314	0.132	-0.151	-0.149	-0.085	0.215	-0.010	-0.648	0.591	-0.365	1.594	-1.252	0.183	-0.669	0.208	0.139	0.114
168	-0.033	0.064	-0.058	-0.080	0.157	-0.380	0.041	-0.228	0.792	-0.254	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
169	-0.250	-0.121	-0.347	0.697	-0.016	-0.142	0.263	0.012	-0.098	-0.022	0.171	-0.112	-0.222	-0.121	0.209	0.018	0.335	0.388	-0.570	0.328	-0.490	-0.097	0.226	-0.006	-0.023	-0.090
170	0.099	0.200	0.077	0.051	-0.591	0.356	-0.385	0.347	0.329	-0.701	-0.229	-0.531	0.676	0.738	-0.183	-0.369	-0.051	-0.009	0.062	-0.071	0.072	0.415	-0.445	-0.706	0.374	0.351
171	-0.033	0.064	-0.058	-0.080	0.157	-0.142	0.263	0.012	-0.098	-0.022	-0.606	-0.924	0.278	0.341	0.610	0.380	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
172	0.606	-0.272	-0.497	-0.404	0.719	0.334	-1.419	0.325	0.307	0.391	0.132	-0.151	-0.149	-0.085	0.215	-0.010	-0.451	0.613	0.680	-0.483	-0.348	0.625	-0.241	0.655	-0.512	-0.583
173	-0.250	-0.121	-0.347	0.697	-0.016	0.137	-0.590	0.126	0.106	0.198	0.705	0.448	0.456	-0.762	-0.386	-0.570	0.104	-0.030	0.030	-0.066	-0.036	0.374	-1.467	0.400	0.332	0.309

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
174	0.660	0.848	-0.577	-0.280	-0.927	0.292	-0.344	0.451	-0.788	0.403	-1.105	-1.450	0.845	0.943	0.034	0.993	-1.004	0.225	0.298	0.164	0.311	-0.097	0.226	-0.006	-0.023	-0.090
175	0.449	0.521	0.502	-0.595	-1.166	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
176	0.515	-0.366	0.501	-0.494	-0.226	-0.421	1.117	-0.102	-0.303	-0.242	-0.759	0.110	0.003	0.104	0.417	0.223	-0.623	-0.416	0.695	0.557	-0.257	0.093	-0.572	0.186	0.170	0.105
177	0.743	-0.169	-0.290	-0.304	-0.043	-0.061	0.239	-0.074	-0.094	0.004	-0.405	-0.715	0.490	0.553	-0.355	0.574	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
178	-1.176	-1.069	0.892	0.738	0.899	0.034	-0.586	-0.848	1.211	0.150	-0.002	-0.293	-1.725	-0.303	1.202	0.964	0.134	-0.851	-0.778	1.184	0.268	0.766	0.081	-0.281	-0.247	-0.355
179	-0.042	0.129	-0.202	-0.018	0.185	-0.956	0.718	0.563	0.364	-0.712	-0.759	0.110	0.003	0.104	0.417	0.223	-0.773	0.644	-0.302	0.557	-0.143	0.718	1.202	-1.409	-0.174	-0.321
180	-0.029	0.031	0.014	-0.111	0.143	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
181	0.568	-0.311	0.555	0.514	-1.909	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	0.856	-0.016	-0.259	-0.277	-0.346
182	-0.404	-1.269	0.588	0.545	0.714	-0.124	0.280	0.030	-1.210	1.108	0.948	0.700	-0.722	-0.583	-0.193	-0.345	0.548	0.608	-0.348	-0.514	-0.266	-0.097	0.226	-0.006	-0.023	-0.090
183	0.396	0.466	0.448	-1.603	0.517	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	-0.007	0.128	0.016	-0.054	-0.081
184	0.174	-0.752	0.221	0.089	0.322	-0.061	0.239	-0.074	-0.094	0.004	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	0.605	-1.243	-0.513	0.567	0.546
185	-0.038	0.096	-0.130	-0.049	0.171	-0.224	0.288	0.097	-0.102	-0.049	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
186	-0.043	-0.937	-0.068	0.866	0.149	0.137	-0.590	0.126	0.106	0.198	0.132	-0.151	-0.149	-0.085	0.215	-0.010	0.104	-0.030	0.030	-0.066	-0.036	1.905	-0.964	1.950	-0.312	-2.719
187	-0.033	0.064	-0.058	-0.080	0.157	-0.142	0.263	0.012	-0.098	-0.022	0.171	-0.112	-0.222	-0.121	0.209	0.018	-0.051	-0.009	0.062	-0.071	0.072	-0.097	0.226	-0.006	-0.023	-0.090
188	0.819	-0.054	-0.280	-1.150	0.906	0.593	-0.164	0.588	-0.561	-0.469	0.509	0.243	0.249	0.312	-0.579	-0.760	1.329	-0.654	-0.569	0.292	-0.413	0.957	-0.716	-0.088	-0.054	-0.160
189	-0.042	0.129	-0.202	-0.018	0.185	1.141	-0.565	-0.766	0.073	0.120	0.249	-0.036	-0.367	-0.193	0.197	0.074	-0.207	0.012	0.094	-0.076	0.181	-0.418	0.099	0.886	-0.228	-0.336

#### 4.26 Inner Model Residual Scores

Residual of internal model is defined as the discrepancy between predicted and actual PLS-SEM model values. Residuals around zero indicate an adequate explanation of variance by the model, whereas larger residuals reflect a conspicuous discrepancy between predicted and actual values. It is observed from the data that, for the Librarians' Agility construct, the residual is not the same for all cases. For example, for Case ID 3, there is a strongly positive residual (0.732), indicating that the actual value is much larger than the predicted value. For Case ID 2, there is a strongly negative residual score (-0.421), indicating that the predicted value is higher than the actual value. A similar variation is evident for the Relationship Quality construct. For example, for Case ID 2, a residual of -1.705 suggests a very large discrepancy between the observed and predicted values and indicates a potentially weak model fit or the presence of data outliers. For Case ID 1 and Case ID 5, moderate positive residuals of 0.426 and 0.399, respectively, suggest that the model is a very good predictor for these cases. Overall, such variation in residual scores across both constructs demonstrates unequal accuracy of the model for different cases, and further examination of cases with large residuals is highly recommended to assess both the accuracy and sufficiency of the model.

Table 4.37  
Inner Model Residual Scores

Case ID	Librarians' Agility	Relationship Quality
1	-0.210	0.426
2	-0.421	-1.705
3	0.733	0.012
4	0.481	-0.366
5	-0.154	0.399
6	0.733	0.012
7	-0.066	0.152
8	0.481	-0.366
9	-0.157	0.098
10	-0.062	-0.557
11	0.514	-0.225
12	-0.667	-0.099
13	-0.215	-0.758
14	1.158	0.076
15	-0.004	1.416
16	0.172	0.413

<b>Case ID</b>	<b>Librarians' Agility</b>	<b>Relationship Quality</b>
17	0.150	-0.506
18	-0.274	0.382
19	-0.667	-0.260
20	1.692	0.855
21	0.733	0.012
22	0.239	0.228
23	0.083	-0.998
24	-0.567	-1.031
25	-0.264	-0.368
26	0.626	-0.349
27	0.638	-0.124
28	0.406	-0.641
29	0.733	0.012
30	-0.894	0.752
31	0.063	-1.138
32	-0.945	0.248
33	1.507	0.404
34	-0.231	-0.743
35	-0.667	-1.268
36	0.229	-0.512
37	0.650	0.765
38	0.670	0.542
39	0.248	-0.027
40	-0.023	-1.124
41	1.274	1.305
42	1.020	0.385
43	-1.613	0.346
44	-0.570	-0.605
45	0.680	-0.444
46	-0.415	-0.636
47	0.314	0.554
48	-0.543	0.555
49	0.336	-0.053
50	-0.842	1.534
51	0.341	-1.188
52	-0.041	-0.139
53	-0.787	0.665
54	-0.065	0.130
55	-0.318	0.521
56	0.145	-0.167
57	0.348	-0.236
58	-0.098	0.492
59	-0.283	0.426
60	0.733	-0.479

<b>Case ID</b>	<b>Librarians' Agility</b>	<b>Relationship Quality</b>
61	-0.248	0.883
62	-0.639	1.523
63	0.179	-0.327
64	-0.555	0.350
65	-0.833	-0.507
66	-0.037	-0.120
67	0.325	-0.316
68	0.911	0.157
69	-0.925	0.264
70	0.982	-0.585
71	1.269	-0.211
72	0.733	0.012
73	-1.044	0.787
74	0.328	-0.300
75	0.733	0.012
76	0.229	-0.745
77	0.210	-0.724
78	0.355	0.860
79	-0.181	-0.038
80	0.054	-0.065
81	-1.461	0.239
82	-0.701	-1.452
83	-0.667	-1.268
84	-0.533	0.268
85	-0.667	-1.059
86	0.481	-0.366
87	-0.043	0.521
88	0.073	0.506
89	-0.239	0.803
90	0.107	-0.715
91	0.733	0.012
92	-0.165	0.142
93	0.212	-0.615
94	-2.136	0.245
95	-0.310	0.467
96	0.388	-0.057
97	0.733	0.012
98	0.733	0.012
99	0.733	0.012
100	0.126	-0.826
101	0.729	1.294
102	0.580	0.079
103	0.733	0.012
104	0.396	0.269

<b>Case ID</b>	<b>Librarians' Agility</b>	<b>Relationship Quality</b>
105	-0.835	1.383
106	0.385	-0.165
107	-0.193	-0.897
108	0.229	1.358
109	-0.367	0.728
110	0.733	0.012
111	0.025	-1.007
112	0.796	-0.411
113	0.733	0.012
114	-0.159	0.698
115	0.489	0.117
116	-1.430	1.097
117	0.327	-0.488
118	1.085	-0.316
119	0.733	0.012
120	0.488	-0.379
121	-0.676	-0.047
122	1.202	0.440
123	-0.367	0.420
124	-0.415	0.513
125	0.068	0.773
126	0.272	0.493
127	0.147	0.104
128	-0.719	0.353
129	-0.408	-0.155
130	-0.551	0.593
131	-0.206	-0.312
132	-0.432	0.144
133	0.428	0.145
134	-2.961	-0.305
135	0.079	-0.629
136	0.733	0.012
137	0.733	0.012
138	0.058	-0.397
139	0.251	0.245
140	0.551	-1.292
141	-0.248	-0.537
142	-1.112	0.359
143	-0.380	-0.171
144	1.977	1.146
145	-0.170	0.526
146	-0.905	-1.122
147	0.462	0.229
148	-0.641	0.078

<b>Case ID</b>	<b>Librarians' Agility</b>	<b>Relationship Quality</b>
149	0.087	0.294
150	0.138	-0.870
151	-0.085	-0.829
152	0.527	-0.003
153	0.439	-0.340
154	-0.087	0.014
155	-0.270	-0.292
156	-0.900	-0.396
157	-0.611	0.016
158	-2.247	-0.014
159	0.126	-0.565
160	0.115	0.277
161	-0.667	-0.328
162	-1.051	-0.124
163	0.079	-0.862
164	0.401	-0.470
165	-0.659	0.357
166	-0.157	0.654
167	0.138	0.727
168	0.401	-0.470
169	-0.335	-0.028
170	-0.085	-0.243
171	0.481	0.556
172	-0.711	1.020
173	-1.153	0.376
174	-2.422	-0.055
175	0.184	0.252
176	0.347	-0.002
177	-0.154	-0.319
178	0.966	-0.038
179	-0.390	1.167
180	0.733	0.012
181	-0.882	0.957
182	-0.104	-1.050
183	0.245	0.225
184	0.658	0.215
185	-0.292	0.619
186	0.157	0.911
187	0.481	-0.366
188	-0.066	0.791
189	-0.920	-1.609

#### 4.27 R Square

Table 4.38  
R Square

	<b>R Square</b>	<b>R Square Adjusted</b>
<b>Librarians' Agility</b>	0.498	0.490
<b>Relationship Quality</b>	0.611	0.603

Based on results obtained, R Square of the Librarians' Agility construct is 0.498 and R Square Adjusted is 0.489. This indicates that 49.8% of variation of Librarians' Agility can be explained by applying the independent variables of the model. This translates to a moderate level of explanation and the almost similar R Square Adjusted of 48.9% further indicates that such model is robust and lacks an overfitting issue. Second, the construct of Relationship Quality has a higher R Square of 0.611 and R Square Adjusted of 0.603. This translates to 61.1% of variation of Relationship Quality wherein it could be explained by applying variables in a model. Such figure translates to a good level of explanation. Overall, these figures further indicate that of PLS-SEM model built has acceptable ability in explaining variation of involved dependent constructs.

#### 4.28 F Square

Table 4.39  
F Square

	<b>Librarians' Agility</b>	<b>Relationship Capability</b>	<b>Relationship Quality</b>	<b>Service Innovation Capability</b>	<b>Tools Capability</b>
<b>Librarians' Agility</b>			0.245		
<b>Relationship Capability</b>	0.036		0.075		
<b>Relationship Quality</b>					
<b>Service Innovation Capability</b>	0.013		0.007		
<b>Tools Capability</b>	0.020		0.010		

Through the examination of F-Square ( $f^2$ ) values, it was found that Librarians' Agility had a weak impact on Relationship Capability ( $f^2 = 0.0359$ ), Service Innovation Capability ( $f^2 = 0.0132$ ), and Tools Capability ( $f^2 = 0.0195$ ). Although it was on a low level of impact, it was nevertheless clear that Librarians' Agility had a role to play in influencing these variables. Additionally, it was also clear that Relationship Capability also had a weak impact on Relationship Quality with  $f^2$  of 0.0750. Importantly, Librarians' Agility had a moderate level of impact on Relationship Quality with  $f^2 = 0.2452$ , demonstrating it to be a relatively significant factor in contributing to relationship quality improvement. In contrast, Service Innovation Capability had a very insignificant level of impact on Relationship Quality ( $f^2 = 0.0068$ ), and also Tools Capability had a weak level of impact on the same variable with  $f^2 = 0.0102$ . Overall, it is clear based on these findings that although most of these variables only influence to a meager level of impact, there is a great contribution by Librarians' Agility in influencing Relationship Quality in the model under consideration.

## 4.29 Discriminat Validity

### 4.29.1 Construct Reliability and Validity

Table 4.40  
Construct Reliability and Validity

	<b>Cronbach's Alpha</b>	<b>rho_A</b>	<b>Composite Reliability</b>	<b>Average Variance Extracted (AVE)</b>
<b>Librarians' Agility</b>	0.909	0.919	0.932	0.734
<b>Relationship Capability</b>	0.937	0.938	0.952	0.799
<b>Relationship Quality</b>	0.928	0.930	0.943	0.735
<b>Service Innovation Capability</b>	0.948	0.948	0.960	0.828
<b>Tools Capability</b>	0.939	0.940	0.954	0.804

Five constructs were tested for reliability and validity in this study by using four leading measures: Cronbach's Alpha, rho\_A, Composite Reliability, and Average Variance Extracted (AVE). All of them had high values on all measures demonstrating exceptional levels of reliability and validity. All Cronbach's Alpha for all constructs

were greater than 0.90 (e.g., Librarians' Agility = 0.909, Service Innovation Capability = 0.948), indicating items for each construct were consistent internally. Rho\_A values were also high and also supported further evidence of reliability. Composite Reliability values were all greater than cut-off point of 0.70 and it meant that these constructs were reliable and stable in operationalizing intended concept. For convergent validity, Average Variance Extracted (AVE) for all constructs is above 0.70 (e.g., Tools Capability = 0.804), and it shows that more than 70% of indicators' variance is explained by each of the corresponding constructs. All of these measures are adequate for reliability and convergent validity specifications and provide evidence for robustness of this instrument under examination for further processing.

#### 4.29.2 Fornell-Larcker Criterion

Table 4.41  
Fornell-Larcker Criterion

	<b>Librarians' Agility</b>	<b>Relationship Capability</b>	<b>Relationship Quality</b>	<b>Service Innovation Capability</b>	<b>Tools Capability</b>
<b>Librarians' Agility</b>	0.857				
<b>Relationship Capability</b>	0.681	0.894			
<b>Relationship Quality</b>	0.719	0.709	0.857		
<b>Service Innovation Capability</b>	0.673	0.879	0.645	0.910	
<b>Tools Capability</b>	0.672	0.864	0.670	0.885	0.897

Fornell-Larcker Test was used to assess discriminant validity for PLS-SEM models. Based on this test, it is compulsory for the square root of AVE (Average Variance Extracted) value on the diagonal (or those bold values of the matrix) to be higher than the correlation of the construct and other constructs (off-diagonal values). For this dataset, Librarians' Agility shows a square root of AVE of 0.857 which is higher than its correlation with Relationship Capability (0.681), Relationship Quality (0.719), Service Innovation Capability (0.673), and Tools Capability (0.672). It is a clear sign of good discriminant validity for this construct. Similarly for Relationship Capability,

0.894 is the square root of AVE which is higher than all of its correlation values with other constructs and thus shows a clear indication of good discriminant validity. There are some other constructs like Relationship Quality (0.857), Service Innovation Capability (0.910), and Tools Capability (0.897) also showing higher values of AVE root than their cross-correlation values. Therefore, all constructs in this model meet the requirements of Fornell-Larcker and set each of these constructs to be different and distinct from one another in terms of what is really being measured by a specific construct.

#### 4.29.3 Cross loading

Table 4.42  
Cross loading

	<b>Library Agility</b>	<b>Relationship Capability</b>	<b>Relationship Quality</b>	<b>Service Innovation Capability</b>	<b>Tools Capability</b>
<b>LA_1</b>	0.871	0.640	0.678	0.622	0.662
<b>LA_2</b>	0.892	0.582	0.617	0.553	0.594
<b>LA_4</b>	0.889	0.576	0.637	0.568	0.537
<b>LA_5</b>	0.860	0.691	0.618	0.694	0.645
<b>LA_6</b>	0.766	0.372	0.510	0.399	0.394
<b>RC_1</b>	0.608	0.904	0.631	0.766	0.777
<b>RC_2</b>	0.619	0.845	0.577	0.783	0.698
<b>RC_3</b>	0.622	0.915	0.655	0.793	0.793
<b>RC_4</b>	0.624	0.917	0.663	0.783	0.794
<b>RC_5</b>	0.570	0.884	0.638	0.802	0.798
<b>RQ_1</b>	0.720	0.663	0.843	0.582	0.602
<b>RQ_2</b>	0.631	0.548	0.881	0.481	0.514
<b>RQ_3</b>	0.556	0.581	0.891	0.511	0.554
<b>RQ_4</b>	0.575	0.559	0.888	0.522	0.547
<b>RQ_5</b>	0.642	0.647	0.825	0.597	0.592
<b>RQ_6</b>	0.545	0.625	0.814	0.607	0.626
<b>SIC_1</b>	0.593	0.779	0.597	0.883	0.739
<b>SIC_2</b>	0.602	0.802	0.578	0.909	0.798
<b>SIC_3</b>	0.639	0.814	0.568	0.918	0.794
<b>SIC_4</b>	0.610	0.802	0.633	0.911	0.859
<b>SIC_5</b>	0.617	0.798	0.554	0.928	0.833
<b>TC_1</b>	0.587	0.843	0.669	0.843	0.893
<b>TC_2</b>	0.625	0.709	0.545	0.753	0.866
<b>TC_3</b>	0.635	0.763	0.583	0.823	0.903
<b>TC_4</b>	0.555	0.786	0.614	0.790	0.906
<b>TC_5</b>	0.612	0.771	0.592	0.754	0.915

Cross loadings are used to test for discriminant validity of the measurement model by assessing strength of association of indicator and intended construct vis-à-vis other constructs. Indicators such as LA\_1 to LA\_6 are for Librarians' Agility construct

and their highest loading values all fall in the Library Agility column vis-a-vis other constructs such as Relationship Capability, Relationship Quality, Service Innovation Capability, and Tools Capability. For example, LA\_1 shows highest loading of 0.871 on Librarians' Agility and loadings on other constructs are lower (for example: 0.640 on Relationship Capability, 0.678 on Relationship Quality). Similarly, LA\_2 (0.892), LA\_4 (0.889), LA\_5 (0.860), and LA\_6 (0.766) all report highest loading on their respective constructs. It has the same pattern for other constructs (if overall indicators are considered), so each item measures intended construct without significantly loading on other constructs. It shows discriminant validity is adequate, where indicators are closer to original constructs than other constructs.

#### 4.29.4 Heterotrait-Monotrait Ratio (HTMT)

Table 4.43  
Heterotrait-Monotrait Ratio (HTMT)

	<b>Librarians' Agility</b>	<b>Relationship Capability</b>	<b>Relationship Quality</b>	<b>Service Innovation Capability</b>	<b>Tools Capability</b>
<b>Librarians' Agility</b>					
<b>Relationship Capability</b>	0.724				
<b>Relationship Quality</b>	0.772	0.755			
<b>Service Innovation Capability</b>	0.713	0.933	0.684		
<b>Tools Capability</b>	0.716	0.921	0.715	0.937	

Heterotrait-Monotrait Ratio (HTMT) assesses discriminant validity for measurement models of PLS-SEM. Observations of HTMT below the cut-off point (usually 0.90 or 0.85 depending on research setting) would imply that the constructs are separable based on data and have adequate discriminant validity. According to the conducted table of HTMT analysis, all of the values between constructs are lower than 0.90 and so reflect no severe discriminant validity concerns. For instance, the HTMT between Library Agility and Relationship Capability is 0.724; between Library Agility and Relationship Quality is 0.772; and between Relationship Capability and Service Innovation Capability is 0.933. Even though the level of 0.933 is marginally higher than

the conservative level of 0.90, it will be acceptable if the research adopts a level of 0.95 as recommended by Henseler et al. (2015) for the social sciences context. In general, the results of HTMT suggest that discriminant validity of these constructs is adequate in this model. It is therefore possible for each construct to statistically differentiate itself from other constructs within this model, which is an indication of structural validity of applied-measurement model.

#### 4.29.5 Outer VIF Value

Table 4.44  
Outer VIF Value

	<b>VIF</b>
<b>LA_1</b>	2.850
<b>LA_2</b>	3.334
<b>LA_4</b>	3.092
<b>LA_5</b>	2.502
<b>LA_6</b>	1.900
<b>RC_1</b>	3.601
<b>RC_2</b>	2.534
<b>RC_3</b>	3.913
<b>RC_4</b>	4.388
<b>RC_5</b>	3.339
<b>RQ_1</b>	2.681
<b>RQ_2</b>	4.144
<b>RQ_3</b>	4.548
<b>RQ_4</b>	3.884
<b>RQ_5</b>	2.425
<b>RQ_6</b>	2.439
<b>SIC_1</b>	3.047
<b>SIC_2</b>	3.873
<b>SIC_3</b>	4.216
<b>SIC_4</b>	4.337
<b>SIC_5</b>	5.175
<b>TC_1</b>	3.216
<b>TC_2</b>	2.734
<b>TC_3</b>	3.523
<b>TC_4</b>	3.785
<b>TC_5</b>	4.003

VIF is used to determine multicollinearity level among indicators in the measurement model. Generally, if VIF is less than 5, it is clear that no severe

multicollinearity problem exists. For this dataset, all of the Librarians' Agility construct indicators (LA\_1 to LA\_6) of VIF are between 1.90 and 3.33. This further establishes that no severe multicollinearity problem exists among these indicators. High and low values are LA\_2 (3.33) and LA\_6 (1.90), respectively, but both are well within acceptable ranges. Therefore, all of these indicators are suitable to be used in the model because no data redundancy or high correlation between indicators exists to lead to parameter estimate instability in this model's parameter estimates. For the most part, this construct is sound in terms of indicator specification and is not afflicted by multicollinearity difficulties.

#### 4.29.6 Inner VIF Value

Table 4.45  
Inner VIF Value

	<b>Librarians' Agility</b>	<b>Relationship Capability</b>	<b>Relationship Quality</b>	<b>Service Innovation Capability</b>	<b>Tools Capability</b>
<b>Librarians' Agility</b>			1.992		
<b>Relationship Capability</b>	5.176		5.362		
<b>Relationship Quality</b>					
<b>Service Innovation Capability</b>	6.033		6.112		
<b>Tools Capability</b>	5.439		5.546		

The Inner VIF values for the structural model provide estimates of the degree of multicollinearity in the predictor constructs. Most of the VIF values are larger than 5, so there are probably issues of multicollinearity. Specifically, Relationship Capability and Librarians' Agility have high VIFs when predicting Tools Capability and Service Innovation Capability (e.g., 6.112 and 6.033), respectively, indicating that the predictors may be overlapping or redundant in explaining the same dependent constructs. Only once, Librarians' Agility predicting Relationship Quality, falls within the acceptable range (VIF = 1.992), so there is no issue of multicollinearity. High levels of multicollinearity will inflate the standard errors and make the path coefficient estimates less reliable.

## 4.30 Model Fit

### 4.30.1 Fit Summary

Table 4.46  
Fit Summary

	<b>Saturated Model</b>	<b>Estimated Model</b>
<b>SRMR</b>	0.062	0.062
<b>d_ULS</b>	1.347	1.347
<b>d_G</b>	0.874	0.874
<b>Chi-Square</b>	864.560	864.560
<b>NFI</b>	0.845	0.845

Standardized Root Mean Square Residual (SRMR) is 0.0619 and is therefore found to be exhibiting good fit for the model since it is smaller than 0.08. It simply indicates that discrepancy between predicted and observed covariance matrices is small. It is also found that d\_ULS (1.347) and d\_G (0.874), both of which are measurements used to compare least squares and geometric discrepancy between observed and predicted matrices respectively, indicate acceptable level of misfit. Chi-Square statistic is 864.56 and although not used directly in PLS-SEM to assess model fit, it provides some indication of how correct is the model itself. The NFI is 0.845 and is close to ideal 0.90 and therefore provides a moderate to satisfactory level of fit for this model. Overall, it provides satisfactory fit and can be used to make further inference.

### 4.30.2 Model Selection Criteria

Table 4.47  
Model Selection Criteria

	<b>AIC (Akaike's Information Criterion)</b>	<b>AICu (Unbiased Akaike's Information Criterion)</b>	<b>AICc (Corrected Akaike's Information Criterion)</b>	<b>BIC (Bayesian Information Criteria)</b>	<b>HQ (Hannan Quinn Criterion)</b>	<b>HQc (Corrected Hannan- Quinn Criterion)</b>
Librarians' Agility	-123.263	-119.220	68.065	-110.296	-118.010	-117.575

Assessed was the Agility Librarians' model. Values of model selection criteria like AIC, AICu, AICc, BIC, HQ, and HQc were used to assess model suitability and

efficiency. Typically, smaller values represent a better model. In this regard, the model had negative values for AIC (-123.26), AICu (-119.22), BIC (-110.30), HQ (-118.01), and HQc (-117.57), and a positive value for AICc was 68.07. Low values of AIC and BIC are indicative of a good tendency of the model to balance accuracy and complexity of the model. It could therefore be concluded that this model has promising prospects and is fit for application but caution needs to be applied over the relatively elevated AICc since it could point to further revision of the model particularly for smaller sample sizes.

Table 4.48  
Meaning of the AIC, BIC, HQ

<b>Criteria</b>	<b>Purpose</b>	<b>Interpretation</b>
<b>AIC (Akaike Information Criterion)</b>	Measuring the relative quality of a statistical model based on the balance between accuracy and model complexity.	A lower AIC value indicates a better model. Mild penalty against overly complex models.
<b>BIC (Bayesian Information Criterion)</b>	Similar to AIC but provides a stronger penalty against complex models, suitable for larger samples.	A lower BIC value indicates a better model. More conservative and tend to choose simpler models.
<b>HQ (Hannan–Quinn Criterion)</b>	Used for model selection, especially in time series analysis; complexity penalty between AIC and BIC.	Lower HQ values indicate a better model. Suitable for medium sample sizes.

(Source: Chakrabarti & Ghosh, 2011)

#### 4.30.3 Stop Criterion Changes

This data shows the change in loading values for each indicator in the last iteration of the PLS-SEM model. The loading values indicate the extent to which each item (indicator) represents its construct. In general, a good loading value is  $\geq 0.70$ ; however, in this data, all indicators show very low loading values, ranging from 0.17 to 0.26. This suggests that the items do not represent the constructs strongly and may affect the reliability of the model. The highest indicators are LA\_1 (0.260) and LA\_5 (0.255), while most other indicators are around 0.21–0.23. This situation indicates the need to review the indicators used, either through item refinement or instrument redesign to improve construct validity. Overall, the loading levels indicate weaknesses in the measurement structure that need attention.

Table 4.49  
Stop Criterion Changes

	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
<b>Iteration 0</b>	0.234	0.234	0.234	0.234	0.234	0.224	0.224	0.224	0.224	0.224	0.194	0.194	0.194	0.194	0.194	0.194	0.22	0.22	0.22	0.22	0.22	0.223	0.223	0.223	0.223	0.223
<b>Iteration 1</b>	0.26	0.235	0.235	0.255	0.176	0.223	0.215	0.23	0.233	0.218	0.221	0.189	0.183	0.182	0.205	0.188	0.219	0.216	0.221	0.228	0.215	0.233	0.217	0.226	0.216	0.223
<b>Iteration 2</b>	0.26	0.235	0.236	0.255	0.176	0.223	0.215	0.23	0.232	0.218	0.221	0.19	0.183	0.182	0.205	0.187	0.218	0.216	0.222	0.228	0.215	0.233	0.217	0.226	0.217	0.223
<b>Iteration 3</b>	0.26	0.235	0.236	0.255	0.176	0.223	0.215	0.23	0.232	0.218	0.221	0.19	0.183	0.182	0.205	0.187	0.218	0.216	0.222	0.228	0.215	0.233	0.217	0.226	0.217	0.223
<b>Iteration 4</b>	0.26	0.235	0.236	0.255	0.176	0.223	0.215	0.23	0.232	0.218	0.221	0.19	0.183	0.182	0.205	0.187	0.218	0.216	0.222	0.228	0.215	0.233	0.217	0.226	0.217	0.223
<b>Iteration 5</b>	0.26	0.235	0.236	0.255	0.176	0.223	0.215	0.23	0.232	0.218	0.221	0.19	0.183	0.182	0.205	0.187	0.218	0.216	0.222	0.228	0.215	0.233	0.217	0.226	0.217	0.223

#### 4.30.4 Inner Model

Table 4.50  
Inner Model

	<b>Librarians' Agility</b>	<b>Relationship Capability</b>	<b>Relationship Quality</b>	<b>Service Innovation Capability</b>	<b>Tools Capability</b>
<b>Librarians' Agility</b>			1.000		
<b>Relationship Capability</b>	1.000		1.000		
<b>Relationship Quality</b>					
<b>Service Innovation Capability</b>	1.000		1.000		
<b>Tools Capability</b>	1.000		1.000		

Based on the inner model explored, the relationships among the constructs suggest that “Librarians’ Agility” is directly determined by four other variables: “Relationship Capability”, “Relationship Quality”, “Service Innovation Capability” and “Tools Capability”. Each construct has a significant and high path coefficient value of 1.000 and this implies a very strong and significant link with “Librarians’ Agility”. This means that all four constructs significantly determine the capability and efficiency of libraries to adapt to environmental changes. In particular, “Relationship Capability” also has a significant link with “Relationship Quality” and this indirectly contributes to “Librarians’ Agility”. This finding shows good internal model structure with clear and significant interrelationships among the variables and this implies good theoretical fit in the research at hand.

### 4.30.5 Outer Model

Table 4.51  
Outer Model

	<b>Librarians' Agility</b>	<b>Relationship Capability</b>	<b>Relationship Quality</b>	<b>Service Innovation Capability</b>	<b>Tools Capability</b>
<b>LA_1</b>	-1.000				
<b>LA_2</b>	-1.000				
<b>LA_4</b>	-1.000				
<b>LA_5</b>	-1.000				
<b>LA_6</b>	-1.000				
<b>RC_1</b>		-1.000			
<b>RC_2</b>		-1.000			
<b>RC_3</b>		-1.000			
<b>RC_4</b>		-1.000			
<b>RC_5</b>		-1.000			
<b>RQ_1</b>			-1.000		
<b>RQ_2</b>			-1.000		
<b>RQ_3</b>			-1.000		
<b>RQ_4</b>			-1.000		
<b>RQ_5</b>			-1.000		
<b>RQ_6</b>			-1.000		
<b>SIC_1</b>				-1.000	
<b>SIC_2</b>				-1.000	
<b>SIC_3</b>				-1.000	
<b>SIC_4</b>				-1.000	
<b>SIC_5</b>				-1.000	
<b>TC_1</b>					-1.000
<b>TC_2</b>					-1.000
<b>TC_3</b>					-1.000
<b>TC_4</b>					-1.000
<b>TC_5</b>					-1.000

The table provided presents the outer model values (potential outer weights or outer loadings) for some constructs like Librarians' Agility, Relationship Capability, etc. But nearly all the values of these constructs are -1.0 or NaN, meaning there is a significant problem in the model – either a data input error, a computation failure in the PLS-SEM analysis, or the data has not been completely computed. The -1.0 value is illegal for the outer model because typically legitimate values range from 0 to 1 for

loadings or approximately -1 to +1 for weights. Hence, this model cannot be properly interpreted and has to be resubmitted.

#### **4.30.6 Indicator Data**

Based on the data analyzed, respondents provided feedback on various key constructs, namely Librarians' Agility (LA), Relationship Capability (RC), Service Innovation Capability (SIC), and Tools Capability (TC). Each of these constructs is represented by several indicators measured using a Likert scale, believed to range from 1 (strongly disagree) to 7 (strongly agree).

Librarians' Agility (LA) refers to how fast and adaptable a librarian is to environmental adjustments. The mean values of the LA\_1 to LA\_6 indicators are mostly in the moderate to high category with most respondents awarding a score of 5 and higher. This means that the library is perceived to have the capability to adapt its operations and services to its needs at present and this is a positive aspect of organizational agility. Relationship Capability (RC) is the librarian's capability to build and sustain strategic relationships with its users, its suppliers, and its other external partners. The statistics demonstrate steadily strong scores for each of the five RC indicators in the range 5 to 7. This suggests that the library's social and professional relationships are robust and respected within the user community and significant to the delivery of effective information services.

Service Innovation Capability (SIC) quantifies the capability of the institution to obtain, analyze, and exploit information in a strategic manner. The SIC score for the indicator is also strong, meaning that the library has not only good access to quality information, but also exploits that knowledge to enhance performance and make informed decisions using data. Lastly, Tools Capability (TC) is the technical capability of the organization in using information technology to support operations and services. Having high ratings in indicators TC\_1 to TC\_5 shows that the library has a suitable technology base and competent staff in using digital systems, something crucial in this day and age of digitalization.

Overall, this data shows positive perceptions from respondents towards all four constructs. High scores reflect the institution's strength in facing change, building relationships, managing strategic information, and applying technology. These four

aspects are important factors in making libraries more responsive, competitive, and relevant in the modern information era.

Table 4.52  
Indicator Data

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5	
1	6	5	5	5	5	6	6	6	5	5	6	6	6	7	6	6	6	6	6	6	5	6	6	6	6	6	
2	4	4	4	5	4	5	5	5	5	5	4	4	4	4	4	4	5	5	5	4	4	5	4	4	4	4	5
3	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
5	7	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
7	6	6	7	7	5	7	7	7	7	7	7	7	7	7	7	6	7	7	7	7	7	7	7	7	7	7	7
8	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
9	7	6	6	5	3	7	7	7	7	7	6	7	7	7	7	6	5	5	5	5	5	5	6	6	5	7	7
10	7	6	6	7	5	7	7	7	7	7	7	6	6	7	6	6	7	7	7	7	7	7	7	7	7	7	7
11	5	5	6	5	5	6	6	4	5	4	5	6	6	6	4	6	5	4	5	5	5	5	6	4	5	5	5
12	5	5	5	5	5	6	6	6	6	6	6	6	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6
13	7	6	6	7	4	7	7	7	7	7	6	7	5	7	6	6	7	7	7	7	7	7	7	7	7	7	7
14	7	7	7	7	7	7	5	7	7	7	7	7	7	7	7	7	6	4	6	7	7	7	7	6	7	7	7
15	5	4	5	5	5	5	5	5	5	5	5	7	7	7	6	7	5	5	5	5	5	5	5	5	5	5	5
16	7	7	5	5	5	7	5	6	5	5	6	6	7	7	7	6	6	6	6	6	6	6	7	7	7	7	7
17	5	6	6	5	5	5	5	5	6	6	5	5	5	6	6	6	6	6	5	6	6	6	6	6	5	6	6
18	5	5	5	5	4	6	5	6	5	5	5	6	6	6	6	6	6	6	5	6	6	5	4	5	5	5	6
19	4	5	4	5	4	5	5	5	5	5	5	4	5	6	5	6	6	5	4	6	6	6	6	4	5	6	6
20	6	6	6	5	7	5	6	4	4	4	6	7	7	6	6	6	4	4	5	5	4	5	4	4	5	5	5
21	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
22	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
23	6	7	6	6	4	7	7	7	7	7	6	6	6	6	6	5	6	6	6	6	6	6	5	6	6	6
24	6	6	6	6	5	7	7	7	7	7	6	6	6	6	6	5	7	7	7	7	7	7	7	7	7	7
25	6	5	5	6	6	6	5	7	6	7	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7
26	5	6	5	5	5	5	5	5	5	5	6	6	6	5	5	4	5	5	4	4	5	4	5	4	6	5
27	6	6	6	7	6	6	6	7	7	6	6	6	7	6	6	7	6	6	6	6	7	6	5	6	6	5
28	6	5	6	6	5	6	6	6	6	6	5	6	6	6	6	5	5	6	6	5	5	5	5	6	5	6
29	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
30	5	5	5	6	5	7	7	7	7	7	6	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6
31	4	5	5	5	5	6	4	5	5	4	4	5	5	5	4	5	5	5	5	4	4	5	5	5	6	5
32	4	2	5	6	6	6	6	5	6	6	6	6	6	7	4	6	6	5	6	5	6	6	6	5	6	5
33	7	7	7	7	7	7	7	5	6	6	7	7	7	7	7	7	6	7	6	5	6	6	7	6	6	6
34	4	4	5	4	4	5	4	4	4	4	5	5	5	4	4	4	5	5	4	4	4	5	5	5	5	5
35	5	5	5	5	5	6	6	6	6	6	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6
36	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5	5	5	5	5	5	5	5	5	5
37	6	6	5	6	4	5	5	5	5	5	6	7	7	6	6	6	5	5	5	5	5	5	6	6	6	5
38	6	7	6	7	6	6	6	7	6	6	7	7	7	7	6	7	7	7	6	7	6	6	5	7	6	7
39	5	6	6	6	5	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	6	6
40	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
41	6	6	6	6	6	5	5	4	5	6	6	7	7	7	7	7	6	5	5	5	5	5	6	5	5	5
42	7	7	7	7	7	7	6	6	7	5	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
43	4	4	4	4	5	6	6	6	6	6	5	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6
44	5	5	4	4	4	5	5	5	6	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5	5
45	6	6	6	7	6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6	6
46	6	6	6	6	6	7	7	7	7	7	7	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
47	5	6	5	6	5	6	5	6	6	6	6	7	7	7	5	7	4	4	5	6	4	6	6	5	5	6
48	5	5	6	5	5	6	6	6	6	6	5	6	7	7	7	7	7	5	5	6	6	7	7	6	6	7
49	7	7	7	6	6	7	7	7	7	7	7	7	7	7	6	7	7	7	7	7	7	7	7	7	7	7
50	5	5	5	5	4	6	6	6	6	6	7	7	7	7	7	7	6	6	6	6	5	7	6	6	6	6
51	6	6	6	6	6	6	6	6	7	6	6	6	6	5	5	5	6	6	6	6	6	6	6	6	6	7
52	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
53	5	5	5	7	5	6	6	7	7	7	7	7	7	7	6	7	6	7	6	7	6	7	7	7	7	7
54	5	5	6	6	5	6	6	6	6	6	6	6	6	6	6	7	6	6	5	6	6	6	6	6	5	6
55	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	7	6	7
56	6	5	6	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6
57	5	6	6	4	6	5	3	4	6	6	5	6	6	6	5	5	6	6	4	6	5	6	6	6	5	6
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59	6	5	6	6	5	6	6	6	7	7	6	7	7	7	6	7	6	7	6	6	6	7	6	6	7	7
60	7	7	7	7	7	7	7	7	7	7	6	7	7	7	6	7	7	7	7	7	7	7	7	7	7	7
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62	6	4	5	5	5	6	6	6	6	6	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6
63	6	6	6	6	6	7	6	6	6	6	6	7	6	6	6	6	6	6	7	6	6	6	6	7	7	7
64	4	5	7	6	6	7	6	6	7	7	6	7	7	7	6	6	7	7	7	7	7	7	5	6	7	6
65	5	5	4	6	4	6	6	6	6	6	5	5	6	5	6	6	6	6	6	6	6	6	6	6	6	6
66	5	6	6	5	5	6	6	6	6	6	5	6	6	6	7	6	6	6	6	6	5	5	6	5	6	6
67	6	5	6	6	6	6	6	7	6	6	6	6	6	6	6	6	6	6	6	6	5	6	5	6	6	5
68	7	7	7	7	7	7	5	7	7	7	7	7	7	7	7	7	7	6	7	7	7	7	7	7	7	7
69	7	4	6	6	4	7	7	7	7	7	7	7	7	6	6	7	7	7	7	7	7	7	7	7	7	7
70	6	6	7	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
71	6	6	6	6	6	6	6	6	6	5	6	6	6	6	6	6	6	6	6	3	2	4	4	5	5	5
72	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
73	6	5	6	5	5	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
74	6	6	6	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
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76	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
77	5	6	5	6	6	6	5	7	6	5	6	5	5	5	6	7	5	5	4	6	5	5	6	7	7	6
78	5	6	6	5	6	6	4	6	6	6	6	7	6	7	7	7	6	5	5	5	5	5	6	6	6	6
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81	4	3	4	3	2	5	5	4	4	5	5	5	5	5	5	5	5	4	5	5	4	5	5	5	5	5
82	4	4	4	4	4	6	4	5	5	5	4	4	5	4	4	4	5	4	4	4	5	6	3	5	5	4
83	5	5	5	5	5	6	6	6	6	6	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6
84	5	5	5	5	5	6	6	6	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
85	5	5	5	5	5	6	6	6	6	6	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6
86	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
87	6	5	6	6	6	7	6	6	6	6	6	7	7	7	6	7	6	6	6	7	7	7	6	6	7	6
88	5	5	6	7	5	7	6	6	5	6	6	7	7	7	6	6	6	6	6	6	6	7	6	5	6	6
89	5	6	6	6	5	7	6	6	7	7	7	7	7	7	7	7	6	6	6	5	6	6	6	7	6	7
90	7	6	6	6	5	7	6	7	7	7	6	6	6	6	6	7	6	6	6	6	6	7	7	6	6	7
91	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
92	5	5	6	6	5	6	6	6	6	6	6	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6
93	6	5	7	6	6	6	6	6	6	6	6	7	6	5	6	5	5	7	7	7	7	6	7	7	7	6
94	5	4	5	5	2	7	6	7	7	7	7	7	7	6	3	7	7	7	7	7	7	7	6	7	7	7

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
95	6	6	7	6	5	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
96	4	6	6	6	7	6	5	5	5	5	5	6	5	6	6	7	7	6	6	6	6	6	4	7	5	7
97	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
98	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
99	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
100	6	6	5	6	5	6	6	6	6	6	6	5	6	6	5	5	6	6	6	6	6	6	6	6	5	6
101	6	5	5	5	7	5	5	5	5	5	7	7	7	7	5	7	5	5	5	5	5	6	5	5	5	5
102	7	7	7	7	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
103	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
104	7	7	6	6	7	7	7	7	7	6	7	7	7	7	7	7	7	6	6	7	7	7	7	7	7	7
105	5	5	5	5	3	6	5	6	6	7	6	7	7	7	7	7	6	6	6	5	5	6	5	5	7	6
106	7	7	7	7	4	7	7	7	7	7	7	7	7	7	6	6	7	7	7	7	7	7	6	6	7	7
107	5	5	6	6	4	6	6	5	6	6	6	5	5	5	5	6	5	6	6	6	6	6	6	6	6	6
108	5	5	5	5	5	5	5	5	5	5	6	7	7	7	6	6	5	5	5	5	5	5	5	5	5	5
109	6	5	5	5	3	5	4	5	5	6	6	7	7	6	5	6	6	5	5	6	6	6	6	7	7	6
110	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
111	5	5	5	5	5	5	5	5	6	5	4	6	6	5	4	5	5	4	5	5	5	5	6	6	5	6
112	6	6	6	7	7	7	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6	6	6	6	6	6
113	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
114	6	5	5	6	5	6	5	6	6	6	6	7	7	6	6	7	6	6	6	7	6	7	5	6	6	6
115	6	6	6	7	7	7	6	7	7	7	7	7	7	7	6	7	6	5	6	6	6	7	6	6	6	7
116	5	6	4	4	6	7	6	7	7	7	7	7	7	7	7	7	7	6	6	7	6	7	6	7	7	7
117	7	6	6	6	6	6	6	7	7	6	6	6	6	6	7	6	6	7	6	7	6	6	7	7	6	7
118	7	7	7	7	7	6	6	6	6	7	7	7	7	7	5	6	6	7	7	7	7	7	7	7	7	7

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
119	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
120	6	7	7	7	6	7	7	7	7	7	7	7	7	6	6	6	7	7	7	7	7	6	6	7	6	7
121	5	6	6	6	6	7	7	7	7	7	7	6	7	7	6	6	7	7	7	7	7	7	7	7	7	7
122	7	7	6	6	7	6	5	6	6	7	7	7	7	7	6	7	5	6	6	6	5	6	5	6	6	7
123	5	5	5	6	6	6	6	6	6	6	6	7	7	7	6	6	5	5	5	6	6	7	6	7	7	7
124	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
125	6	5	5	6	5	6	5	5	7	6	6	7	7	7	6	7	5	5	6	5	5	6	4	6	7	7
126	6	6	6	6	7	7	4	7	7	7	7	7	7	7	7	7	4	7	4	7	6	7	7	7	7	7
127	5	5	5	5	5	6	5	5	5	5	6	6	6	6	5	5	5	5	5	5	5	5	5	5	5	5
128	5	5	5	5	6	6	6	7	7	6	6	6	7	6	6	7	7	6	6	6	6	6	6	6	6	6
129	5	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	4	5	5
130	5	5	5	3	5	5	5	6	6	5	6	6	6	6	6	6	6	6	4	5	4	6	4	5	6	6
131	5	5	6	6	6	6	6	7	6	7	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6
132	7	5	5	6	5	7	7	7	6	5	5	7	7	7	6	7	7	7	6	6	6	7	7	7	7	7
133	7	7	7	7	5	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
134	3	3	3	3	3	6	6	6	6	6	3	3	6	6	6	6	6	6	6	6	6	6	6	6	6	6
135	7	7	6	6	6	7	7	7	7	7	6	6	7	7	6	6	7	7	7	7	7	7	7	7	7	7
136	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
137	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
138	5	4	5	5	5	4	4	4	4	6	5	5	5	5	5	5	5	5	6	5	5	5	5	5	6	5
139	4	5	6	5	3	6	4	4	6	5	6	6	6	6	5	5	4	4	4	4	4	4	5	5	4	5
140	6	6	6	6	6	6	5	7	5	6	5	5	5	5	6	6	5	5	7	6	6	6	7	7	5	6
141	5	4	5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
142	4	5	6	5	4	7	7	6	7	7	7	7	7	6	6	6	5	5	5	6	6	7	5	6	7	7

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
143	5	5	4	4	5	6	5	5	5	5	5	6	6	5	5	5	5	5	5	6	4	6	4	5	4	6
144	4	4	6	1	6	2	2	2	2	2	6	6	6	6	4	1	4	1	1	1	1	2	1	3	1	2
145	6	6	5	5	7	5	5	7	7	7	6	7	7	7	6	7	7	6	6	7	5	6	7	7	7	6
146	6	5	5	6	6	7	7	7	7	7	6	6	6	6	5	5	7	7	7	7	7	7	7	7	7	7
147	5	5	5	6	6	7	5	5	5	5	5	6	6	6	6	7	5	5	5	5	5	5	5	5	5	5
148	6	5	5	5	5	6	6	6	6	5	4	7	7	7	6	5	6	7	6	7	7	6	6	7	7	7
149	6	6	7	7	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
150	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	4	4	4	4	5	5	6	5	6
151	6	6	6	6	6	7	6	6	7	7	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7
152	6	7	6	7	7	6	6	7	7	6	7	7	7	6	6	7	7	6	6	7	7	7	7	7	7	7
153	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6
154	7	6	6	6	6	7	6	7	7	7	7	7	7	6	6	7	7	7	7	7	7	7	7	7	7	7
155	5	5	5	6	6	6	6	6	6	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
156	5	5	5	5	4	7	6	6	6	6	5	6	6	6	5	6	6	6	6	6	6	6	6	6	6	6
157	5	5	5	5	5	7	5	6	7	6	5	7	6	6	6	6	5	6	6	6	6	7	5	5	5	6
158	3	3	4	3	2	6	4	4	6	7	5	5	5	5	5	5	6	4	5	6	5	5	4	5	7	5
159	6	6	6	6	5	7	6	7	7	6	7	7	7	5	6	4	6	6	6	6	5	6	5	6	6	7
160	5	5	6	5	6	6	5	5	7	5	6	7	7	6	5	6	5	5	5	6	5	6	6	6	5	6
161	5	5	5	5	5	6	6	6	6	6	5	6	6	6	6	5	6	6	6	6	6	6	6	6	6	6
162	4	4	5	5	5	6	6	6	6	6	5	5	6	6	6	6	6	7	5	5	6	6	6	5	6	6
163	7	7	6	6	6	7	7	7	7	7	6	6	7	6	6	6	7	7	7	7	7	7	7	7	7	7
164	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
165	4	4	6	6	5	6	6	6	6	6	6	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6
166	4	4	4	4	3	4	3	4	4	4	4	5	6	6	4	6	4	4	4	5	4	4	4	4	4	4

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5	
167	7	6	6	5	5	7	4	7	7	6	7	7	7	7	7	7	5	6	5	7	4	7	6	7	7	7	
168	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
169	5	5	5	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	5	6	6	6	6	6	6
170	6	6	6	6	5	7	6	7	7	6	6	6	7	7	6	6	6	6	6	6	6	7	6	6	7	7	
171	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6
172	6	5	5	5	6	7	5	7	7	7	7	7	7	7	7	7	6	7	7	6	6	7	6	7	6	6	
173	5	5	5	6	5	7	6	7	7	7	7	7	7	6	6	6	7	7	7	7	7	7	5	7	7	7	
174	4	4	3	3	2	6	5	6	5	6	4	4	6	6	5	6	5	6	6	6	6	6	6	6	6	6	6
175	7	7	7	6	5	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
176	6	5	6	5	5	5	6	5	5	5	5	6	6	6	6	6	5	5	6	6	5	6	5	6	6	6	
177	7	6	6	6	6	7	7	7	7	7	6	6	7	7	6	7	7	7	7	7	7	7	7	7	7	7	7
178	5	5	7	7	7	6	5	5	7	6	6	6	5	6	7	7	6	5	5	7	6	6	5	5	5	5	5
179	4	4	4	4	4	4	5	5	5	4	5	6	6	6	6	6	4	5	4	5	4	5	5	3	4	4	
180	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
181	6	5	6	6	3	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6
182	5	4	6	6	6	6	6	6	5	7	6	6	5	5	5	5	6	6	5	5	5	6	6	6	6	6	6
183	7	7	7	5	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
184	7	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	5	6	7	7	7
185	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
186	6	5	6	7	6	7	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	4	7	5	3	3
187	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
188	6	5	5	4	6	7	6	7	6	6	7	7	7	7	6	6	6	4	4	5	4	6	4	5	5	5	5
189	4	4	4	4	4	6	4	4	5	5	4	4	4	4	4	4	5	5	5	5	5	5	5	5	6	5	5

#### 4.30.7 Mean Value

Table 4.53  
Mean Value

	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis	Skewness	Number of Observations Used
LA_1	5.672	6	3	7	0.996	-0.722	-0.241	189
LA_2	5.561	6	2	7	1.009	-0.01	-0.339	189
LA_4	5.714	6	3	7	0.916	-0.269	-0.359	189
LA_5	5.709	6	1	7	1.047	1.591	-0.929	189
LA_6	5.45	6	2	7	1.156	0.393	-0.653	189
RC_1	6.206	6	2	7	0.839	2.64	-1.22	189
RC_2	5.836	6	2	7	0.986	0.583	-0.765	189
RC_3	6.09	6	2	7	0.964	0.892	-1.005	189
RC_4	6.18	6	2	7	0.885	1.743	-1.101	189
RC_5	6.111	6	2	7	0.899	1.335	-0.971	189
RQ_1	6.037	6	3	7	0.875	0.071	-0.693	189
RQ_2	6.28	6	3	7	0.836	1.006	-1.116	189
RQ_3	6.339	6	4	7	0.757	0.023	-0.877	189
RQ_4	6.27	6	4	7	0.781	0.162	-0.851	189
RQ_5	6	6	3	7	0.861	0.358	-0.753	189
RQ_6	6.169	6	1	7	0.899	4.928	-1.532	189
SIC_1	6.032	6	4	7	0.848	-0.408	-0.534	189
SIC_2	5.995	6	1	7	0.968	2.706	-1.155	189
SIC_3	5.926	6	1	7	0.968	2.451	-1.051	189
SIC_4	6.053	6	1	7	0.941	3.715	-1.334	189
SIC_5	5.91	6	1	7	1.032	2.4	-1.156	189
TC_1	6.185	6	2	7	0.831	2.708	-1.196	189
TC_2	5.894	6	1	7	1.018	1.834	-0.999	189
TC_3	6.116	6	3	7	0.871	0.75	-0.907	189
TC_4	6.138	6	1	7	0.91	4.261	-1.382	189
TC_5	6.19	6	2	7	0.87	2.605	-1.255	189

Based on the descriptive statistics for the five main constructs Librarians' Agility (LA), Relationship Capability (RC), Relationship Quality (RQ), Service Innovation Capability (SIC), and Tools Capability (TC), it can be concluded that respondents showed a high level of perception towards all the constructs studied. In general, the average score for all items was in the range of 5.4 to 5.8, while the median

was mostly 6, reflecting a positive tendency towards the statements presented. The maximum score was 7 for all items, while the minimum score was between 1 and 3, indicating a slight variation in responses. The standard deviation of around 0.8 to 1.2 indicates a moderate spread of the respondents' answers.

In terms of the shape of the distribution, most items showed a negative skewness value, indicating that the majority of respondents gave a high score. The excess kurtosis value showed a variation between a flatter distribution (negative value) and a more dense distribution (positive value), depending on the item. All constructs recorded the same number of respondents, which was 189, maintaining uniformity in the analysis. Overall, these data indicate that respondents not only have a positive attitude towards learning agility and teamwork, but also value the quality of relationships and social interactions within the organization. These findings provide a strong basis for further analysis using PLS-SEM to test the relationships between constructs.

#### **4.31 Indicator Data (Correlations)**

##### **4.31.1 Empirical Correlation Matrix**

Based on the empirical correlation matrix, correlation among items in each construct is stable and positive with correlation values of moderate to high (0.5 to 0.7). Good internal correlation strength was observed in the construct Librarians' Agility (LA), specifically among items LA\_1 to LA\_5 with values above 0.6, indicating the construct's cohesiveness and stability. Along the same line, the construct Relationship Capability (RC) and Tools Capability (TC) have high correlation values, specifically RC\_3 and RC\_4 and TC\_1 to TC\_3, indicating organizational readiness in terms of technology and resources. The Service Innovation Capability (SIC) construct also exhibits stable internal correlation values, with most values above 0.6, confirming the reliability of this construct in describing libraries' capability to apply service innovation. Accordingly, there is the significant correlations between LA, RC, and TC with SIC indicate a strong basis for continuing the structural model analysis (inner model) to test the causal relationship in more depth. This indicates that organizational strategy, resource adequacy, and technological efficiency play important roles in driving library service innovation.

Table 4.54  
Empirical Correlation Matrix

	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
LA_1	1	0.777	0.691	0.659	0.55	0.562	0.586	0.626	0.565	0.519	0.657	0.593	0.575	0.556	0.586	0.499	0.532	0.569	0.611	0.577	0.537	0.585	0.618	0.611	0.558	0.597
LA_2	0.777	1	0.734	0.67	0.627	0.526	0.502	0.557	0.545	0.468	0.611	0.503	0.499	0.493	0.591	0.45	0.505	0.496	0.498	0.52	0.495	0.482	0.537	0.564	0.492	0.589
LA_4	0.691	0.734	1	0.736	0.641	0.524	0.551	0.461	0.54	0.501	0.68	0.609	0.475	0.5	0.564	0.412	0.523	0.494	0.543	0.49	0.532	0.473	0.507	0.506	0.434	0.486
LA_5	0.659	0.67	0.736	1	0.58	0.623	0.635	0.608	0.617	0.608	0.607	0.535	0.438	0.478	0.535	0.564	0.571	0.625	0.674	0.617	0.671	0.579	0.592	0.594	0.559	0.566
LA_6	0.55	0.627	0.641	0.58	1	0.313	0.324	0.363	0.366	0.293	0.512	0.444	0.37	0.422	0.462	0.39	0.379	0.347	0.361	0.367	0.362	0.354	0.382	0.415	0.278	0.335
RC_1	0.562	0.526	0.524	0.623	0.313	1	0.732	0.782	0.792	0.735	0.573	0.506	0.523	0.505	0.564	0.557	0.668	0.686	0.723	0.697	0.712	0.788	0.608	0.691	0.698	0.693
RC_2	0.586	0.502	0.551	0.635	0.324	0.732	1	0.734	0.677	0.647	0.534	0.447	0.478	0.463	0.548	0.479	0.728	0.72	0.763	0.642	0.713	0.682	0.62	0.589	0.621	0.616
RC_3	0.626	0.557	0.461	0.608	0.363	0.782	0.734	1	0.807	0.758	0.605	0.481	0.546	0.502	0.619	0.594	0.703	0.75	0.717	0.747	0.689	0.759	0.646	0.731	0.716	0.699
RC_4	0.565	0.545	0.54	0.617	0.366	0.792	0.677	0.807	1	0.813	0.627	0.526	0.549	0.512	0.584	0.594	0.684	0.718	0.696	0.751	0.713	0.775	0.644	0.694	0.725	0.718
RC_5	0.519	0.468	0.501	0.608	0.293	0.735	0.647	0.758	0.813	1	0.62	0.487	0.497	0.515	0.575	0.566	0.704	0.712	0.746	0.744	0.741	0.759	0.649	0.7	0.751	0.717
RQ_1	0.657	0.611	0.68	0.607	0.512	0.573	0.534	0.605	0.627	0.62	1	0.767	0.7	0.644	0.611	0.564	0.555	0.519	0.522	0.556	0.496	0.587	0.485	0.556	0.539	0.526
RQ_2	0.593	0.503	0.609	0.535	0.444	0.506	0.447	0.481	0.526	0.487	0.767	1	0.828	0.735	0.61	0.592	0.443	0.42	0.438	0.485	0.397	0.512	0.389	0.456	0.471	0.472
RQ_3	0.575	0.499	0.475	0.438	0.37	0.523	0.478	0.546	0.549	0.497	0.7	0.828	1	0.812	0.617	0.647	0.47	0.45	0.446	0.509	0.445	0.573	0.424	0.47	0.516	0.496
RQ_4	0.556	0.493	0.5	0.478	0.422	0.505	0.463	0.502	0.512	0.515	0.644	0.735	0.812	1	0.693	0.712	0.507	0.464	0.447	0.506	0.45	0.567	0.449	0.444	0.506	0.485
RQ_5	0.586	0.591	0.564	0.535	0.462	0.564	0.548	0.619	0.584	0.575	0.611	0.61	0.617	0.693	1	0.691	0.558	0.565	0.521	0.562	0.506	0.555	0.513	0.522	0.541	0.523
RQ_6	0.499	0.45	0.412	0.564	0.39	0.557	0.479	0.594	0.594	0.566	0.564	0.592	0.647	0.712	0.691	1	0.521	0.537	0.532	0.627	0.541	0.638	0.529	0.529	0.573	0.534
SIC_1	0.532	0.505	0.523	0.571	0.379	0.668	0.728	0.703	0.684	0.704	0.555	0.443	0.47	0.507	0.558	0.521	1	0.761	0.764	0.727	0.765	0.705	0.605	0.704	0.667	0.63
SIC_2	0.569	0.496	0.494	0.625	0.347	0.686	0.72	0.75	0.718	0.712	0.519	0.42	0.45	0.464	0.565	0.537	0.761	1	0.819	0.773	0.783	0.738	0.687	0.741	0.716	0.692
SIC_3	0.611	0.498	0.543	0.674	0.361	0.723	0.763	0.717	0.696	0.746	0.522	0.438	0.446	0.447	0.521	0.532	0.764	0.819	1	0.777	0.814	0.741	0.69	0.751	0.697	0.676
SIC_4	0.577	0.52	0.49	0.617	0.367	0.697	0.642	0.747	0.751	0.744	0.556	0.485	0.509	0.506	0.562	0.627	0.727	0.773	0.777	1	0.86	0.846	0.718	0.786	0.758	0.737
SIC_5	0.537	0.495	0.532	0.671	0.362	0.712	0.713	0.689	0.713	0.741	0.496	0.397	0.445	0.45	0.506	0.541	0.765	0.783	0.814	0.86	1	0.803	0.726	0.759	0.757	0.69
TC_1	0.585	0.482	0.473	0.579	0.354	0.788	0.682	0.759	0.775	0.759	0.587	0.512	0.573	0.567	0.555	0.638	0.705	0.738	0.741	0.846	0.803	1	0.699	0.745	0.778	0.771

	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
<b>TC_2</b>	0.618	0.537	0.507	0.592	0.382	0.608	0.62	0.646	0.644	0.649	0.485	0.389	0.424	0.449	0.513	0.529	0.605	0.687	0.69	0.718	0.726	0.699	1	0.748	0.713	0.733
<b>TC_3</b>	0.611	0.564	0.506	0.594	0.415	0.691	0.589	0.731	0.694	0.7	0.556	0.456	0.47	0.444	0.522	0.529	0.704	0.741	0.751	0.786	0.759	0.745	0.748	1	0.768	0.787
<b>TC_4</b>	0.558	0.492	0.434	0.559	0.278	0.698	0.621	0.716	0.725	0.751	0.539	0.471	0.516	0.506	0.541	0.573	0.667	0.716	0.697	0.758	0.757	0.778	0.713	0.768	1	0.809
<b>TC_5</b>	0.597	0.589	0.486	0.566	0.335	0.693	0.616	0.699	0.718	0.717	0.526	0.472	0.496	0.485	0.523	0.534	0.63	0.692	0.676	0.737	0.69	0.771	0.733	0.787	0.809	1

#### **4.31.2 Indicator Data (Standardize)**

These data include standard scores for 27 indicators encapsulating four key constructs: Librarians' Agility (LA), Relationship Capability (RC), Service Innovation Capability (SIC), and Tools Capability (TC). Normalization has already been applied to the scores so we can determine how much the performance or perception in any given instance varies from the population standard, positive scores correspond to above average and negative scores to below average performance or perception.

The LA scales (LA\_1 through LA\_6) represent adaptability and responsiveness to change by the librarian. For example, respondent 3 had strong positive values in all LA indicators and therefore had a high agility level. But respondent 2 had significant negative values and therefore was found to have gaps in adaptability in responding to changes in the employment environment.

These RC constructs (RC\_1 to RC\_4) measure the librarian's level of role clarity. Those with positive scores, e.g., respondent 3, have a clear understanding of their role, while constant negative scores reveal the state of role confusion or uncertainty of responsibility.

In the SIC constructs (SIC\_1 through SIC\_5), the SIC captures the internal desire to transform independently without external stimulus. A positive score like those by respondents 3 and 5 shows much capability to transform in advance. Respondent 2 had a significant negative score, indicating restriction or passive approach to self-transformation.

Also, the TC constructs (TC\_1 to TC\_5) measure task completion capability. Once more, respondent 3 scores highest, meaning that their working efficiency and productivity are good, while respondent 2 performs poorly in their tasks. These data, in addition to enabling comparison between respondents, can also enable the establishment of high and low performance groups. This facilitates the development of training, coaching or professional development interventions.

Table 4 .55  
Indicator Data (Standardize)

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
1	0.329	-0.556	-0.78	-0.677	-0.389	-0.246	0.166	-0.093	-1.334	-1.236	-0.042	-0.335	-0.447	0.935		-0.188	-0.037	0.005	0.077	-0.056	-0.881	-0.223	0.104	-0.134	-0.151	-0.219
2	-1.678	-1.546	-1.872	-0.677	-1.254	-1.438	-0.847	-1.131	-1.334	-1.236	-2.328	-2.727	-3.089	-2.907	-2.324	-2.414	-1.217	-1.028	-0.957	-2.181	-1.85	-1.426	-1.861	-2.429	-2.35	-1.368
3	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
4	0.329	0.435	0.312	0.278	0.476	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
5	1.333	0.435	0.312	0.278	0.476	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
6	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
7	0.329	0.435	1.404	1.234	-0.389	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	-0.188	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
8	0.329	0.435	0.312	0.278	0.476	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
9	1.333	0.435	0.312	-0.677	-2.118	0.946	1.18	0.944	0.927	0.989	-0.042	0.861	0.874	0.935	1.162	-0.188	-1.217	-1.028	-0.957	-1.119	-0.881	-0.223	0.104	-1.281	0.948	0.93
10	1.333	0.435	0.312	1.234	-0.389	0.946	1.18	0.944	0.927	0.989	1.1	-0.335	-0.447	0.935		-0.188	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
11	-0.674	-0.556	0.312	-0.677	-0.389	-0.246	0.166	-2.169	-1.334	-2.349	-1.185	-0.335	-0.447	-0.346	-2.324	-0.188	-1.217	-2.061	-0.957	-1.119	-0.881	-0.223	-1.861	-1.281	-1.25	-1.368
12	-0.674	-0.556	-0.78	-0.677	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	-0.335	-0.447	-1.626		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
13	1.333	0.435	0.312	1.234	-1.254	0.946	1.18	0.944	0.927	0.989	-0.042	0.861	-1.768	0.935		-0.188	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
14	1.333	1.426	1.404	1.234	1.341	0.946	-0.847	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	-0.037	-2.061	0.077	1.006	1.056	0.981	1.086	-0.134	0.948	0.93
15	-0.674	-1.546	-0.78	-0.677	-0.389	-1.438	-0.847	-1.131	-1.334	-1.236	-1.185	0.861	0.874	0.935		0.925	-1.217	-1.028	-0.957	-1.119	-0.881	-1.426	-0.878	-1.281	-1.25	-1.368
16	1.333	1.426	-0.78	-0.677	-0.389	0.946	-0.847	-0.093	-1.334	-1.236	-0.042	-0.335	0.874	0.935	1.162	-0.188	-0.037	0.005	0.077	-0.056	0.087	0.981	1.086	1.014	0.948	0.93
17	-0.674	0.435	0.312	-0.677	-0.389	-1.438	-0.847	-1.131	-0.203	-0.124	-1.185	-1.531	-1.768	-0.346		-0.188	-0.037	0.005	-0.957	-0.056	0.087	-0.223	0.104	-1.281	-0.151	-0.219
18	-0.674	-0.556	-0.78	-0.677	-1.254	-0.246	-0.847	-0.093	-1.334	-1.236	-1.185	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	-0.957	-0.056	0.087	-1.426	-1.861	-1.281	-1.25	-0.219
19	-1.678	-0.556	-1.872	-0.677	-1.254	-1.438	-0.847	-1.131	-1.334	-1.236	-1.185	-2.727	-1.768	-0.346	-1.162	-0.188	-0.037	-1.028	-1.99	-0.056	0.087	-0.223	-1.861	-1.281	-0.151	-0.219
20	0.329	0.435	0.312	-0.677	1.341	-1.438	0.166	-2.169	-2.464	-2.349	-0.042	0.861	0.874	-0.346		-0.188	-2.397	-2.061	-0.957	-1.119	-1.85	-1.426	-1.861	-2.429	-1.25	-1.368
21	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
22	0.329	0.435	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
23	0.329	1.426	0.312	0.278	-1.254	0.946	1.18	0.944	0.927	0.989	-0.042	-0.335	-0.447	-0.346		-1.301	-0.037	0.005	0.077	-0.056	0.087	-0.223	-0.878	-0.134	-0.151	-0.219
24	0.329	0.435	0.312	0.278	-0.389	0.946	1.18	0.944	0.927	0.989	-0.042	-0.335	-0.447	-0.346		-1.301	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
25	0.329	-0.556	-0.78	0.278	0.476	-0.246	-0.847	0.944	-0.203	0.989	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	1.014	0.948	0.93
26	-0.674	0.435	-0.78	-0.677	-0.389	-1.438	-0.847	-1.131	-1.334	-1.236	-0.042	-0.335	-0.447	-1.626	-1.162	-2.414	-1.217	-1.028	-1.99	-2.181	-0.881	-2.63	-0.878	-2.429	-0.151	-1.368
27	0.329	0.435	0.312	1.234	0.476	-0.246	0.166	0.944	0.927	-0.124	-0.042	-0.335	0.874	-0.346		0.925	-0.037	0.005	0.077	-0.056	1.056	-0.223	-0.878	-0.134	-0.151	-1.368
28	0.329	-0.556	0.312	0.278	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	-1.185	-0.335	-0.447	-0.346		-1.301	-1.217	0.005	0.077	-1.119	-0.881	-1.426	-0.878	-0.134	-1.25	-0.219
29	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
30	-0.674	-0.556	-0.78	0.278	-0.389	0.946	1.18	0.944	0.927	0.989	-0.042	0.861	0.874	0.935	1.162	0.925	1.142	1.039	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
31	-1.678	-0.556	-0.78	-0.677	-0.389	-0.246	-1.861	-1.131	-1.334	-2.349	-2.328	-1.531	-1.768	-1.626	-2.324	-1.301	-1.217	-1.028	-0.957	-2.181	-1.85	-1.426	-0.878	-1.281	-0.151	-1.368
32	-1.678	-3.528	-0.78	0.278	0.476	-0.246	0.166	-1.131	-0.203	-0.124	-0.042	-0.335	-0.447	0.935	-2.324	-0.188	-0.037	-1.028	0.077	-1.119	0.087	-0.223	0.104	-1.281	-0.151	-1.368
33	1.333	1.426	1.404	1.234	1.341	0.946	1.18	-1.131	-0.203	-0.124	1.1	0.861	0.874	0.935	1.162	0.925	-0.037	1.039	0.077	-1.119	0.087	-0.223	1.086	-0.134	-0.151	-0.219
34	-1.678	-1.546	-0.78	-1.633	-1.254	-1.438	-1.861	-2.169	-2.464	-2.349	-1.185	-1.531	-1.768	-2.907	-2.324	-2.414	-1.217	-1.028	-1.99	-2.181	-1.85	-1.426	-0.878	-1.281	-1.25	-1.368
35	-0.674	-0.556	-0.78	-0.677	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	-1.185	-1.531	-1.768	-1.626	-1.162	-1.301	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
36	-0.674	-0.556	-0.78	-0.677	-0.389	-1.438	-0.847	-1.131	-1.334	-1.236	-1.185	-1.531	-1.768	-0.346	-1.162	-1.301	-1.217	-1.028	-0.957	-1.119	-0.881	-1.426	-0.878	-1.281	-1.25	-1.368
37	0.329	0.435	-0.78	0.278	-1.254	-1.438	-0.847	-1.131	-1.334	-1.236	-0.042	0.861	0.874	-0.346		-0.188	-1.217	-1.028	-0.957	-1.119	-0.881	-1.426	0.104	-0.134	-0.151	-1.368
38	0.329	1.426	0.312	1.234	0.476	-0.246	0.166	0.944	-0.203	-0.124	1.1	0.861	0.874	0.935		0.925	1.142	1.039	0.077	1.006	0.087	-0.223	-0.878	1.014	-0.151	0.93
39	-0.674	0.435	0.312	0.278	-0.389	-0.246	-0.847	-0.093	-0.203	-0.124	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-1.426	-0.878	-0.134	-0.151	-0.219
40	-1.678	-1.546	-1.872	-1.633	-1.254	-2.631	-1.861	-2.169	-2.464	-2.349	-2.328	-2.727	-3.089	-2.907	-2.324	-2.414	-2.397	-2.061	-1.99	-2.181	-1.85	-2.63	-1.861	-2.429	-2.35	-2.517
41	0.329	0.435	0.312	0.278	0.476	-1.438	-0.847	-2.169	-1.334	-0.124	-0.042	0.861	0.874	0.935	1.162	0.925	-0.037	-1.028	-0.957	-1.119	-0.881	-1.426	0.104	-1.281	-1.25	-1.368
42	1.333	1.426	1.404	1.234	1.341	0.946	0.166	-0.093	0.927	-1.236	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
43	-1.678	-1.546	-1.872	-1.633	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	-1.185	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	-0.878	-0.134	-0.151	-0.219
44	-0.674	-0.556	-1.872	-1.633	-1.254	-1.438	-0.847	-1.131	-0.203	-1.236	-1.185	-1.531	-1.768	-1.626	-1.162	-1.301	-1.217	-1.028	-0.957	-1.119	-0.881	-0.223	-0.878	-1.281	-1.25	-1.368
45	0.329	0.435	0.312	1.234	0.476	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	1.039	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
46	0.329	0.435	0.312	0.278	0.476	0.946	1.18	0.944	0.927	0.989	1.1	-0.335	-0.447	-0.346		-0.188	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
47	-0.674	0.435	-0.78	0.278	-0.389	-0.246	-0.847	-0.093	-0.203	-0.124	-0.042	0.861	0.874	0.935	-1.162	0.925	-2.397	-2.061	-0.957	-0.056	-1.85	-0.223	0.104	-1.281	-1.25	-0.219
48	-0.674	-0.556	0.312	-0.677	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	-1.185	-0.335	0.874	0.935	1.162	0.925	1.142	-1.028	-0.957	-0.056	0.087	0.981	1.086	-0.134	-0.151	0.93
49	1.333	1.426	1.404	0.278	0.476	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935		0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
50	-0.674	-0.556	-0.78	-0.677	-1.254	-0.246	0.166	-0.093	-0.203	-0.124	1.1	0.861	0.874	0.935	1.162	0.925	-0.037	0.005	0.077	-0.056	-0.881	0.981	0.104	-0.134	-0.151	-0.219
51	0.329	0.435	0.312	0.278	0.476	-0.246	0.166	-0.093	0.927	-0.124	-0.042	-0.335	-0.447	-1.626	-1.162	-1.301	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	0.93
52	-1.678	0.435	0.312	0.278	0.476	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
53	-0.674	-0.556	-0.78	1.234	-0.389	-0.246	0.166	0.944	0.927	0.989	1.1	0.861	0.874	0.935		0.925	-0.037	1.039	0.077	1.006	0.087	0.981	1.086	1.014	0.948	0.93
54	-0.674	-0.556	0.312	0.278	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	-0.335	-0.447	-0.346		0.925	-0.037	0.005	-0.957	-0.056	0.087	-0.223	0.104	-0.134	-1.25	-0.219
55	0.329	0.435	0.312	0.278	0.476	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	0.087	0.981	1.086	1.014	-0.151	0.93
56	0.329	-0.556	0.312	0.278	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	-0.878	-0.134	-0.151	-0.219
57	-0.674	0.435	0.312	-1.633	0.476	-1.438	-2.875	-2.169	-0.203	-0.124	-1.185	-0.335	-0.447	-0.346	-1.162	-1.301	-0.037	0.005	-1.99	-0.056	-0.881	-0.223	0.104	-0.134	-1.25	-0.219
58	-0.674	-0.556	-0.78	0.278	0.476	-1.438	-1.861	-2.169	-0.203	0.989	-0.042	-0.335	-0.447	0.935		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	0.948	0.93
59	0.329	-0.556	0.312	0.278	-0.389	-0.246	0.166	-0.093	0.927	0.989	-0.042	0.861	0.874	0.935		0.925	-0.037	1.039	0.077	-0.056	0.087	0.981	0.104	-0.134	0.948	0.93
60	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	-0.042	0.861	0.874	0.935		0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
61	-0.674	0.435	-0.78	0.278	-0.389	-0.246	0.166	0.944	-0.203	0.989	-0.042	0.861	0.874	0.935	1.162	0.925	-0.037	0.005	-0.957	-0.056	0.087	-0.223	-1.861	-0.134	0.948	-0.219
62	0.329	-1.546	-0.78	-0.677	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	1.1	0.861	0.874	0.935	1.162	0.925	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
63	0.329	0.435	0.312	0.278	0.476	0.946	0.166	-0.093	-0.203	-0.124	-0.042	0.861	-0.447	-0.346		-0.188	-0.037	0.005	1.11	-0.056	0.087	-0.223	0.104	1.014	0.948	0.93
64	-1.678	-0.556	1.404	0.278	0.476	0.946	0.166	-0.093	0.927	0.989	-0.042	0.861	0.874	0.935		-0.188	1.142	1.039	1.11	1.006	1.056	0.981	-0.878	-0.134	0.948	-0.219
65	-0.674	-0.556	-1.872	0.278	-1.254	-0.246	0.166	-0.093	-0.203	-0.124	-1.185	-1.531	-0.447	-1.626		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
66	-0.674	0.435	0.312	-0.677	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	-1.185	-0.335	-0.447	-0.346	1.162	-0.188	-0.037	0.005	0.077	-1.119	-0.881	-0.223	-0.878	-0.134	-0.151	-0.219
67	0.329	-0.556	0.312	0.278	0.476	-0.246	0.166	0.944	-0.203	-0.124	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	-0.881	-0.223	-0.878	-0.134	-0.151	-1.368
68	1.333	1.426	1.404	1.234	1.341	0.946	-0.847	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	0.005	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
69	1.333	-1.546	0.312	0.278	-1.254	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	-0.346		0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
70	0.329	0.435	1.404	1.234	0.476	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
71	0.329	0.435	0.312	0.278	0.476	-0.246	0.166	-0.093	-0.203	-1.236	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-3.243	-3.787	-2.63	-1.861	-1.281	-1.25	-1.368
72	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
73	0.329	-0.556	0.312	-0.677	-0.389	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
74	0.329	0.435	0.312	0.278	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
75	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
76	-0.674	-0.556	-0.78	-0.677	-0.389	-1.438	-0.847	-1.131	-1.334	-1.236	-1.185	-1.531	-1.768	-1.626	-1.162	-1.301	-1.217	-1.028	-0.957	-1.119	-0.881	-1.426	-0.878	-1.281	-1.25	-1.368
77	-0.674	0.435	-0.78	0.278	0.476	-0.246	-0.847	0.944	-0.203	-1.236	-0.042	-1.531	-1.768	-1.626		0.925	-1.217	-1.028	-1.99	-0.056	-0.881	-1.426	0.104	1.014	0.948	-0.219
78	-0.674	0.435	0.312	-0.677	0.476	-0.246	-1.861	-0.093	-0.203	-0.124	-0.042	0.861	-0.447	0.935	1.162	0.925	-0.037	-1.028	-0.957	-1.119	-0.881	-1.426	0.104	-0.134	-0.151	-0.219
79	-0.674	-0.556	-0.78	-1.633	0.476	-1.438	-1.861	-0.093	-0.203	-1.236	-0.042	-1.531	-0.447	-0.346	-1.162	-0.188	-2.397	0.005	-0.957	-1.119	-0.881	-0.223	-0.878	-0.134	-0.151	-0.219
80	-0.674	-0.556	0.312	0.278	0.476	-0.246	-0.847	-0.093	-0.203	-0.124	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
81	-1.678	-2.537	-1.872	-2.589	-2.983	-1.438	-0.847	-2.169	-2.464	-1.236	-1.185	-1.531	-1.768	-1.626	-1.162	-1.301	-1.217	-2.061	-0.957	-1.119	-1.85	-1.426	-0.878	-1.281	-1.25	-1.368
82	-1.678	-1.546	-1.872	-1.633	-1.254	-0.246	-1.861	-1.131	-1.334	-1.236	-2.328	-2.727	-1.768	-2.907	-2.324	-2.414	-1.217	-2.061	-1.99	-2.181	-0.881	-0.223	-2.843	-1.281	-1.25	-2.517
83	-0.674	-0.556	-0.78	-0.677	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	-1.185	-1.531	-1.768	-1.626	-1.162	-1.301	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
84	-0.674	-0.556	-0.78	-0.677	-0.389	-0.246	0.166	-0.093	-0.203	-1.236	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-1.368
85	-0.674	-0.556	-0.78	-0.677	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	-1.185	-1.531	-1.768	-1.626	-1.162	-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
86	0.329	0.435	0.312	0.278	0.476	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
87	0.329	-0.556	0.312	0.278	0.476	0.946	0.166	-0.093	-0.203	-0.124	-0.042	0.861	0.874	0.935		0.925	-0.037	0.005	0.077	1.006	1.056	0.981	0.104	-0.134	0.948	-0.219
88	-0.674	-0.556	0.312	1.234	-0.389	0.946	0.166	-0.093	-1.334	-0.124	-0.042	0.861	0.874	0.935		-0.188	-0.037	0.005	0.077	-0.056	0.087	0.981	0.104	-1.281	-0.151	-0.219
89	-0.674	0.435	0.312	0.278	-0.389	0.946	0.166	-0.093	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	-0.037	0.005	0.077	-1.119	0.087	-0.223	0.104	1.014	-0.151	0.93
90	1.333	0.435	0.312	0.278	-0.389	0.946	0.166	0.944	0.927	0.989	-0.042	-0.335	-0.447	-0.346		0.925	-0.037	0.005	0.077	-0.056	0.087	0.981	1.086	-0.134	-0.151	0.93
91	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
92	-0.674	-0.556	0.312	0.278	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	0.861	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
93	0.329	-0.556	1.404	0.278	0.476	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	0.861	-0.447	-1.626		-1.301	-1.217	1.039	1.11	1.006	1.056	-0.223	1.086	1.014	0.948	-0.219
94	-0.674	-1.546	-0.78	-0.677	-2.983	0.946	0.166	0.944	0.927	0.989	1.1	0.861	0.874	-0.346	-3.486	0.925	1.142	1.039	1.11	1.006	1.056	0.981	0.104	1.014	0.948	0.93

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
95	0.329	0.435	1.404	0.278	-0.389	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
96	-1.678	0.435	0.312	0.278	1.341	-0.246	-0.847	-1.131	-1.334	-1.236	-1.185	-0.335	-1.768	-0.346		0.925	1.142	0.005	0.077	-0.056	0.087	-0.223	-1.861	1.014	-1.25	0.93
97	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
98	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
99	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
100	0.329	0.435	-0.78	0.278	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	-1.531	-0.447	-0.346	-1.162	-1.301	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-1.25	-0.219
101	0.329	-0.556	-0.78	-0.677	1.341	-1.438	-0.847	-1.131	-1.334	-1.236	1.1	0.861	0.874	0.935	-1.162	0.925	-1.217	-1.028	-0.957	-1.119	-0.881	-0.223	-0.878	-1.281	-1.25	-1.368
102	1.333	1.426	1.404	1.234	0.476	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
103	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
104	1.333	1.426	0.312	0.278	1.341	0.946	1.18	0.944	0.927	-0.124	1.1	0.861	0.874	0.935	1.162	0.925	1.142	0.005	0.077	1.006	1.056	0.981	1.086	1.014	0.948	0.93
105	-0.674	-0.556	-0.78	-0.677	-2.118	-0.246	-0.847	-0.093	-0.203	0.989	-0.042	0.861	0.874	0.935	1.162	0.925	-0.037	0.005	0.077	-1.119	-0.881	-0.223	-0.878	-1.281	0.948	-0.219
106	1.333	1.426	1.404	1.234	-1.254	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935		-0.188	1.142	1.039	1.11	1.006	1.056	0.981	0.104	-0.134	0.948	0.93
107	-0.674	-0.556	0.312	0.278	-1.254	-0.246	0.166	-1.131	-0.203	-0.124	-0.042	-1.531	-1.768	-1.626	-1.162	-0.188	-1.217	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
108	-0.674	-0.556	-0.78	-0.677	-0.389	-1.438	-0.847	-1.131	-1.334	-1.236	-0.042	0.861	0.874	0.935		-0.188	-1.217	-1.028	-0.957	-1.119	-0.881	-1.426	-0.878	-1.281	-1.25	-1.368
109	0.329	-0.556	-0.78	-0.677	-2.118	-1.438	-1.861	-1.131	-1.334	-0.124	-0.042	0.861	0.874	-0.346	-1.162	-0.188	-0.037	-1.028	-0.957	-0.056	0.087	-0.223	0.104	1.014	0.948	-0.219
110	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
111	-0.674	-0.556	-0.78	-0.677	-0.389	-1.438	-0.847	-1.131	-0.203	-1.236	-2.328	-0.335	-0.447	-1.626	-2.324	-1.301	-1.217	-2.061	-0.957	-1.119	-0.881	-1.426	0.104	-0.134	-1.25	-0.219
112	0.329	0.435	0.312	1.234	1.341	0.946	0.166	-0.093	-0.203	-0.124	-0.042	-0.335	-0.447	0.935		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
113	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
114	0.329	-0.556	-0.78	0.278	-0.389	-0.246	-0.847	-0.093	-0.203	-0.124	-0.042	0.861	0.874	-0.346		0.925	-0.037	0.005	0.077	1.006	0.087	0.981	-0.878	-0.134	-0.151	-0.219
115	0.329	0.435	0.312	1.234	1.341	0.946	0.166	0.944	0.927	0.989	1.1	0.861	0.874	0.935		0.925	-0.037	-1.028	0.077	-0.056	0.087	0.981	0.104	-0.134	-0.151	0.93
116	-0.674	0.435	-1.872	-1.633	0.476	0.946	0.166	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	0.005	0.077	1.006	0.087	0.981	0.104	1.014	0.948	0.93
117	1.333	0.435	0.312	0.278	0.476	-0.246	0.166	0.944	0.927	-0.124	-0.042	-0.335	-0.447	-0.346	1.162	-0.188	-0.037	1.039	0.077	1.006	0.087	-0.223	1.086	1.014	-0.151	0.93
118	1.333	1.426	1.404	1.234	1.341	-0.246	0.166	-0.093	-0.203	0.989	1.1	0.861	0.874	0.935	-1.162	-0.188	-0.037	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
119	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
120	0.329	1.426	1.404	1.234	0.476	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	-0.346		-0.188	1.142	1.039	1.11	1.006	1.056	-0.223	0.104	1.014	-0.151	0.93
121	-0.674	0.435	0.312	0.278	0.476	0.946	1.18	0.944	0.927	0.989	1.1	-0.335	0.874	0.935		-0.188	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
122	1.333	1.426	0.312	0.278	1.341	-0.246	-0.847	-0.093	-0.203	0.989	1.1	0.861	0.874	0.935		0.925	-1.217	0.005	0.077	-0.056	-0.881	-0.223	-0.878	-0.134	-0.151	0.93
123	-0.674	-0.556	-0.78	0.278	0.476	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	0.861	0.874	0.935		-0.188	-1.217	-1.028	-0.957	-0.056	0.087	0.981	0.104	1.014	0.948	0.93
124	0.329	0.435	0.312	0.278	0.476	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
125	0.329	-0.556	-0.78	0.278	-0.389	-0.246	-0.847	-1.131	0.927	-0.124	-0.042	0.861	0.874	0.935		0.925	-1.217	-1.028	0.077	-1.119	-0.881	-0.223	-1.861	-0.134	0.948	0.93
126	0.329	0.435	0.312	0.278	1.341	0.946	-1.861	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	-2.397	1.039	-1.99	1.006	0.087	0.981	1.086	1.014	0.948	0.93
127	-0.674	-0.556	-0.78	-0.677	-0.389	-0.246	-0.847	-1.131	-1.334	-1.236	-0.042	-0.335	-0.447	-0.346	-1.162	-1.301	-1.217	-1.028	-0.957	-1.119	-0.881	-1.426	-0.878	-1.281	-1.25	-1.368
128	-0.674	-0.556	-0.78	-0.677	0.476	-0.246	0.166	0.944	0.927	-0.124	-0.042	-0.335	0.874	-0.346		0.925	1.142	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
129	-0.674	-1.546	-1.872	-1.633	-1.254	-2.631	-1.861	-1.131	-1.334	-1.236	-1.185	-1.531	-1.768	-1.626	-1.162	-1.301	-1.217	-1.028	-0.957	-1.119	-1.85	-1.426	-0.878	-2.429	-1.25	-1.368
130	-0.674	-0.556	-0.78	-2.589	-0.389	-1.438	-0.847	-0.093	-0.203	-1.236	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	-1.99	-1.119	-1.85	-0.223	-1.861	-1.281	-0.151	-0.219
131	-0.674	-0.556	0.312	0.278	0.476	-0.246	0.166	0.944	-0.203	0.989	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	1.11	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
132	1.333	-0.556	-0.78	0.278	-0.389	0.946	1.18	0.944	-0.203	-1.236	-1.185	0.861	0.874	0.935		0.925	1.142	1.039	0.077	-0.056	0.087	0.981	1.086	1.014	0.948	0.93
133	1.333	1.426	1.404	1.234	-0.389	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
134	-2.681	-2.537	-2.963	-2.589	-2.118	-0.246	0.166	-0.093	-0.203	-0.124	-3.47	-3.923	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
135	1.333	1.426	0.312	0.278	0.476	0.946	1.18	0.944	0.927	0.989	-0.042	-0.335	0.874	0.935		-0.188	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
136	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
137	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
138	-0.674	-1.546	-0.78	-0.677	-0.389	-2.631	-1.861	-2.169	-2.464	-0.124	-1.185	-1.531	-1.768	-1.626	-1.162	-1.301	-1.217	-1.028	0.077	-1.119	-0.881	-1.426	-0.878	-0.134	-1.25	-0.219
139	-1.678	-0.556	0.312	-0.677	-2.118	-0.246	-1.861	-2.169	-0.203	-1.236	-0.042	-0.335	-0.447	-0.346	-1.162	-1.301	-2.397	-2.061	-1.99	-2.181	-1.85	-2.63	-0.878	-1.281	-2.35	-1.368
140	0.329	0.435	0.312	0.278	0.476	-0.246	-0.847	0.944	-1.334	-0.124	-1.185	-1.531	-1.768	-1.626		-0.188	-1.217	-1.028	1.11	-0.056	0.087	-0.223	1.086	1.014	-1.25	-0.219
141	-0.674	-1.546	-0.78	-1.633	-0.389	-1.438	-0.847	-1.131	-1.334	-1.236	-1.185	-1.531	-1.768	-1.626	-1.162	-1.301	-1.217	-1.028	-0.957	-1.119	-0.881	-1.426	-0.878	-1.281	-1.25	-1.368
142	-1.678	-0.556	0.312	-0.677	-1.254	0.946	1.18	-0.093	0.927	0.989	1.1	0.861	0.874	-0.346		-0.188	-1.217	-1.028	-0.957	-0.056	0.087	0.981	-0.878	-0.134	0.948	0.93

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
143	-0.674	-0.556	-1.872	-1.633	-0.389	-0.246	-0.847	-1.131	-1.334	-1.236	-1.185	-0.335	-0.447	-1.626	-1.162	-1.301	-1.217	-1.028	-0.957	-0.056	-1.85	-0.223	-1.861	-1.281	-2.35	-0.219
144	-1.678	-1.546	0.312	-4.5	0.476	-5.015	-3.889	-4.245	-4.725	-4.574	-0.042	-0.335	-0.447	-0.346	-2.324	-5.753	-2.397	-5.161	-5.091	-5.368	-4.756	-5.036	-4.807	-3.577	-5.647	-4.815
145	0.329	0.435	-0.78	-0.677	1.341	-1.438	-0.847	0.944	0.927	0.989	-0.042	0.861	0.874	0.935		0.925	1.142	0.005	0.077	1.006	-0.881	-0.223	1.086	1.014	0.948	-0.219
146	0.329	-0.556	-0.78	0.278	0.476	0.946	1.18	0.944	0.927	0.989	-0.042	-0.335	-0.447	-0.346	-1.162	-1.301	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
147	-0.674	-0.556	-0.78	0.278	0.476	0.946	-0.847	-1.131	-1.334	-1.236	-1.185	-0.335	-0.447	-0.346		0.925	-1.217	-1.028	-0.957	-1.119	-0.881	-1.426	-0.878	-1.281	-1.25	-1.368
148	0.329	-0.556	-0.78	-0.677	-0.389	-0.246	0.166	-0.093	-0.203	-1.236	-2.328	0.861	0.874	0.935		-1.301	-0.037	1.039	0.077	1.006	1.056	-0.223	0.104	1.014	0.948	0.93
149	0.329	0.435	1.404	1.234	0.476	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
150	-0.674	-0.556	-0.78	-0.677	-1.254	-1.438	-0.847	-1.131	-1.334	-1.236	-1.185	-1.531	-1.768	-1.626	-1.162	-1.301	-1.217	-2.061	-1.99	-2.181	-1.85	-1.426	-0.878	-0.134	-1.25	-0.219
151	0.329	0.435	0.312	0.278	0.476	0.946	0.166	-0.093	0.927	0.989	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	1.056	0.981	1.086	1.014	0.948	0.93
152	0.329	1.426	0.312	1.234	1.341	-0.246	0.166	0.944	0.927	-0.124	1.1	0.861	0.874	-0.346		0.925	1.142	0.005	0.077	1.006	1.056	0.981	1.086	1.014	0.948	0.93
153	0.329	0.435	0.312	0.278	0.476	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	1.056	-0.223	0.104	-0.134	-0.151	-0.219
154	1.333	0.435	0.312	0.278	0.476	0.946	0.166	0.944	0.927	0.989	1.1	0.861	0.874	-0.346		0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
155	-0.674	-0.556	-0.78	0.278	0.476	-0.246	0.166	-0.093	-0.203	-0.124	-1.185	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
156	-0.674	-0.556	-0.78	-0.677	-1.254	0.946	0.166	-0.093	-0.203	-0.124	-1.185	-0.335	-0.447	-0.346	-1.162	-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
157	-0.674	-0.556	-0.78	-0.677	-0.389	0.946	-0.847	-0.093	0.927	-0.124	-1.185	0.861	-0.447	-0.346		-0.188	-1.217	0.005	0.077	-0.056	0.087	0.981	-0.878	-1.281	-1.25	-0.219
158	-2.681	-2.537	-1.872	-2.589	-2.983	-0.246	-1.861	-2.169	-0.203	0.989	-1.185	-1.531	-1.768	-1.626	-1.162	-1.301	-0.037	-2.061	-0.957	-0.056	-0.881	-1.426	-1.861	-1.281	0.948	-1.368
159	0.329	0.435	0.312	0.278	-0.389	0.946	0.166	0.944	0.927	-0.124	1.1	0.861	0.874	-1.626		-2.414	-0.037	0.005	0.077	-0.056	-0.881	-0.223	-0.878	-0.134	-0.151	0.93
160	-0.674	-0.556	0.312	-0.677	0.476	-0.246	-0.847	-1.131	0.927	-1.236	-0.042	0.861	0.874	-0.346	-1.162	-0.188	-1.217	-1.028	-0.957	-0.056	-0.881	-0.223	0.104	-0.134	-1.25	-0.219
161	-0.674	-0.556	-0.78	-0.677	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	-1.185	-0.335	-0.447	-0.346		-1.301	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
162	-1.678	-1.546	-0.78	-0.677	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	-1.185	-1.531	-0.447	-0.346		-0.188	-0.037	1.039	-0.957	-1.119	0.087	-0.223	0.104	-1.281	-0.151	-0.219
163	1.333	1.426	0.312	0.278	0.476	0.946	1.18	0.944	0.927	0.989	-0.042	-0.335	0.874	-0.346		-0.188	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
164	0.329	0.435	0.312	0.278	0.476	-0.246	0.166	-0.093	0.927	-0.124	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
165	-1.678	-1.546	0.312	0.278	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	0.861	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
166	-1.678	-1.546	-1.872	-1.633	-2.118	-2.631	-2.875	-2.169	-2.464	-2.349	-2.328	-1.531	-0.447	-0.346	-2.324	-0.188	-2.397	-2.061	-1.99	-1.119	-1.85	-2.63	-1.861	-2.429	-2.35	-2.517

Case ID	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
167	1.333	0.435	0.312	-0.677	-0.389	0.946	-1.861	0.944	0.927	-0.124	1.1	0.861	0.874	0.935	1.162	0.925	-1.217	0.005	-0.957	1.006	-1.85	0.981	0.104	1.014	0.948	0.93
168	0.329	0.435	0.312	0.278	0.476	-0.246	0.166	-0.093	0.927	-0.124	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
169	-0.674	-0.556	-0.78	0.278	-0.389	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	-0.957	-0.056	-0.881	-0.223	0.104	-0.134	-0.151	-0.219
170	0.329	0.435	0.312	0.278	-0.389	0.946	0.166	0.944	0.927	-0.124	-0.042	-0.335	0.874	0.935		-0.188	-0.037	0.005	0.077	-0.056	0.087	0.981	0.104	-0.134	0.948	0.93
171	0.329	0.435	0.312	0.278	0.476	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	-0.335	0.874	0.935	1.162	0.925	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
172	0.329	-0.556	-0.78	-0.677	0.476	0.946	-0.847	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	-0.037	1.039	1.11	-0.056	0.087	0.981	0.104	1.014	-0.151	-0.219
173	-0.674	-0.556	-0.78	0.278	-0.389	0.946	0.166	0.944	0.927	0.989	1.1	0.861	0.874	-0.346		-0.188	1.142	1.039	1.11	1.006	1.056	0.981	-0.878	1.014	0.948	0.93
174	-1.678	-1.546	-2.963	-2.589	-2.983	-0.246	-0.847	-0.093	-1.334	-0.124	-2.328	-2.727	-0.447	-0.346	-1.162	-0.188	-1.217	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
175	1.333	1.426	1.404	0.278	-0.389	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
176	0.329	-0.556	0.312	-0.677	-0.389	-1.438	0.166	-1.131	-1.334	-1.236	-1.185	-0.335	-0.447	-0.346		-0.188	-1.217	-1.028	0.077	-0.056	-0.881	-0.223	-0.878	-0.134	-0.151	-0.219
177	1.333	0.435	0.312	0.278	0.476	0.946	1.18	0.944	0.927	0.989	-0.042	-0.335	0.874	0.935		0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
178	-0.674	-0.556	1.404	1.234	1.341	-0.246	-0.847	-1.131	0.927	-0.124	-0.042	-0.335	-1.768	-0.346	1.162	0.925	-0.037	-1.028	-0.957	1.006	0.087	-0.223	-0.878	-1.281	-1.25	-1.368
179	-1.678	-1.546	-1.872	-1.633	-1.254	-2.631	-0.847	-1.131	-1.334	-2.349	-1.185	-0.335	-0.447	-0.346		-0.188	-2.397	-1.028	-1.99	-1.119	-1.85	-1.426	-0.878	-3.577	-2.35	-2.517
180	1.333	1.426	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
181	0.329	-0.556	0.312	0.278	-2.118	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	0.104	-0.134	-0.151	-0.219
182	-0.674	-1.546	0.312	0.278	0.476	-0.246	0.166	-0.093	-1.334	0.989	-0.042	-0.335	-1.768	-1.626	-1.162	-1.301	-0.037	0.005	-0.957	-1.119	-0.881	-0.223	0.104	-0.134	-0.151	-0.219
183	1.333	1.426	1.404	-0.677	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	1.086	1.014	0.948	0.93
184	1.333	0.435	1.404	1.234	1.341	0.946	1.18	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	-0.878	-0.134	0.948	0.93
185	-0.674	-0.556	-0.78	-0.677	-0.389	-1.438	-0.847	-1.131	-1.334	-1.236	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
186	0.329	-0.556	0.312	1.234	0.476	0.946	0.166	0.944	0.927	0.989	1.1	0.861	0.874	0.935	1.162	0.925	1.142	1.039	1.11	1.006	1.056	0.981	-1.861	1.014	-1.25	-3.666
187	0.329	0.435	0.312	0.278	0.476	-0.246	0.166	-0.093	-0.203	-0.124	-0.042	-0.335	-0.447	-0.346		-0.188	-0.037	0.005	0.077	-0.056	0.087	-0.223	0.104	-0.134	-0.151	-0.219
188	0.329	-0.556	-0.78	-1.633	0.476	0.946	0.166	0.944	-0.203	-0.124	1.1	0.861	0.874	0.935		-0.188	-0.037	-2.061	-1.99	-1.119	-1.85	-0.223	-1.861	-1.281	-1.25	-1.368
189	-1.678	-1.546	-1.872	-1.633	-1.254	-0.246	-1.861	-2.169	-1.334	-1.236	-2.328	-2.727	-3.089	-2.907	-2.324	-2.414	-1.217	-1.028	-0.957	-1.119	-0.881	-1.426	-0.878	-0.134	-1.25	-1.368

### **4.31.3 Model Implied Saturated Correlation Matrix**

The data displayed is a correlation matrix that lists the strength of the relationship between various items representing several constructs, including Librarians' Agility (LA), Relationship Capability (RC), Service Innovation Capability (SIC), and Tools Capability (TC). Correlation values range from 0 to 1, where values closer to 1 indicate a very strong relationship, while values closer to 0 indicate a weak relationship. In the case of correlations within the same construct, say items LA\_1 to LA\_6, if the correlation values are high (approximately 0.74–0.79), then this implies that the items are strongly related and measure the same concept properly. This shows good internal reliability in the construct.

Conversely, the correlation between different constructs, say, LA and RC also shows correlation in the interval 0.49 to 0.55. This does indicate that there is a positive correlation between agile leadership and role clarity, although this correlation is not strong to suggest concept overlap.

Table 4.56  
Saturated Correlation Matrix

	LA_1	LA_2	LA_4	LA_5	LA_6	RC_1	RC_2	RC_3	RC_4	RC_5	RQ_1	RQ_2	RQ_3	RQ_4	RQ_5	RQ_6	SIC_1	SIC_2	SIC_3	SIC_4	SIC_5	TC_1	TC_2	TC_3	TC_4	TC_5
LA_1	1.000	0.777	0.774	0.749	0.667	0.536	0.501	0.543	0.544	0.525	0.528	0.552	0.558	0.556	0.517	0.510	0.517	0.533	0.538	0.534	0.544	0.523	0.507	0.529	0.530	0.535
LA_2	0.777	1.000	0.793	0.767	0.683	0.549	0.513	0.556	0.557	0.537	0.541	0.565	0.571	0.570	0.529	0.522	0.530	0.545	0.551	0.547	0.557	0.535	0.519	0.541	0.543	0.548
LA_4	0.774	0.793	1.000	0.764	0.681	0.547	0.512	0.554	0.555	0.535	0.539	0.563	0.569	0.568	0.527	0.520	0.528	0.544	0.549	0.545	0.555	0.533	0.518	0.540	0.541	0.546
LA_5	0.749	0.767	0.764	1.000	0.659	0.530	0.495	0.536	0.537	0.518	0.521	0.545	0.551	0.549	0.510	0.504	0.511	0.526	0.531	0.527	0.537	0.516	0.501	0.522	0.524	0.529
LA_6	0.667	0.683	0.681	0.659	1.000	0.472	0.441	0.477	0.478	0.461	0.464	0.485	0.491	0.489	0.454	0.448	0.455	0.468	0.473	0.470	0.478	0.460	0.446	0.465	0.466	0.471
RC_1	0.536	0.549	0.547	0.530	0.472	1.000	0.765	0.828	0.830	0.800	0.540	0.564	0.571	0.569	0.529	0.522	0.701	0.722	0.729	0.724	0.737	0.698	0.677	0.706	0.708	0.715
RC_2	0.501	0.513	0.512	0.495	0.441	0.765	1.000	0.774	0.775	0.748	0.505	0.528	0.534	0.532	0.494	0.488	0.656	0.675	0.682	0.677	0.689	0.653	0.633	0.660	0.662	0.668
RC_3	0.543	0.556	0.554	0.536	0.477	0.828	0.774	1.000	0.839	0.809	0.547	0.571	0.577	0.576	0.535	0.528	0.710	0.731	0.738	0.732	0.746	0.706	0.685	0.714	0.717	0.723
RC_4	0.544	0.557	0.555	0.537	0.478	0.830	0.775	0.839	1.000	0.811	0.548	0.572	0.579	0.577	0.536	0.529	0.711	0.732	0.740	0.734	0.748	0.708	0.687	0.716	0.718	0.725
RC_5	0.525	0.537	0.535	0.518	0.461	0.800	0.748	0.809	0.811	1.000	0.528	0.552	0.558	0.557	0.517	0.510	0.686	0.706	0.713	0.708	0.721	0.683	0.662	0.691	0.693	0.699
RQ_1	0.528	0.541	0.539	0.521	0.464	0.540	0.505	0.547	0.548	0.528	1.000	0.742	0.751	0.749	0.695	0.686	0.480	0.494	0.499	0.495	0.504	0.505	0.490	0.510	0.512	0.517
RQ_2	0.552	0.565	0.563	0.545	0.485	0.564	0.528	0.571	0.572	0.552	0.742	1.000	0.784	0.782	0.726	0.717	0.501	0.516	0.521	0.517	0.527	0.527	0.512	0.533	0.535	0.540
RQ_3	0.558	0.571	0.569	0.551	0.491	0.571	0.534	0.577	0.579	0.558	0.751	0.784	1.000	0.791	0.734	0.725	0.507	0.522	0.527	0.523	0.533	0.533	0.517	0.539	0.541	0.546
RQ_4	0.556	0.570	0.568	0.549	0.489	0.569	0.532	0.576	0.577	0.557	0.749	0.782	0.791	1.000	0.732	0.723	0.505	0.520	0.525	0.522	0.531	0.532	0.516	0.538	0.539	0.544
RQ_5	0.517	0.529	0.527	0.510	0.454	0.529	0.494	0.535	0.536	0.517	0.695	0.726	0.734	0.732	1.000	0.671	0.469	0.483	0.488	0.484	0.493	0.494	0.479	0.499	0.501	0.506
RQ_6	0.510	0.522	0.520	0.504	0.448	0.522	0.488	0.528	0.529	0.510	0.686	0.717	0.725	0.723	0.671	1.000	0.463	0.477	0.482	0.478	0.487	0.487	0.473	0.493	0.495	0.499
SIC_1	0.517	0.530	0.528	0.511	0.455	0.701	0.656	0.710	0.711	0.686	0.480	0.501	0.507	0.505	0.469	0.463	1.000	0.802	0.810	0.804	0.819	0.697	0.677	0.706	0.708	0.714
SIC_2	0.533	0.545	0.544	0.526	0.468	0.722	0.675	0.731	0.732	0.706	0.494	0.516	0.522	0.520	0.483	0.477	0.802	1.000	0.834	0.828	0.843	0.718	0.697	0.726	0.729	0.735
SIC_3	0.538	0.551	0.549	0.531	0.473	0.729	0.682	0.738	0.740	0.713	0.499	0.521	0.527	0.525	0.488	0.482	0.810	0.834	1.000	0.836	0.852	0.725	0.704	0.734	0.736	0.743
SIC_4	0.534	0.547	0.545	0.527	0.470	0.724	0.677	0.732	0.734	0.708	0.495	0.517	0.523	0.522	0.484	0.478	0.804	0.828	0.836	1.000	0.845	0.720	0.698	0.728	0.730	0.737
SIC_5	0.544	0.557	0.555	0.537	0.478	0.737	0.689	0.746	0.748	0.721	0.504	0.527	0.533	0.531	0.493	0.487	0.819	0.843	0.852	0.845	1.000	0.733	0.711	0.742	0.744	0.751
TC_1	0.523	0.535	0.533	0.516	0.460	0.698	0.653	0.706	0.708	0.683	0.505	0.527	0.533	0.532	0.494	0.487	0.697	0.718	0.725	0.720	0.733	1.000	0.774	0.807	0.809	0.817
TC_2	0.507	0.519	0.518	0.501	0.446	0.677	0.633	0.685	0.687	0.662	0.490	0.512	0.517	0.516	0.479	0.473	0.677	0.697	0.704	0.698	0.711	0.774	1.000	0.782	0.785	0.792
TC_3	0.529	0.541	0.540	0.522	0.465	0.706	0.660	0.714	0.716	0.691	0.510	0.533	0.539	0.538	0.499	0.493	0.706	0.726	0.734	0.728	0.742	0.807	0.782	1.000	0.818	0.826
TC_4	0.530	0.543	0.541	0.524	0.466	0.708	0.662	0.717	0.718	0.693	0.512	0.535	0.541	0.539	0.501	0.495	0.708	0.729	0.736	0.730	0.744	0.809	0.785	0.818	1.000	0.829
TC_5	0.535	0.548	0.546	0.529	0.471	0.715	0.668	0.723	0.725	0.699	0.517	0.540	0.546	0.544	0.506	0.499	0.714	0.735	0.743	0.737	0.751	0.817	0.792	0.826	0.829	1.000

#### 4.31.4 Empirical Covariance Matrix

This matrix of covariances reports the amount of the linear correlation among the items in the Library Agility (LA) construct based upon empirical data. Those numbers along the diagonal (e.g. LA\_1 = 0.993, LA\_2 = 1.019, etc.) are the variance for a particular item, and the numbers off the diagonal are the covariance of two items. In total, all the values of covariances are positive and suggest a one-way linear correlation among all items in LA. The highest value among the off-diagonal covariances is in LA\_1 and LA\_2 (0.782), indicating that both items strongly correlated with each other. Meanwhile, LA\_1 and LA\_4 have the weakest correlation (0.631), yet still in the mid-level and positive area. This implies that all items in this construct are constantly associated with each other and have a common construct.

Statistically, these high and stable values of the covariance provide support to the assumption that the construct LA has good internal coherence. However, we have to add to this interpretation some further analysis such as factor analysis or reliability testing (e.g. Cronbach's Alpha) in order to determine the overall validity and reliability of the construct.

Table 4.57  
Empirical Covariance Matrix

	LA_1	LA_2	LA_4	LA_5	LA_6
LA_1	0.993	0.782	0.631	0.688	0.634
LA_2	0.782	1.019	0.679	0.708	0.732
LA_4	0.631	0.679	0.839	0.705	0.679
LA_5	0.688	0.708	0.705	1.095	0.702
LA_6	0.634	0.732	0.679	0.702	1.337
RC_1	0.47	0.445	0.403	0.547	0.304
RC_2	0.576	0.499	0.498	0.656	0.37
RC_3	0.601	0.542	0.407	0.613	0.404
RC_4	0.498	0.486	0.438	0.571	0.374
RC_5	0.465	0.424	0.413	0.572	0.305
RQ_1	0.573	0.54	0.545	0.556	0.518
RQ_2	0.494	0.425	0.466	0.468	0.429
RQ_3	0.434	0.382	0.33	0.347	0.324
RQ_4	0.432	0.388	0.358	0.391	0.381
RQ_5	0.503	0.513	0.444	0.481	0.46
RQ_6	0.447	0.408	0.339	0.531	0.405

	LA_1	LA_2	LA_4	LA_5	LA_6
SIC_1	0.45	0.432	0.406	0.507	0.372
SIC_2	0.549	0.484	0.438	0.633	0.389
SIC_3	0.589	0.486	0.481	0.682	0.404
SIC_4	0.541	0.494	0.423	0.608	0.399
SIC_5	0.553	0.516	0.503	0.725	0.432
TC_1	0.484	0.404	0.36	0.504	0.34
TC_2	0.627	0.551	0.472	0.631	0.45
TC_3	0.53	0.496	0.404	0.542	0.419
TC_4	0.505	0.452	0.362	0.532	0.293
TC_5	0.518	0.518	0.388	0.516	0.338

### 4.32 Descriptive Analysis

#### 4.32.1 Sociodemographic Background

For a few key reasons, demographic data collection is crucial, according to Ray (2020). First off, more data is typically preferable because it helps weed out false positives. The gathering of demographic information also makes it possible to assess the representativeness of a sample. Third, failing to collect demographic data has historically had negative effects on actual outcomes that have changed public opinion. QuestionPro.com (2023) suggested that survey method is one of the techniques in collecting demographic profile because survey can provide extensive demographic data on specific population groupings. Phone, mail, or in-person surveys can collect income, education and health data.

The demographic profile – gender, duration of services (year), type of university, job status, qualification and position – of the respondents in this research were asked to provide their background information by answering multiple choice question that were designed in the form of nominal scales. The form was distributed using online form which shared via e-mail. The e-mail request permission to conduct research has been done attachment with the letterhead from Faculty of Information Management which signed by the Supervisor. Link shared with respondents as stated <https://docs.google.com/forms/d/e/1FAIpQLScguwxQPkXZiiDzsTOqsvFTajWdhvsCt6TIAPQEWnYRBJWNyg/closedform?pli=1>

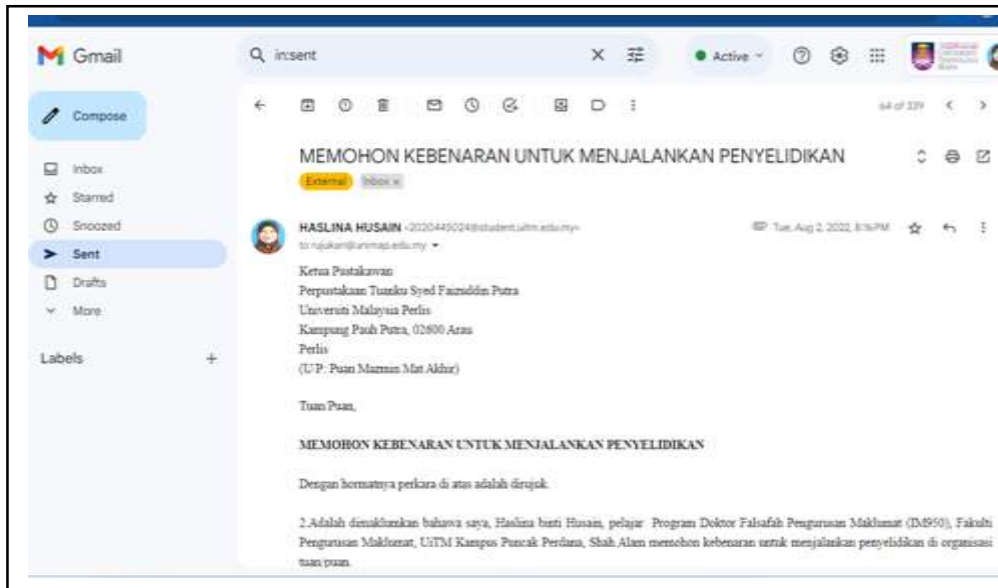


Figure 4.1 Screenshot of e-mail request permission to conduct research

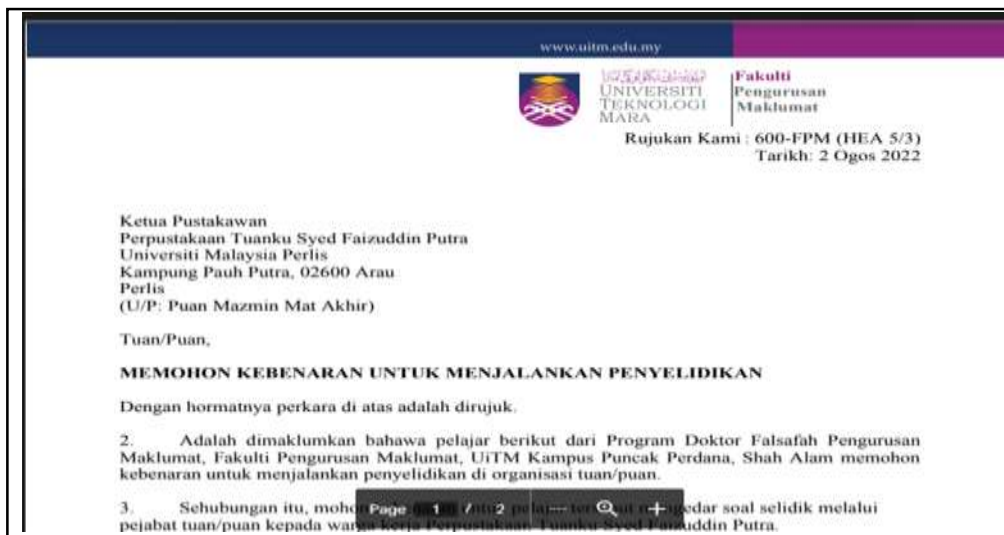


Figure 4.2 Screenshot of formal letter (letterhead) from Faculty of Information Management



Figure 4.3: Screenshot of online questionnaire

With regards to the response rate, there are some arguments on the online survey response rate, as highlighted by Van Gelder et al. (2010) in their study on web-based questionnaires. It is hard to calculate the percentage response rate for online surveys, especially when the survey uses survey software to get the response, because the link to the survey research posted and linked at random. The link to the survey website was closed right after it reached the intended number of sample size. Thus, when the survey research response reached 200, the survey was closed. It took two months to acquire the 200-survey response. Despite having the advantage of being connected with the target population through social media, the online survey respondents were also given a token as appreciation. With 200 completed questionnaires, the analyses were performed using SPSS version 26, while the PLS program was used for measurement model assessment and the structural model.

Table 4.58  
 Respondents' Demographic Profiles

<b>Variables</b>	<b>Frequency (n=200)</b>	<b>Percentage (%)</b>
<b>Gender</b>		
Male	59	29.5
Female	141	70.5
<b>Duration of services (year)</b>		
1-5	28	14.0
6-10	18	9.0
11-15	63	31.5
16-20	40	20.0
21-25	34	17.0
More than 26	17	8.5
<b>Type of University</b>		
Non-Research University	111	55.5
Research University	89	44.5
<b>Job Status</b>		
Contract	6	3.0
Permanent	194	97.0
<b>Qualification</b>		
Bachelor's Degree	69	34.5
Master	126	63.0
PhD	5	2.5
<b>Position</b>		
S41	45	22.5
S44	110	55.0
S48	24	12.0
S52	12	6.0
S54	6	3.0
JUSA A/B/C	3	1.5

#### 4.32.2 General Questionnaires Social Media Use

The additional questionnaires were insert in this part in order to get the additional information from respondents i.e., what social media tools do you use, what do you use these tools for, how long have you been using these social media tools for, and last

questions was do you have any concerns about using social media tools for work-related purposes. The percentage for the data results as figure below:

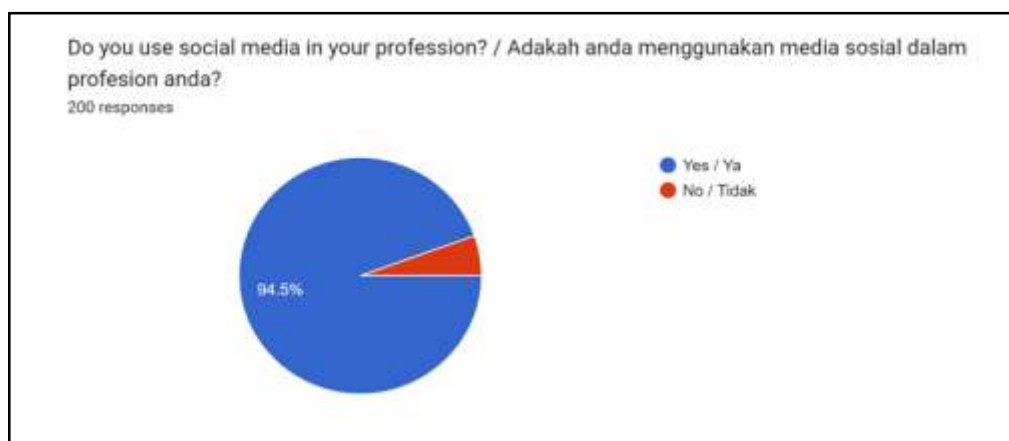


Figure 4.4 Item question “Do you use social media in your profession?”

In terms of the professional use of social media, the findings reveal that a significant majority of the respondents, 94.5% (189 individuals), reported using social media as part of their professional activities, whereas only 5.5% (11 individuals) indicated that they do not use social media for professional purposes. This distribution is visually presented in Figure 4.5. The high percentage suggests that social media has become an integral tool in the professional lives of academic librarians, particularly in enhancing their career-related tasks such as information dissemination, library promotion, academic engagement, and user interaction. These results provide valuable insight into the patterns and behaviours of academic librarians in Malaysia, indicating a proactive approach towards adopting digital communication tools in their daily routines. The data suggests that social media is not merely a supplementary resource but a core component of librarians’ professional practices. This aligns with the broader objective of this study, which is to identify how academic librarians engage with technology to support and expand their roles within academic institutions. Furthermore, these findings are consistent with earlier research conducted by Altaf (2021), which reported that 73.2% of Pakistani librarians began using social media after 2008, with university libraries being the most active users, accounting for 53.52% of the usage. This regional comparison underscores a broader trend across developing countries, where academic libraries are increasingly integrating social media into their professional strategies. In addition, the results can be explained through the lens of Rogers (2003) Diffusion of Innovation Theory (DIT), which posits that an innovation’s adoption is considered successful when

there is widespread acceptance among its target group. In this case, the remarkably high rate of social media adoption among Malaysian academic librarians reflects the perception of social media as a beneficial and necessary innovation. It also demonstrates that these professionals are not resistant to change, but rather exhibit adaptive behaviour in response to technological advancements, further reinforcing the study's objective of exploring behavioural patterns within this professional community.

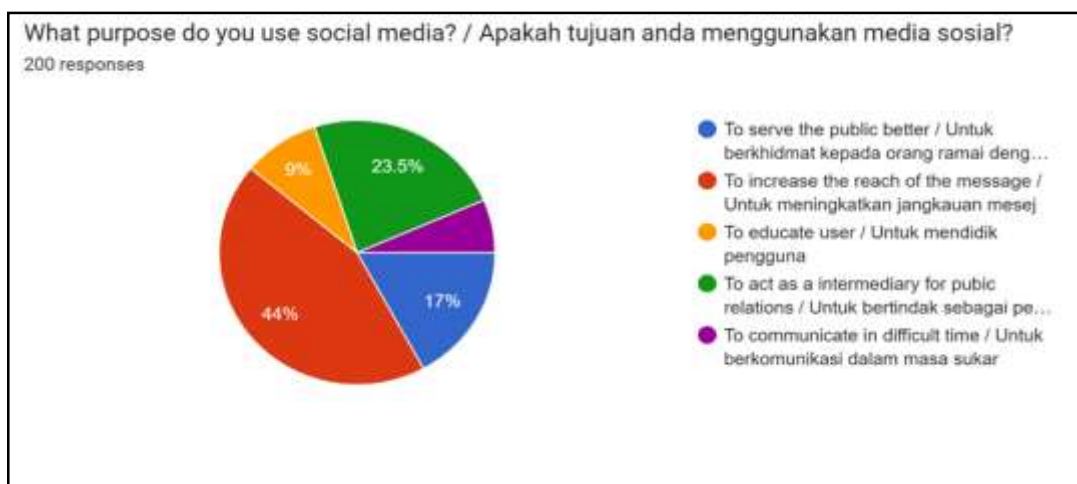


Figure 4.5 Item question “What purpose do you use social media?”

In terms of the purpose of using social media, the data reveals clear patterns in how academic librarians in Malaysia strategically engage with these platforms. The highest proportion of respondents, 44% (88 individuals), indicated that their primary reason for using social media was to increase the reach of messages to their intended audience. This was followed by 23.5% (47 respondents) who reported using social media as an intermediary tool for public relations, thereby highlighting the role of librarians in representing their institutions and managing stakeholder perceptions. Additionally, 17% (34 respondents) stated that their use of social media was driven by the need to serve the public more effectively, while only 9% (18 respondents) indicated that they used social media to educate users. These findings demonstrate a distinct behavioural pattern: academic librarians prioritize outreach and visibility, reflecting a proactive approach to communication and engagement with library users. The data suggests that librarians in Malaysia are leveraging social media primarily as a communication amplifier, allowing them to extend the reach of announcements, updates, and services well beyond the traditional confines of the library. This pattern aligns with the evolving role of academic

librarians as active agents in digital engagement rather than passive custodians of information.

Moreover, this behaviour supports the notion that social media is perceived as a strategic tool rather than just a casual medium. The emphasis on public relations and community outreach reflects a shift in librarians' roles towards more outward-facing, advocacy-driven responsibilities. These findings reinforce the research objective by highlighting how social media usage reflects librarians' behavioural adaptation to the demands of a digitally connected academic environment. Furthermore, these observations are consistent with the findings of Lankes (2016), who emphasized that the technology of social media enhances a library's ability to reach its community by building and maintaining a virtual presence. According to Lankes, librarians can use digital tools not just to disseminate information but also to create meaningful relationships with users, thus positioning the library as a dynamic and responsive institution within the academic ecosystem.

Taken together, the results illustrate a clear pattern: academic librarians in Malaysia are purposefully using social media to extend their institutional presence, enhance user engagement, and maintain relevance in an increasingly digital landscape. These behavioural trends confirm that social media use among librarians is both intentional and aligned with broader institutional goals, thereby directly supporting the central objective of this study.

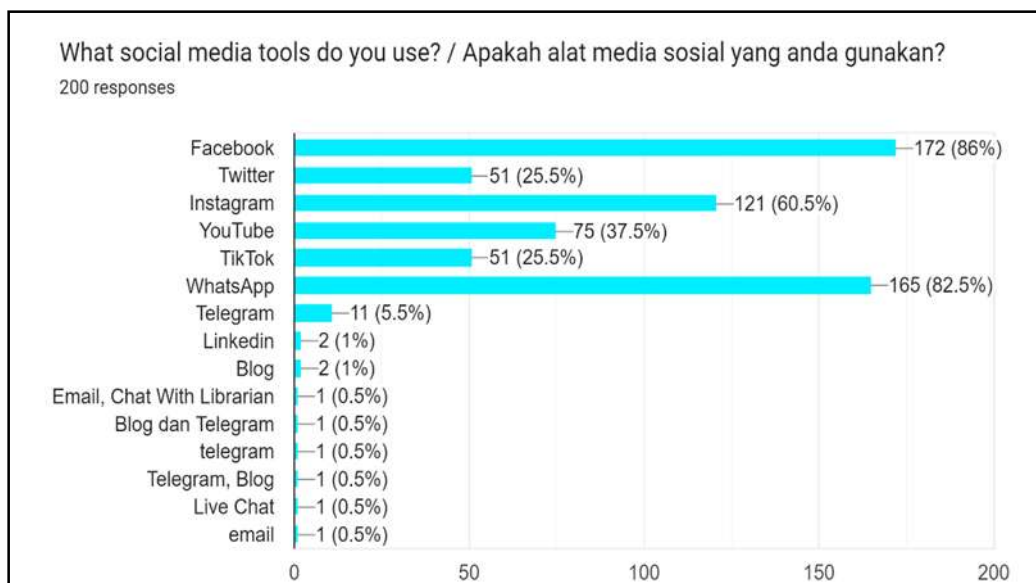


Figure 4.6 Item question “What social media tools do you use?”

In terms of the social media tools most commonly used by academic librarians in Malaysia, the findings reveal significant behavioural patterns and preferences. The data shows that Facebook is the most widely used platform, with 86% (172 respondents) reporting active use, followed closely by WhatsApp at 82.5% (165 respondents). Other platforms such as Instagram (60.5%, 121 respondents) also saw considerable usage, while Twitter and TikTok were used by a smaller proportion of respondents, 25.5% (51 respondents) each. In contrast, tools such as Blogs, Telegram, Email, and the 'Chat with Librarian' feature were among the least utilized by participants.

These usage patterns suggest a strong preference among academic librarians for mainstream, high-engagement social media platforms that support fast communication, wide dissemination of information, and user-friendly interfaces. Facebook and WhatsApp, in particular, appear to dominate due to their popularity, accessibility, and wide user base across all age groups in Malaysia. The preference for these tools highlights a behavioural trend toward informal yet efficient channels that facilitate both personal and professional communication. This behaviour also aligns with the librarians' goal of maintaining visibility and interaction with their academic communities in a responsive and timely manner.

The findings are supported by previous research by Nor Afizan and Fariza Hanis (2018), who noted the uninterrupted rise of Facebook usage in Malaysia, recognizing it as one of the most effective platforms for public expression, including opinion-sharing and dissemination of information. This reinforces the idea that academic librarians choose tools that are not only widely accepted in Malaysian society but also align with their institutional objectives, such as promoting library services, connecting with users, and building an online presence.

From the perspective of behavioural analysis, this preference indicates that Malaysian academic librarians are strategic in selecting platforms that offer both reach and engagement. Rather than diversifying across all available digital tools, they tend to concentrate their efforts on platforms that maximize audience impact, suggesting an intentional and results-driven pattern of usage. The lower adoption of tools such as blogs or institutional chat systems may reflect limitations in reach, user familiarity, or platform interactivity compared to more dynamic social media channels.

These insights are crucial in meeting the study research objective to identify the patterns and behaviour of academic librarians in Malaysia. The clear inclination toward Facebook and WhatsApp not only reveals preferred communication modes but also

highlights broader behavioural trends: librarians are adapting to digital culture, engaging in popular platforms where their communities are most active, and leveraging the social dynamics of these tools to enhance their professional visibility and service delivery.



Figure 4.7 Item question “What do you use these tools for?”

In terms of how academic librarians in Malaysia use social media, the data reveals a diverse range of functional behaviours, highlighting the multiple roles social media plays in their professional routines. A significant majority of respondents, 90.5% (181 individuals), reported using social media primarily for sharing information. This was followed closely by 86% (172 respondents) who used these platforms for communication purposes, indicating a strong reliance on social media as a tool for both disseminating content and maintaining professional and institutional interactions.

Other notable uses include marketing and promotion of library services (67.5%, 135 respondents), customer service or user support (57.5%, 115 respondents), and creating interest groups or professional networks (44.5%, 89 respondents). Additionally, 41% (82 respondents) reported using social media for community involvement, while 34% (68 respondents) used it for information assessment, which may include evaluating trends, feedback, or user engagement.

These usage patterns reflect a clear behavioural orientation among academic librarians in Malaysia toward multi-functional use of social media, with a predominant emphasis on information dissemination and user engagement. The high percentage of respondents using social media for sharing information suggests that librarians view

these platforms as vital tools for keeping users informed about library services, resources, updates, events, and academic developments. This aligns closely with the evolving role of academic librarians as not only information providers but also digital communicators and outreach coordinators.

Furthermore, the data supports the research objective by illustrating behavioural trends in digital communication and professional service delivery. The respondents are not passive users of social media but instead engage with these tools strategically and purposefully to support their institutional roles. For instance, the use of social media for marketing, customer service, and community involvement indicates a shift toward more user-centric and interactive behaviours, which are essential in fostering a responsive and dynamic academic library environment.

These findings are consistent with prior studies such as that by Kapoor et al. (2018), who observed that many libraries globally use social media platforms to share critical information during major events or announcements, thereby reinforcing their role in real-time communication and community engagement. This supports the notion that librarians are adapting to digital platforms not just as content providers but also as active participants in academic discourse and campus life.

Moreover, the use of social media for creating interest groups and networking indicates a growing trend of librarians building professional communities of practice, both within and across institutions. This highlights a behavioural pattern oriented towards collaboration, knowledge exchange, and professional development, key indicators of adaptive and forward-thinking practices in the academic library field.

In summary, these findings reinforce the study's objective by clearly identifying the patterns and behaviours of academic librarians in their use of social media. They point to a profession that is digitally engaged, user-focused, and strategically aligned with institutional communication and outreach goals.

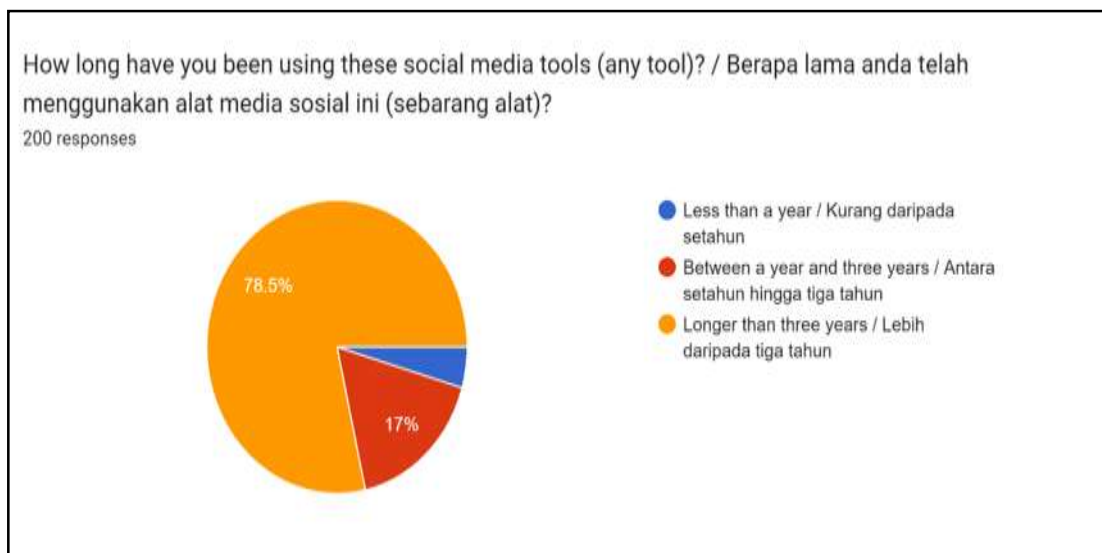


Figure 4.8 Item question “How long have you been using these social media tools (any tool)”

In terms of the duration of social media usage among academic librarians in Malaysia, the findings of this study reveal a well-established pattern of long-term engagement. A significant majority, 78.5% (157 respondents), reported having used social media tools for more than three years, while 17% (34 respondents) indicated a usage period between one and three years, and only 4.5% (9 respondents) have been using social media for less than a year.

These results highlight a clear behavioural trend: most academic librarians are not new to social media but are experienced and sustained users, suggesting that social media has been consistently integrated into their professional routines over time. This long-term engagement reflects a high level of digital literacy and adaptability among librarians, who have embraced social media as a standard part of their communication, outreach, and information-sharing strategies.

This pattern of sustained use strongly supports the research objective, as it demonstrates an established behavioural norm among Malaysian academic librarians. The duration of use indicates not only familiarity with social media tools but also a commitment to leveraging them in professional contexts. It also implies that librarians have had sufficient time to explore, experiment, and refine how they use social media in alignment with institutional goals and user needs.

These findings are in accordance with global social media trends reported by Statista (2023), which show a consistent increase in social media adoption worldwide. According to Statista, social media users numbered 2.73 billion in 2017, growing to 4.89

billion by 2023, and are projected to reach 5.85 billion by 2027. This global growth trajectory reflects a parallel pattern in the academic library sector, where digital engagement tools are becoming not just supplementary, but essential.

The fact that a majority of Malaysian academic librarians have been using social media for more than three years suggests that their behaviour aligns with global digital adoption trends, but also signals professional maturity in the use of these platforms. It indicates that librarians are not merely following trends but are actively shaping and sustaining digital engagement practices within their institutions.

Moreover, this long-term use correlates with earlier findings in this study regarding the purpose and types of social media tools used suggesting a well-informed, intentional approach rather than experimental or short-term usage. This duration also supports the idea that social media tools have become embedded in the professional culture of academic librarianship in Malaysia, which further supports the overarching research objective of identifying and understanding librarian behaviour in the context of evolving digital ecosystems.

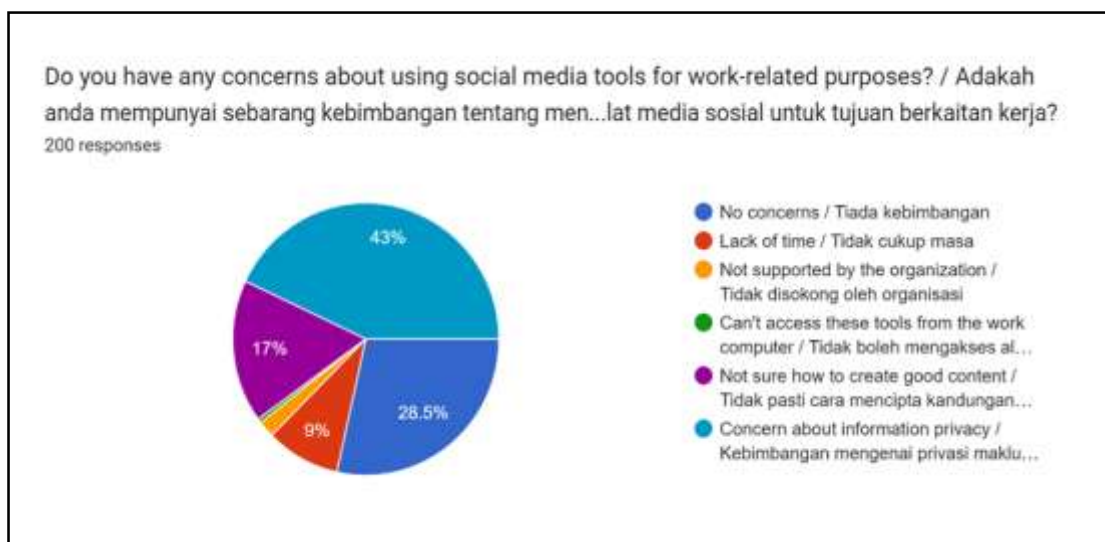


Figure 4.9 Item question “Do you have any concerns about using social media tools for work-related purposes?”

In terms of concerns associated with using social media tools for work-related purposes, the findings reveal several important behavioural and perceptual trends among academic librarians in Malaysia. Approximately 43% (86 respondents) expressed concern about information privacy, indicating that issues surrounding data security, confidentiality, and control over personal or institutional content remain significant

barriers to uninhibited social media use. In contrast, 28.5% (57 respondents) reported having no concerns at all, reflecting a degree of confidence and comfort with the platforms. Meanwhile, 17% (34 respondents) admitted that they were not sure how to create good content, indicating skill-related challenges that may affect the effectiveness of their social media engagement.

Other concerns include lack of time (9%, 18 respondents), absence of organizational support (2%, 4 respondents), and inability to access social media from work computers (0.5%, 1 respondent), all of which point to structural and institutional barriers that influence how and to what extent librarians engage with social media tools in their professional roles.

These findings are highly relevant to the research objective, as they help illuminate the behavioural constraints and patterns of hesitation that shape librarians' digital practices. While the high percentage of social media users in earlier findings points to wide adoption, this data shows that adoption is not without its challenges. In particular, the concern about information privacy highlights a cautious approach among librarians, who often serve as guardians of ethical information management. This cautious behaviour reflects a professional mindset oriented toward protecting user data and institutional reputation, a core responsibility in academic librarianship.

Furthermore, the 17% who are unsure about content creation indicates a skills gap that may impact the quality and consistency of library presence on social platforms. This suggests a behavioural pattern where librarians are willing to engage, but some may lack the training or confidence to produce engaging and effective content an insight that can inform future professional development initiatives.

These concerns are consistent with findings from Roller (2023), who emphasized that social media can be perceived as both a positive and negative influence in the workplace. While it offers benefits such as communication, outreach, and branding, it also poses risks including distraction, decreased productivity, and privacy concerns. Roller's work underscores the importance of clear institutional policies and support systems that help staff balance the benefits of social media with its potential drawbacks. This aligns with the 2% of respondents in this study who cited lack of organizational support, indicating that institutional frameworks or lack thereof, can significantly affect social media behaviour among librarians.

Taken together, these findings provide a nuanced understanding of librarian behaviour: while there is widespread use of social media for professional purposes, it is

tempered by privacy concerns, time constraints, content creation challenges, and organizational limitations. These insights strongly support the research objective by identifying not just patterns of use, but also underlying behavioural and institutional factors that influence how social media is perceived and integrated into professional practice among academic librarians in Malaysia.

#### **4.32.3 Descriptive Statistics of the Items and Constructs**

The preliminary data analysis involved descriptive statistical analysis. This section focuses on providing general information about the respondents. The aim being to present a brief account of the sample profile for this research. Frequency analysis was used to calculate the respondent's percentage, its measure of location and dispersion, that is, the mean, mode, median and standard deviation according to the demographic profile, geographical and ethnicity distribution and social media patterns and trends of the respondents that made up the sample of social media adopters/users. The findings are presented in tables, figures and graphs for simplicity and better visualization of large datasets. This type of data only used descriptive analysis due to the fact that it does not involve the construction of a theoretical framework and is collected using a nominal and interval scale. The purpose of this data is to look at the impact of social media to librarians' agility and relationship quality (librarian-user).

### **4.33 Results of Social Media Capability**

#### **4.33.1 Results of Relationship Capability**

A preponderance of Malaysian academic librarians maintain that social media is a significant tool for developing and maintaining professional relationships. The most significant agreement was related to social media positively affecting direct engagement with users (RC1,  $M = 6.19$ ,  $SD = 0.83$ ) as more than four-fifths screened "agree" or "strongly agree" (ratings 6–7), and only a small minority of respondents scored below the midpoint. The possibility that use of social media improves librarians' visibility and connection to the broader community (RC4,  $M = 6.16$ ,  $SD = 0.91$ ) was quoted closely behind, as well as the view that social media facilitates activity participation, thereby improving service (RC3,  $M = 6.08$ ,  $SD = 0.95$ ) each of these responses had

approximately three quarters of librarians select the top agreement levels. The view that delivering services to users in their preferred digital arenas and building a sense of community (RC5,  $M = 6.08$ ,  $SD = 0.90$ ) also had strong agreement in response levels, with an almost equal distribution across the highest levels. The association that social media can lead to elevated satisfaction, loyalty, and retention (RC2) while still scoring in the higher sections had the lowest mean ( $M = 5.80$ ,  $SD = 1.03$ ) in difference, as only 66% of librarians selected higher levels of agreement, along with a marked increase of responses in the mid-scale range. This finding might suggest that while librarians show confidence with using social platforms to engage and enhance their visibility, shifting that engagement into lasting loyalty and retention can depend on more systematic and ongoing strategies such as integrated follow up procedures and protocols, dedicated outreach campaigns, or blended online–offline service models to build the trust and commitment necessary for long-term user relationships.

Table 4.59  
Measures for Relationship Capability

	<b>Relationship Capability</b>	<b>Response scale (%)</b>							<b>Mean</b>	<b>SD</b>
		(1)	(2)	(3)	(4)	(5)	(6)	(7)		
RC1	Social media can enhance my interactions in the library and at the same time create my good relationships between them	0%	0.5%	0%	2.5%	14.5%	42.5%	40%	6.19	0.833
RC2	Social media can lead my higher satisfaction, my loyalty, and my retention, and it can improve my relationships performance in library	0%	1%	1%	8.5%	23.5%	39%	27%	5.80	1.029
RC3	Social media can enhance my participation for improving library to be effective and efficiency	0%	0.5%	0%	6.5%	17%	36%	40%	6.08	0.953
RC4	Social media can help my visibility and connections within the broader library community; also, for assisting in	0%	0.5%	0.5%	3%	17.5%	36%	42.5%	6.16	0.908

Relationship Capability	Response scale (%)							Mean	SD	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)			
	promotion of the work of their faculty									
RC5	Social media can take my library service to users in preferred spaces, the opportunity to build a sense of community between my library and users, to support development of collections and help me update on news and other initiatives	0%	0.5%	0%	4%	19.5%	38%	38%	6.08	0.901

#### 4.33.2 Results of Service Innovation Capability

In general, Malaysian academic librarians express extremely high confidence in social media's capacity to catalyze innovation in service. Mean values for each of the five items were found to converge around a value of 6.02, with a value of 6.00 for the item indicating social media acts as a source of new knowledge, providing timely updates and stimulating new ideas for service-innovation projects, a value of 6.01 for social media providing a collaborative framework for improving complexity by harnessing internal (librarian) knowledge and external (the community) knowledge, and relatively high means for the lower valued item: "digital wayfinding" (M = 5.98), "attitude toward generative opportunities" (M = 5.92), and the "empowerment of data" for generating innovation on social media (M = 5.89). Librarians are well aware of the capacity of social media for catalyzing innovative work; it would simply mean the concerns were modest for these items as a majority of librarians in all five cases agreed/strongly agreed with the efficacy of social media for innovation in work practices.

This pattern suggests this is reflective of the advanced, front-line contexts of social media, which many librarians are adept at, as contrasted with the, yet to be explored, strategic back-end detail of harnessing social media data for a new library platforms. Features of social media, such as real-time feeds, live chats, and user-generated content platforms, are bespoke to the users and endeavors of librarians and

generally do not require deep analytics about large data sets and digital tools or social platforms or cross-language libraries to create interfaces for others to use, nor are they subject to institutional coordination of other librarian departments for collaborations to emerge on a social platform level. Inherently low values for the "empowerment of data" item suggests that librarians see some latent strategic potential in this capacity, but barriers such as limited training in analytics, regular tool capacity limits, and temporary or organizational permissions establishing space to explore for improvement on a huge platform may limit these possibilities. Further, any social-media choices to experiment and innovate ideas detailed above in front-line practices, where long-sustained habitual librarian practices have also been somewhat de-institutionalized or rationalized into best practices, might constrain more expansive exploratory practice. These advances do not preclude social media from evolving but would signify a substantially different basis of collaboration than current front-line work. Supportive professional development for advanced infrastructure analytics on large social media data for their contributors (students and thought leaders) or institutional theory would also, obviously, pin-hole traditional mixed library-industry governance to minimize obstacles innovating browser-based library work. Upcoming advancements about social media application to back-end applications, optimization, authentication, or even deep learning will make these issues moot, or at the very least more transparent options for bounding innovative outcomes as they emerge from optimized strategic back-end applications of library practice.

Table 4.60  
Measures for Service Innovation Capability

	<b>Service Innovation Capability</b>	<b>Response scale (%)</b>							<b>Mean</b>	<b>SD</b>
		(1)	(2)	(3)	(4)	(5)	(6)	(7)		
SIC1	Social media able to collaborate more, reduce service complexity and increase my innovation possibilities by integrating internal and external knowledge and make it available and	0%	0%	0%	5%	21%	42%	32%	6.01	0.856

	Service Innovation Capability	Response scale (%)							Mean	SD
		(1)	(2)	(3)	(4)	(5)	(6)	(7)		
	accessible to its patrons									
SIC2	Social media create digital wayfinding for me and transfer what is found to users	0.5%	0%	0%	6.5%	19.5%	40.5%	33%	5.98	0.956
SIC3	Social media act an openness of the data to me, also offers generative and unbounded opportunities resulting in my service innovation	0.5%	0%	0%	7.5%	21%	41%	30%	5.92	0.966
SIC4	Social media as new forms of knowledge in my library can update information in a timely manner and stimulate more originalities and ideas, thereby promoting my service innovation projects	0.5%	0%	1%	4%	19%	41%	34.5%	6.02	0.956
SIC5	Social media can enhance my data empowerment and innovation capability of my library platform	0.5%	0.5%	0%	8.5%	20.5%	39%	31%	5.89	1.026

### 4.33.3 Results of Tools Capability

Overall, the average ratings for all five tools (means ranging from 5.87 to 6.19 on 7-point scale) indicate that academic librarians in Malaysia feel very confident in their ability to use social media tools for a range of service functions, including content creation and engagement with stakeholders. Firstly, the standout item TC5 achieved the highest mean ratings (6.19, SD = 0.865) because of the confidence librarians expressed

in the ability to convey library information based on their preferences and represented across many media types (text, images, video). This reflects that, due to user-interface factors and familiarity with basic multimedia functions, most librarians found it easy to post various media types and formats that would be attractive to their patrons. Following closely behind TC5 was TC1 ( $M = 6.17$ ,  $SD = 0.831$ ). This item indicates the level of perceived interactivity and function associated with the various platforms (e.g., live polling, stories, chat.)

This is where librarians see value in engaging with patrons, especially in new and different ways, as they may have done prior with traditional reference and outreach methods. Items TC3 and TC4 both had means of 6.11 ( $SD = 0.863$  and  $0.907$ ) indicating social media tools not only provided user-attraction (TC3: advertising new services) but also developed collaborations with stakeholders in the library here meaning faculty, student groups, and others outside the library who might benefit from a partnership. The closeness of the scoring suggests that across the librarian cohort, there is agreement and a strong overall feeling of social media's capacity in promotional and partnership contexts.

In contrast, TC2, developing and using "custom-digital design toolkits" for creative products, had an average mean of 5.87 and higher deviation among scores, suggesting perhaps that while still relatively high average mean, librarians recognized additional skills, time, and, perhaps software resources (or capabilities) were necessary to make custom graphics, infographics, or branded products, as opposed to simply using built-in format resources features the platforms may have. That the scores demonstrate a deviation means that there are librarians who have embraced and developed capacities with more sophisticated, user design tools and others that are simply unsure and use basic formats to create content, and this concern may stem from limited training or reliance on sufficient librarianship demands and not enough for graphic design work.

Overall, these findings suggest a group of highly capable librarians in social media service functions (post educational content in rich media formats, engagement, promotion of library services, and collaboration), but with some specific, targeted capacity development to utilize design kits that permit extension of the creative production outputs. Workshops, for development, that feature inexpensive or free technology software enabling easily into designing topic-specific graphics, or access to template libraries that librarians could use in social media developed content could close that final development gap, and permit librarians to unlock the greater range in using

social media for library innovation.

Table 4.61  
Measures of Tools Capability

	Tools Capability	Response scale (%)							Mean	SD
		(1)	(2)	(3)	(4)	(5)	(6)	(7)		
TC1	Social media platforms are highly interactive, with specific functionalities, and help me empowered the services to users	0%	0.5%	0%	2.5%	15%	43.5%	38.5%	6.17	0.831
TC2	With social media tool, my library can develop design toolkits and apply it to produce something creative	0.5%	0%	0.5%	8.5%	22%	38.5%	30%	5.87	1.009
TC3	Using social media tools my library more effective in advertising in terms of prompting users to search for new services	0%	0%	1%	3%	17%	41.5%	37.5%	6.11	0.863
TC4	Social media tools can establish my library collaborations with various stakeholders	0.5%	0%	0%	3%	19.5%	38%	39%	6.11	0.907
TC5	Social media tools can express my library preferences in various way (e.g., posting context as text, pictures or videos)	0%	0.5%	0.5%	2%	15.5%	39.5%	42%	6.19	0.865

#### 4.33.4 Results of Librarians' Agility

The results of the descriptive analysis for librarians' agility (LA) are shown in **Table 4.62**. A total of six items were measured. Based on the mean score for each item, librarians demonstrate agreement in librarians' agility ( $M = 5.44 - 5.68$ ,  $SD = 0.928 - 1.150$ ). Librarians agreed that social media capabilities influenced them to be agile such as in fast detecting changes that occurred among users, predict changes in technology and able to respond, can carry out any tasks, can make decision quickly, good in planning and not afraid to make mistakes. Overall, librarians have demonstrated their belief that social media capability give impact to them in managing the library and providing the services for users. Having said this, the descriptive analysis results confirm that the librarians' agility influenced by social media capability.

Table 4.62  
Measures for Librarians' Agility

Librarians' Agility	Response scale (%)							Mean	SD
	(1)	(2)	(3)	(4)	(5)	(6)	(7)		
LA1 I have been fast in detecting the changes that occurred among users especially related to library services	0%	0%	1%	12%	31%	33%	23%	5.65	0.966
LA2 I can predict the changes in technology and able to respond and adapt to unpredictable changes quickly and efficiently	0%	0.5%	2.5%	11%	35.5%	31%	19.5%	5.63	1.037
LA3 I can carry out a series of tasks in successfully, in addition to managing the opportunities and risks in the library activities effectively	0%	0%	0.5%	10.5%	30.5%	37.5%	21%	5.68	0.939
LA4 I can make decision quickly and effectively to unexpected opportunities, and	0%	0%	1%	9.5%	29.5%	40.5%	19.5%	5.68	0.928

Librarians' Agility		Response scale (%)							Mean	SD
		(1)	(2)	(3)	(4)	(5)	(6)	(7)		
	providing the solutions in advance									
LA5	I can take a strategic plan from social media to fulfil users needs	0.5 %	0.5%	2.5%	9%	26%	40%	22%	5.58	1.045
LA6	I'm not afraid to make mistakes and willingness to take risks	0%	2%	4%	10.5%	33.5%	31%	19%	5.44	1.150

#### 4.33.5 Results of Relationship Quality

The results of the descriptive analysis for relationship quality (RQ) are shown in **Table 4.63**. A total of six items were measured. Based on the mean score for each item, librarians demonstrate agreement in relationship quality ( $M = 5.96 - 6.29$ ,  $SD = 0.788 - 0.910$ ). Librarians agreed that social media capability influenced relationship quality (librarian-user). Overall, librarians have demonstrated their belief that social media capability give impact to them in build good relationship with their users. Having said this, the descriptive analysis results confirm that the relationship quality (librarian-user) influenced by social media capability.

Table 4.63  
Measures for Relationship Quality

Relationship Quality		Response scale (%)							Mean	SD
		(1)	(2)	(3)	(4)	(5)	(6)	(7)		
RQ1	I make beneficial decisions under any circumstances for my users	0%	0%	1%	4.5%	20%	42.5%	32%	6.00	0.891
RQ2	I willing to assist my user without no doubt	0%	0%	0.5%	3.5%	13.5%	36.5%	46%	6.24	0.852
RQ3	I do the best to maintain the relationship with my users	0%	0%	0%	3%	13.5%	40%	43%	6.22	0.828

RQ4	I always try to keep my users promises	0%	0%	0.5%	3%	13.5%	40%	43%	6.22	0.828
RQ5	I feel confident that my users can deal with whatever problem might come up in our relationship	0%	0%	0.5%	6.5%	17.5%	47.5%	28%	5.96	0.837
RQ6	I consider happy in relationship with my users	0.5 %	0%	0%	4%	16%	40%	39.5%	6.13	0.910

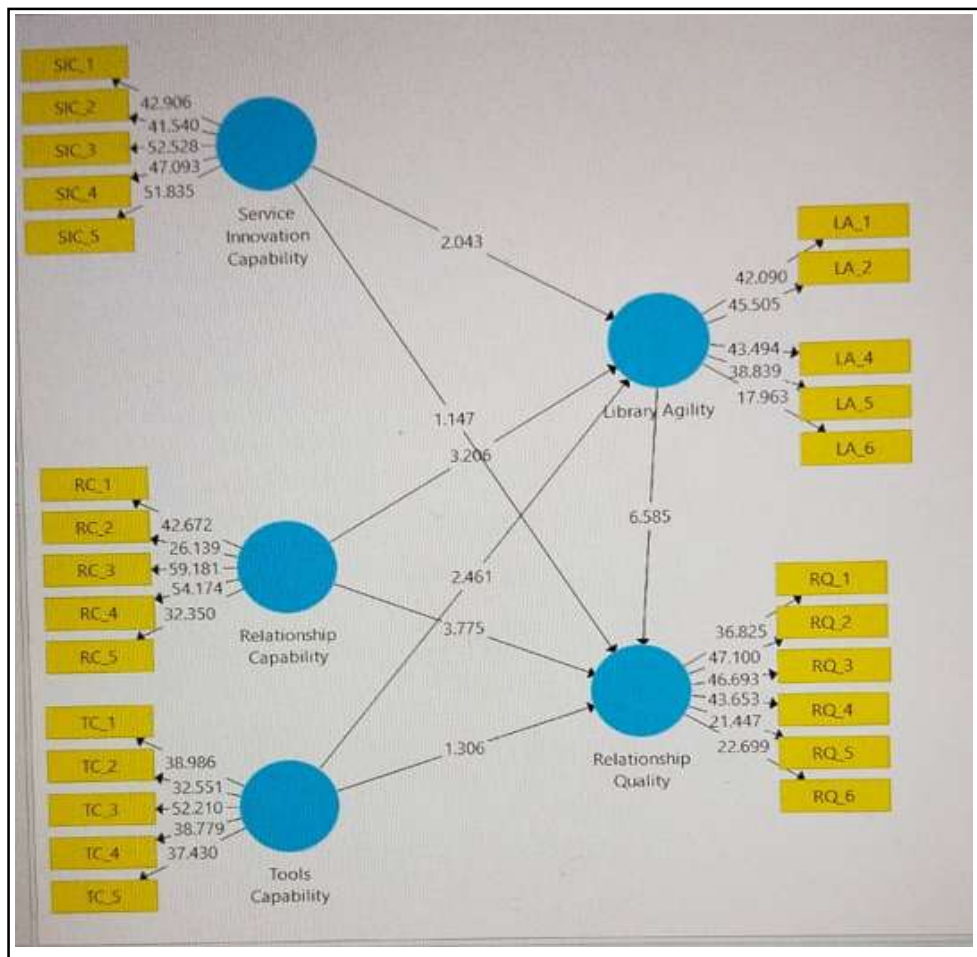


Figure 4.10: Initial Measurement model

## **CHAPTER 5**

### **DISCUSSION**

#### **5.1 Introduction**

Social media is an important tool in supporting people's daily work. This has been proven in this research. As in this research found that two hypotheses show significant effect which is relationship capability (Hypotheses 1a and 1b) and service innovation capability (Hypotheses 2a and 2b), tools capability (Hypotheses 3a and 3b), and librarians' agility (Hypotheses 4) shows significant effect. This research study also refers to three theories Dynamic Capability Approach (Chuang, 2020), Technology Acceptance Model (Davis, 1986) and Customer Relationship Management Model (Jayachandran et al., 2005).

#### **5.2 To determine the level of social media capability among academic librarians in Malaysia**

Understanding the level of social media capability among academic librarians in Malaysia is essential, as social media has become a critical tool for enhancing library communication, strengthening librarian–user relationships, and supporting innovative service delivery. As Malaysian academic libraries increasingly adopt digital platforms to meet the evolving expectations of their users, librarians' ability to effectively utilise social media reflects not only their technological competence but also their capacity to engage, collaborate, and respond to information needs in a timely and meaningful manner. Assessing this capability provides valuable insights into how well-equipped librarians are in leveraging social media features for professional tasks, service improvement, and knowledge sharing, ultimately contributing to more dynamic, relevant, and user-centred academic library environments.

Across the constructs measured, the highest-rated items for relationship capability (RC1), service innovation capability (SIC4), and tools capability (TC1) all demonstrate librarians' strong confidence in the value of social media. The high mean for RC1 (6.19) shows that social media is seen as essential for fostering meaningful

interactions and building strong relationships with users. Similarly, the high score for SIC4 (6.02) indicates that social media is regarded as a key driver of creativity, timely knowledge sharing, and the development of innovative services. Meanwhile, the highest tools capability score (TC1: 6.17) reflects librarians' perception of social media as a powerful technological tool that enhances communication, service reach, and overall service efficiency. Collectively, these results highlight that social media significantly strengthens librarians' relational, innovative, and technological capabilities, ultimately improving service quality and user engagement within academic libraries.

Taken together, these high mean scores across relationship capability, service innovation capability, and tools capability indicate that the overall level of social media capability among librarians is high. The consistently strong agreement demonstrates that librarians not only recognise the value of social media but also feel confident in leveraging its features to enhance interactions, support innovation, and improve service delivery. This suggests that social media has been effectively integrated into librarians' professional practices, enabling them to perform their roles with greater agility, creativity, and technological competence. Overall, the results affirm that social media capability is well-developed and plays a significant role in strengthening library services and user engagement.

In light of the rapidly changing digital environment in Malaysia, academic librarians are increasingly faced with challenges related to expectations, visibility, innovation, and user engagement of particular social media tools. Certainly, evidence suggests that academic librarians feel highly capable in using social media tools for service delivery and content sharing, but the extent to which these capabilities transfer to strategic functions that utilize analytics, facilitate innovation, and support user engagement over time is still variable. This divide between use and strategic capacity is a pattern observed across academic information systems in Southeast Asia.

One point of contention is the value of community development through social media, as well as the expectation that community development is not simply the act of being present, but rather the act of continued and meaningful engagement (see Young & Rossmann, 2015). In Malaysian contexts, academic librarians demonstrated confidence with their use of social media tools, and reported the ability to post rich media, as well as engaging with users. Nevertheless, Ward et al. (2021), among others, have maintained that engaging in social media to develop a scholarly identity requires additional capabilities related to profiling users and personalizing content, as well as

creating a collaborative network. Moreover, while librarians reported appreciation for three areas of enhancement, these capabilities are not yet part of routine practice in all librarians, according to the survey.

Similar to social media use and engagement, there is abundant literature on the potential use of social media to enhance the promotion of innovation. Alshuaibi et al. (2018), for example, found that academic users who showed high levels of engagement on social media in Malaysia, were highly likely to share knowledge and formulate new ideas for services. Observations from the study indicated that librarians feel confident to use social media as a source for ideas, as well as innovate (e.g., through digital wayfinding, or collecting user feedback). However, still absent from practice is finding ways to use real-time user data to enable strategic planning. As Al-Rahmi et al. (2015), note tools like Twitter or Facebook allow for immediate collaboration, the ongoing integration, feedback, and data used for methods of assessment in planning collaborative services, including the integration of higher education goals, institutional growth in departmental practices, or processes accomplished of establishing evidence-based decision making, or social media analytic, are still absent from practice among academic librarians in Malaysia.

Additionally, the recognition of social media as a means to enhance professional connections and institutional visibility aligns with research conducted by Hasim et al. (2025), which discussed positive impacts of digital engagement on organizational reputation and stakeholder relationships in public institutions in Malaysia. Academic librarians in this study indicated they had high confidence creating social media posts to engage users and expand visibility of services. However, Rahim et al. (2019) cautioned that while visibility is a necessary first step, it does not guarantee an outcome of loyalty, or sustainable involvement from stakeholders, once you establish visibility you need to execute your followers into a routine by way of consistent content strategies and messaging.

The distinction between front-end competencies and back-end application and strategy is noteworthy. Fasaie et al. (2020) describe how, in response to the COVID-19 crisis, librarians rapidly adapted to provide services in social spaces; however, they were less successful in translating their services into robust long-range integrated digital strategies. Likewise, the findings in this study showed self-reported high confidence in digital content (posts, videos, polls, announcements) formatting and sharing capabilities, which illustrated an operational concern; however, on the more complex

side of that capability self-reporting, librarians reported lower capability to utilize advanced functions related to interactions, analytics, and content design development (i.e., social listening, custom design toolkits). Advanced functions would provide more robust service models at library/institutional level because they would allow for a more tailored library service model approach through a more personalized or innovated means.

Challenges associated with custom content design and data integration are also documented in the findings of Quadri and Idowu (2016), who argued in their study that librarians develop functional social media proficiencies. However, they are not developing large scale innovation proficiencies at the same level as a result of timeconstraints, training, or simply coordination across department. What is observed with the reported high average shifts toward user engagement as a result of using/free training in the second chart increases the likely challenge for librarians wanting to employ a more robust social service model. Observed responsibility gap of increasing average use of free display and user engagement point while only moderately capable of utilizing advanced functions such as social media data sets and development of custom design tool kits reinforces the fact that professional development in tools like Canva, Adobe Express, and/or analytics platforms need to be the focus area for library practitioners, where entry to the digital world of design is low-barrier to train staff on to wide use.

Despite the boundaries identified in the literature, the trend maintains that academic librarians in Malaysia have developed competencies in using the digital tools, but they are not passive adopters of the tools. They, as articulated in work by Alawadhi and Al-Daihani (2019), are taking a proactive role in identifying themselves as communicators, curators, and promoters of their services across platforms. Engagement with social media or other digital spaces reflects a trend of the profession aligning with the global information literacy competencies, the practice will become sustainable for the profession in Malaysia when institutions provide professional developments that establish competencies in data (analytics training), collaborative content developing across departments and pursuing platforms to help staff lower barriers to utilising their competencies.

### **5.3 Descriptive Statistics of Social Media Capability**

Mean is the most widely used measure of central tendency because of its mathematical qualities. It is also named as average and sensitive to an extremely large or small value. It also represents the expected value if the distribution of measurement were random. For standard deviation, it is the square root of the variance. It will measure the spread of a set of observations. The largest the standard deviation is the more spread out the observations (Harniyati et al., 2023).

Among the three variables, the highest mean score stood at 6.09 (tools capability), while the lowest mean score recorded a value of 5.964 (service innovation capability). In the aspect of the academic librarian, it may be considered high with a score 6.09 mean value. This figure reflects that academic librarian agreed that tools capability have relationship with librarians' agility and relationship quality. The highest mean score is relationship capability with score 6.062 mean value.

Relationship capability related with customer relationship management (CRM) referred as an approach for managing interaction of company with present and potential customers (Greenberg, 2010; Wang and Kim, 2017). Service innovation often reflects an organization's perceived readiness to innovate through an evaluation of the various resources it possesses (Wang et al., 2010). The lowest social media capability is service innovation capability, which recorded a mean of 5.964. The research studied done by Laird and Kuh (2005) noted that there is a relationship between information technology and student engagement in an educationally purposely. Any relationship there will be a trust and commitment that can be long term engagement. Trust exists when one party has confidence in an exchange partner's reliability and integrity (Morgan and Hunt, 1994). When they trust the library, they will reuse again the library and shared with their group members (Kiran and Diljit, 2011; Uncles et al., 2003; Rowley and Dawes, 1999).

### **5.4 To examine the effect of social media capability on the agility of academic librarians in Malaysia.**

In terms of employment of course every organization expects the work to be carried out perfectly. Librarians become agile due to the capability of social media which consists of information processing capability, relationship capability, service innovation

capability and tools capability. The agility of librarians can be seen when they make decision in addition to carrying out the tasks entrusted to them. The evidence can be seen through the results obtained in the findings in chapter four.

In chapter two, it also related literature review shared. There are three agilities that can be traced impact from social media capability which is sensing agility, decision making agility and practicing. Librarians' becoming fast in detecting changes when they use social media. With vulnerable information from social media, librarians also fast in act and make them more efficient. They are also proactive in carrying out challenging tasks and such as during Covid-19 pandemic. The use of social media is rampant during pandemic period and information can only be shared via internet. Strong collaboration between libraries allows social media to be exploited in a positive way. Efficient library management allow librarians to cooperate well with each other and further create a positive environment. Knight (2017) underscores the transformative impact of the internet revolution on the library environment, marking a fundamental shift in how libraries operate and interact with their users. Similarly, Brundy (2015) emphasizes that for libraries to remain relevant, they must proactively embrace advancements in both their physical and virtual domains. This dual emphasis on transformation and proactive engagement highlights a critical dimension for contemporary librarianship agility. Social media capability emerges as a key enabler of this agility, allowing librarians to respond dynamically to user demands, foster real-time interactions, and navigate the ever-changing information landscape. By leveraging social media tools effectively, librarians can bridge the gap between traditional library services and the expectations of a digitally connected society, ensuring that they not only adapt to change but also lead it.

Social media enable librarians to be more agile. In many situations, librarians become the helper or the assistant in their work. Users especially is very important people in library. With the social media, librarians can provide the information to their users. Sometimes the information needed cannot be fulfil but the librarians try hard to find it and fulfil users need. Librarians need to know many things so that they can easily convey information to users, especially to lecturers and researchers in academic libraries.

In the digital age there are many thing librarians need to know. Therefore, the findings obtained either through the literature review or the results of the findings can be confirmed that today librarians are more dynamic and adaptable to whatever

challenges they go through. Today librarians are formed as a result of the librarianship knowledge learned and also the work experience gained through their career. With available technology also affects their actions especially in making decisions in their organization.

The librarians' agility, which includes sensing agility, decision-making agility, and practicing agility, aligns with the Core Agility Concept, emphasizing an organization's capacity to adapt and perform well in dynamic environments. Sensing agility pertains to librarians' ability to recognize and understand changes in user needs, emerging trends, and technological developments, allowing them to stay responsive. Decision-making agility refers to their ability to quickly assess information and make informed decisions that improve library services, allocate resources effectively, and address challenges. Practicing agility involves implementing these decisions and adjusting library operations as needed, fostering ongoing improvement and innovation. Collectively, these aspects demonstrate how librarians maintain relevance, enhance service quality, and remain competitive in a rapidly changing landscape.

Based on the chapter four, all items for Librarians' Agility were retained and it's aligned with Park (2011), Wageeh (2016), Eisenhardt and Martin (2000), A'dillah, Intan Nurbaizura, Sufy Rabea Adawiya, & Muhamad Faizal (2016), Sherehiy (2007). The scholar Park (2011) which found that Information technology is fundamental to attaining superior agility and competitive performance. While Wageeh (2016) emphasized that the importance of organizations adopting operational agility to navigate the intense competition of the modern era, as this approach is crucial for driving organizational success. The scholars Eisenhardt and Martin (2000), highlights the importance of being flexible and adaptive in changing environments. Just like businesses use dynamic capabilities likes planning, decision-making, and building partnerships in order to stay competitive, librarians need similar skills to respond to new technologies and user needs. In stable situations, libraries can rely on routine processes, but in fast-changing situations, like a sudden shift to digital services, they need to be quick and creative. It also emphasizes the importance of learning and evolving to stay effective, showing that adaptability is key to long-term success for both organizations and librarians.

It can be summarized that the organizations expect their employees to perform at a high level, and librarians demonstrate agility through their effective use of social media, which enhances their capabilities in information processing, relationship

building, service innovation, and tool utilization. This agility is reflected in their decision-making and task execution, as shown in the findings from chapter four. The literature review in chapter two highlights three key types of agility that arise from social media capabilities: sensing agility, decision-making agility, and practical agility. Librarians can swiftly identify changes and respond effectively to sensitive information on social media, especially during the COVID-19 pandemic when most information was shared online as mentioned by Ali & Gatiti (2020), Fernando & Jeyasekara (2020), Al-Dmour et al. (2020) and Bhati & Kumar (2020). Collaborative efforts among libraries allow for the effective use of social media, contributing to a positive work environment. Librarians are vital in assisting users, leveraging social media to disseminate information and making efforts to fulfill users' needs, even when they cannot meet specific requests. Their knowledge and expertise are crucial, particularly in academic libraries where they support lecturers and researchers. In today's digital age, librarians must remain informed and adaptable to new challenges, with findings affirming their dynamic nature. Their professional growth is influenced by the knowledge they acquire and their work experience, while technology significantly impacts their decision-making processes within organizations. As Lee & Lee (2012), Muhamad Khairul Nizam et al., (2022) and Sandhu (2018) make conclusion that librarians become fast and agile in their work actions or in other words become more dynamic. The internet revolution, which drives the widespread use of social media, enhances the adaptability and skills of its users, including librarians. By leveraging social media effectively, librarians strive to meet the diverse needs of their patrons.

## **5.5 The effect of the librarians' agility on relationship quality**

With the agility that librarians have it's made them easy to get closed with their users. This can be seen in chapter two and also at the findings of this study. With the quickly adapt with the changes in technology of ICT and social media, the librarians know how to tackle their users either in physically or online. For example, during Covid-19, librarians provide a lot of information via library website and also shared in library social media about this disease. Not only that the services such as document delivery and returning books also by postage. The classes such as information literacy and online database training also via online either using Webex, Google Meet and also posted via social media. The agility of librarian allows users to trust that the information provided

in social media certainly authentic information. A commitment where librarians are best able to assist their users in obtaining information and services (Garbarino and Johnson, 1999; Chenet et al., 2010; Bahader (2022); Marina (2017); Munene and Nyaribo (2013), and Ibrahim et al. (2015).

User will trust and the give commitment when librarians help them in searching for information. With this both parties, whether the librarian or the user, will get satisfaction where the librarian fulfil the user request and vice versa i.e., the user gets what is requested. If the user's request cannot be met, the librarian will provide alternative assistance or give other suggestions if the request cannot be met. Thus, this will create a relationship quality between librarian and user. And this aligns with Youssef (1992) that theory used which Core Agility Concept that benefiting in agile manufacturing or in this research agile librarians can provide sustainable competitive advantage and can achieve goals.

An effective communication between librarian and user creates relationship quality and create network. Social media capabilities allow librarians to predict what can be achieved and how to overcome it if it cannot be achieved. Good relationship will produce good quality. Therefore, librarians need to always master as much knowledge as possible in order to help academics and researchers. Librarians can attend seminar or training or workshop through social media. With this, librarians will more competitive able to solve the problems that come.

It can be summarized that the agility of librarians fosters strong connections with users, as highlighted in chapter two and the study's findings. Their ability to swiftly adapt to changes in information and communication technology (ICT) and social media enables effective engagement with users both in person and online. For example, during the COVID-19 pandemic, librarians took the initiative to disseminate vital information through the library's website and social media while also providing services like document delivery and online training sessions. This responsiveness builds trust in the reliability of information shared on social media, reflecting librarians' commitment to helping users find the information and services they need. Consequently, both librarians and users gain satisfaction when requests are fulfilled, with librarians ready to suggest alternatives when needed, thus enhancing relationship quality. Additionally, effective communication strengthens this bond, allowing librarians to use social media tools to anticipate user needs and tackle challenges. To sustain these high-quality relationships, librarians should continually pursue knowledge development through seminars and

training, ensuring they stay competitive and adept at meeting the evolving requirements of academics and researchers.

The findings in Chapter Four, which confirm the retention of all items under the construct of *Relationship Quality*, offer compelling support for its theoretical and practical relevance within the conceptual framework. This outcome not only reaffirms the validity of the construct but also positions it as a cornerstone for understanding and analysing the dynamics of interpersonal and organizational relationships. The alignment of these findings with established scholarship adds to their credibility. Scholars such as Morgan and Hunt (1994) have seminally defined *Relationship Quality* as a multidimensional construct anchored in trust and commitment, elements that are foundational for cultivating sustainable and mutually beneficial relationships. Similarly, Palmatier et al. (2006) emphasized its mediating role in driving performance outcomes, which underscores its utility in bridging theoretical and applied contexts.

The contributions of Rapp et al. (2010), and Han et al. (2008) further elucidate how *Relationship Quality* functions as a driver of collaboration, satisfaction, and efficiency in organizational settings. Ibrahim et al. (2015) and Magoi et al. (2020) extend this discourse by demonstrating its adaptability across diverse contexts, particularly within knowledge-sharing and service-oriented environments. Bontis et al. (2007) reinforce this perspective by linking *Relationship Quality* to knowledge dissemination and innovation, elements critical to organizational growth and resilience. In light of this, the findings in Chapter Four serve to validate the theoretical robustness and empirical relevance of *Relationship Quality* within the conceptual framework. Its consistent representation across the cited works and the current study highlights its pivotal role in capturing the essence of effective relationships. This not only strengthens the framework but also positions *Relationship Quality* as a vital construct with both theoretical depth and practical utility, capable of bridging multiple disciplinary perspectives.

Studied by Morgan and Hunt, (1994) emphasize that the trust, commitment and satisfaction important elements in strengthen the relationship quality between librarian and users. Same evidence found by Rapp et al. (2010) which relate with the customer relationship capability will enhance organization performance. Han et al. (2008) mentioned that the capabilities theory in Information Technologies contribute to progressively organizations performance. Evidence was also confirmed by Palmatier et al. (2006) shared in their studied that when users have strong, personal interactions with

librarians; like getting helpful advice or support and they are more likely to be satisfied and engaged. Just like Relationship Management is more effective when personal relationships are important, the quality of the relationship between librarians and users helps make library services more successful and improves user experience. Bontis et al. (2007) suggested that the important of customer satisfaction in enhanced the reputation in the field of service environment likes libraries.

## **5.6 Research Contribution**

This research offers several key contributions across academic, methodological, and practical dimensions. Academically, it provides a comprehensive framework that adds to the understanding of how social media impacts organizational agility and relationship quality between employees and their customers. It serves as a valuable reference for future researchers, academicians, and non-governmental organizations both in Malaysia and internationally, such as the International Federation of Library Associations (IFLA). The conceptual framework developed in this research is an essential tool for scholars exploring how social media influences workplace dynamics and customer engagement, particularly in knowledge-based industries like libraries. By examining the role of social media in enhancing employee agility and improving customer relationships, the study broadens the academic discourse on social media's organizational impact.

Methodologically, this research introduces a systematic approach to analysing the relationship between social media and agility within the library sector. The study presents a clear and well-defined conceptual framework that connects key capabilities (information processing, service innovation, tools, and relationship management) with employee agility. This approach can be used by other researchers to examine the effects of social media on similar or different professional sectors. By focusing on a specific demographic, librarians in academic institutions in Malaysia, the study provides a valuable case that could inspire comparative research in other regions or industries, expanding the scope of how social media can shape organizational behaviour.

In practice, the findings offer actionable recommendations for libraries and organizations seeking to improve employee agility in the context of social media. Libraries, as critical information centres, face increasing demands for responsive and innovative services. This research emphasizes the need for librarians to develop specific

capabilities that enable them to adapt quickly to changes and engage meaningfully with users. The results suggest that fostering the right capabilities such as leveraging tools for innovation, managing and relationships with customers can help libraries enhance their service offerings and build stronger connections with their communities. These insights are directly applicable to libraries and organizations looking to improve their service delivery in an increasingly digital and interconnected world.

Despite its contributions, this study has limitations. The research sample is restricted to librarians in academic libraries at twenty universities in Malaysia, which may limit the generalizability of the findings to other contexts or professional settings. While the four capabilities analysed; information processing, service innovation, tools, and relationship capability offer valuable insights, they represent just a subset of the potential factors that could influence social media's impact on employee agility. Future research could build upon this foundation by exploring additional capabilities or variables, such as leadership styles, organizational culture, or employee training, that may further shape the relationship between social media use and agility.

Furthermore, the research relied on a survey with 32 items, which could be expanded or refined in future studies to gain a more nuanced understanding of social media's role in organizational agility. Future researchers may develop a more detailed questionnaire that captures a wider range of perspectives and experiences, ensuring that the complexities of social media's influence on work behaviours are fully understood. Although the hypotheses in this study were supported, there may be additional factors that could affect the relationship between social media and employee performance, warranting further investigation. Researchers could also consider longitudinal studies to explore how these relationships evolve over time, particularly as social media platforms continue to change and influence workplace dynamics.

In summary, this research provides significant contributions to the field of library science and organizational behaviour, offering both theoretical insights and practical applications. By advancing our understanding of how social media shapes employee agility and relationship quality, it paves the way for future studies that can build on its findings and explore new dimensions of this evolving field.

## 5.7 Theoretical Contribution

As social media continues to expand its reach globally, the interactions facilitated by these platforms have increasingly blurred the lines between social media capabilities, librarians' agility, and the quality of relationships between librarians and users. As social media becomes an ever more integral part of both professional and personal interactions, understanding its impact on these elements has become crucial. This research conceptualizes the role of social media as an influential force that shapes not only the capabilities of librarians but also their agility in responding to challenges and their ability to foster quality relationships with library users. By integrating these variables, this study makes significant contributions to the body of knowledge in several areas, offering a comprehensive framework for understanding the complex dynamics at play.

The study draws from several established theoretical models, each of which contributes to the development of a robust conceptual framework. The Dynamic Capability Approach (Chuang, 2020), for example, is instrumental in understanding how organizations adapt to changing environments. While the study may employ different specific variables than those typically used in the Dynamic Capability Approach, this model provides a solid foundation for generating hypotheses that enrich the research. It emphasizes the importance of organizational adaptability, which is critical for librarians facing rapid technological changes and the evolving needs of library users. By grounding the study in this framework, the research highlights how libraries can enhance their ability to innovate and respond to external pressures.

The Technology Acceptance Model (Lim et al., 2008) helps to unravel how librarians' agility is influenced by social media capabilities. TAM provides insights into the factors that determine how users (in this case, librarians) accept and utilize new technologies. By applying this model, the research addresses the core question of what drives librarians' agility specifically, how the adoption of social media tools can enhance their ability to respond to challenges and innovate within the library setting. This model underscores the significance of perceived ease of use and perceived usefulness in fostering librarians' adaptability, which is central to the study's conceptualization of librarians' agility.

Finally, the Customer Relationship Management model (Jayachandran et al., 2005) is used to contextualize the importance of relationship capabilities in the library

setting. CRM theories traditionally focus on understanding and managing customer interactions to build loyalty and satisfaction. In this study, CRM principles are adapted to emphasize the librarian-user relationship, suggesting that librarians' ability to manage relationships effectively is closely linked to their agility in responding to user needs. By integrating CRM into the framework, the research underscores the role of relationship management as a core competency for librarians and its significant impact on overall library performance.

In summary, the integration of these four theoretical models provides a multifaceted perspective on how social media influences librarians' agility and the quality of their relationships with users. By adapting and combining these models, the research offers a unique and comprehensive conceptual framework that can be utilized by other researchers seeking to explore similar topics. Moreover, the insights gained from this study contribute to the ongoing conversation about the evolving role of librarians in the digital age and provide a valuable resource for both theoretical exploration and practical application.

## **5.8 Methodological Contribution**

This study offers valuable insights for other researchers who may wish to adopt and adapt its methodology. To ensure the reliability and clarity of the data collection process, a pre-test was conducted with experts in the field to gather feedback on the design and content of the questionnaire. This expert feedback was crucial for refining the questions and improving their relevance and clarity. Following the expert review, a pilot study was conducted with a sample of 30 respondents from the UiTM Library. The pilot study aimed to assess whether the respondents understood the questions and to identify any issues related to the questionnaire's structure or wording. Based on the feedback from the pilot study, the questionnaire was revised and improved to ensure it was both clear and relevant for the target audience.

The actual data collection for the study involved 20 academic libraries, providing a broad representation of libraries across the region. A total of 208 questionnaires were distributed to library staff, and 200 responses were received, yielding a response rate of approximately 96%. The results of the study indicated that the respondents generally demonstrated a high level of social media capability, with their responses classified as 'good' overall. This finding suggests that librarians in these

academic libraries are proficient in utilizing social media tools for professional purposes.

In terms of the hypotheses tested, the results revealed that most were supported, confirming the positive impact of various capabilities on librarians' agility. However, one hypothesis was not supported: service innovation capability was found not to significantly influence relationship quality. This outcome suggests that while social media tools and the ability to process information are important, they might not be the primary drivers of agility in librarianship. This insight opens the door for future research to explore additional variables or contextual factors that could better explain the dynamics between social media capabilities and librarian agility.

Overall, the methodology employed in this study, from expert feedback and pilot testing to the extensive data collection across multiple libraries, provides a rigorous framework that can be adapted by other researchers interested in exploring similar topics in the context of library science, social media, and organizational agility.

## **5.9 Conclusion**

In summary, Chapter Five shared discussion overall findings found. The findings answered all the research question which constructed following the research objectives. The discussion will give some benefits to coming researcher.

## **CHAPTER 6**

### **CONCLUSION**

#### **6.1 Introduction**

This chapter will summarise the topics studied and at the same time give an added value to the field of libraries and social media. Indeed, social media can make librarians more agile in managing information and can subsequently improve the quality of their relationship with users.

#### **6.2 Summary of The Research**

The work presented in this thesis focuses on four key aspects: (i) analysing the capabilities of social media, (ii) analysing the agility of librarians, (iii) analysing the relationship capability between librarian and user. In summary, this research presents a refined conceptualisation of the social media capability and developed a more complete theoretical model that takes into account three basic constructs of; (i) the social media capability itself, (ii) the librarians' agility, (iii) the relationship quality (librarian-user).

This research spans a period of five years and is a snapshot of the changing landscape of social media. This research sees the emergence of social media and its mainstream capability as a key factor that has brought about a substantial change in how librarians be agile and how its build the relationship quality (librarian-user). In addition, this context of research gives insight into the collective minds of the Malaysian librarians' demographic, geographic region, profession and even generation analysis on the level of social media capability and the impact of SMC to librarians' agility and also relationship quality (librarian-user). In the current research, it was determined that librarians' level of social media capability was good and make them more agile in the profession working area. It also gives an impact to their relationship with users. A holistic approach to social media capability needs multiple dimensions of online presence. This research takes an initial step in this direction.

This research also suggests that theories proposed by different leading researchers can be integrated into one framework, so that the understanding and

prediction of capability social media also the impact to librarians' agility and relationship quality (librarian-user) is far more comprehensively grounded than by using only one theory. To conclude, this research's theoretical/conceptual framework provides an integration of existing research and a springboard for future systematic research in the area of new media studies, capability, agility, relationship quality and policy.

The results from PLS-SEM, it can be concluded that three capabilities of hypotheses which is relationship, service innovation and tools were supported. Social media is a medium that can connect one person with one another. Even social media can influence a person to be in positive or negative direction. Social media can also be used as tool to expand business, promote products, socialize, entertain, and many more. With the capabilities available in social media, it allows librarians to use the medium as best as possible to further improve the quality of their relationship with users. Because it improves their capacity for adaptation, interaction with users, and staying up to date in the quickly changing digital ecosystem, social media capabilities can have a considerable impact on librarians' agility. Libraries have many opportunities to be flexible and responsive in their jobs thanks to social media platforms.

Overall, social media capability gives librarians the tools to promote agility by enabling them to effectively communicate, collect user input, create communities, participate in professional development, and modify their services to suit changing user needs and preferences. Librarians' adaptability is improved and their ability to remain effective and pertinent in the digital age is ensured by including social media in their skill set.

Princh.com (2023) shared that maintaining a social media account for libraries offers several key benefits. It allows direct communication with customers for inquiries and feedback, but it's crucial to meet users' expectations for quick responses (typically within an hour). Additionally, having a social media presence facilitates networking with other libraries. Maintaining a social media account can lead to loyal followers who may become customers. To build a strong community, it's important to tailor your content for each platform, providing unique and engaging posts rather than simply sharing the same links across all channels. For example, use Twitter for quick updates and news, while platforms like Facebook or Instagram can feature more in-depth and captivating content such as book recommendations. Social media has bridged

geographical gaps, making it effortless to connect with people worldwide. This presents an opportunity to engage younger generations and introduce traditional libraries in a fresh way. Modern libraries have evolved, offering digital services such as lending digital media and collaborating with online databases for research papers. To establish credibility as a provider of these services, it's crucial for libraries to demonstrate proficiency in using social media.

The usage of social media may definitely improve the quality of the relationship between librarians and users. Effective use of social media can help librarians build stronger relationships with their clients, improve communication, and promote a sense of community. Social media sites provide useful information on the debates, interests, and information-seeking habits of their users. With the use of this information, librarians may develop services that are more in line with the preferences, difficulties, and information demands of their users.

The widespread use of social media by academic librarians in Malaysia professionally demonstrates a consistent pattern of integrating digital tools into their everyday responsibilities. This behaviour indicates a shift towards a more technology-driven approach in areas such as promoting library services, sharing information, and engaging with users. Rather than treating social media as an additional resource, librarians now consider it essential to their professional toolkit. From a theoretical perspective, the findings strongly support Dynamic Capability Theory, as social media capability functions as a strategic organizational resource that enables librarians to sense user needs, seize opportunities for innovation, and reconfigure services in response to environmental change. At the same time, the consistently high level of social media use and confidence among librarians align with the Technology Acceptance Model, indicating that perceive usefulness and ease of use underpin sustained professional adoption of social media platforms. Furthermore, the results reinforce Customer Relationship Management Theory as social media facilitates continuous interaction, personalized communication and trust-building, all of which contribute to stronger librarian-user relationship quality.

Social media usage among academic librarians in Malaysia demonstrates a noticeable behavioural trend toward purposeful and strategic engagement. Librarians are actively using these platforms to boost the visibility of library services, strengthen institutional image, and foster meaningful interaction with users. Their approach goes beyond casual use, positioning social media as a vital professional tool for outreach,

communication, and relationship-building. This indicates a transformation in their professional role from traditional information providers to digital advocates and communicators. These behavioural patterns reflect how academic librarians are adapting to the expectations of a connected, digital academic landscape, reinforcing their role in maintaining a strong and responsive online presence.

Academic librarians in Malaysia demonstrate distinct behavioural patterns in their choice of social media platforms, with a strong preference for user-friendly and widely accessible tools like Facebook and WhatsApp. These platforms are favored for their ability to facilitate quick communication, broad information dissemination, and consistent engagement with users. This reflects a strategic use of social media aimed at strengthening visibility and maintaining active connections within academic communities. Overall, the preference for mainstream platforms aligns with the broader trend of librarians adopting practical and responsive digital tools to support their professional roles.

Academic librarians in Malaysia use social media in diverse ways, primarily focusing on sharing information and facilitating communication. Their behaviour shows a strong reliance on these platforms not only for disseminating content but also for marketing library services, providing user support, building professional networks, and engaging with the community. This multi-functional use highlights a broader trend of librarians embracing social media as essential tools for both information delivery and active user engagement, reflecting their evolving role as digital communicators and outreach facilitators within academic environments.

Overall, by utilising social media platforms effectively, librarians may build stronger, more enduring relationships with library patrons. Librarians may create an environment where users feel appreciated, supported, and linked to the library and its resources by engaging in open and personalised communication, welcoming user input, and encouraging a feeling of community.

### **6.3 Conclusion**

This chapter will give a new perspective in librarianship and hopefully the capability of social media among librarians' agility will enhance their professional skills.

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## **APPENDICES**

## APPENDIX 1

### Questionnaire

#### **Social Media Capabilities in Academic Libraries: Influence Librarians' Agility and Relationship Quality (Librarian-User) / *Keupayaan Media Sosial di dalam Perpustakaan Akademik: Mempengaruhi ketangkasan Pustakawan dan Kualiti Perhubungan (Pustakawan-Pengguna)***

Greetings to all respondents.

I am a second-year student in Doctor of Philosophy in Information Management from the Faculty of Information Management at Universiti Teknologi MARA (UiTM), Puncak Perdana Campus. The purpose of the study is to determine the significant effect of social media capability on librarians' agility and relationship quality between librarian and user. This survey is divided into several sections and will take approximately 5 - 10 minutes. Therefore, I respectfully invite you to be one of the respondents for my research by answering this questionnaire. You may rest assured that all of your responses will be treated with the utmost discretion. Kindly contact me if you have any questions concerning the questionnaire. Thank you for taking the time to fill out this survey.

*Responden yang dihormati.*

*Saya merupakan pelajar tahun kedua Doktor Falsafah Pengurusan Maklumat di Universiti Teknologi MARA (UiTM), Kampus Puncak Perdana. Tujuan kajian ini adalah untuk menentukan kesan signifikan keupayaan media sosial terhadap ketangkasan pustakawan dan kualiti perhubungan antara pustakawan dan pengguna. Borang soal selidik ini dibahagikan kepada beberapa bahagian dan akan mengambil masa lebih kurang 5 - 10 minit untuk dilengkapkan. Dengan ini saya menjemput anda untuk mengambil bahagian dalam kajian ini dengan melengkapkan borang soal selidik berikut. Segala maklumat yang diperolehi akan dikendalikan dengan sulit. Hanya data berkaitan kajian akan di analisa dan tiada data individu akan dikongsi. Sila hubungi saya jika ada sebarang kemusykilan berkaitan borang soal selidik. Terima kasih kerana sudi meluangkan masa anda bagi membantu saya dalam penyelidikan ini.*

*Researcher / Penyelidik,*

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Doctor of Philosophy in Information Management (IM950)  
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**SECTION A: DEMOGRAPHIC PROFILE/ BAHAGIAN A: PROFIL DEMOGRAFI**

This section contains the demographic profile of the respondents. Please fill up your details information/ *Bahagian ini mengandungi profil demografi responden. Sila isi maklumat butiran anda*

<b>1. Age/ Umur</b>	
a) 21 - 29 years	
b) 30 - 39 years	
c) 40 - 49 years	
d) More than 49/ Lebih dari 49	
<b>2. Gender/ Jantina</b>	
a) Male/ Lelaki	
b) Female/ Perempuan	
<b>3. Length (year) of services in this library / Tempoh (tahun) perkhidmatan di perpustakaan ini</b>	
a) 1 - 5	
b) 6 - 10	
c) 11 - 15	
d) 16 - 20	
e) 21 - 25	
<b>4. Types of University / Jenis Universiti</b>	
a) Research University / <i>Universiti Penyelidikan</i> (UM, UKM, USM, UPM, UTM)	
b) Non - Research University / <i>Universiti Bukan Penyelidikan</i> (UIA, UTP, UUM, UTEM, UMT, UMK, UNISZA, UTHM, UPSI, USIM, UNIMAS, UMS, UPNM, UiTM, UMP)	
<b>5. Job Status / Status Pekerjaan</b>	
a) Permanent / Tetap	
b) Contract / Kontrak	
<b>6. Qualification / Kelayakan</b>	
a) Bachelor Degree / Ijazah Sarjana Muda	
b) Master / Sarjana	
c) PhD / Doktor Falsafah	
<b>7. Position (Grade) / Jawatan (Gred)</b>	
a) S41	
b) S44	
c) S48	
d) S52	
e) S54	
f) Jusa A/B/C	

<b>8. Do you use social media in your profession? / Adakah anda menggunakan media sosial dalam profesion anda?</b>	
a) Yes/ Ya	
b) No/ Tidak	
<b>9. What purpose do you use social media? / Apakah tujuan anda menggunakan media sosial?</b>	
a) To serve the public better / Untuk berkhidmat kepada orang ramai dengan lebih baik	
b) To increase the reach of the message / Untuk meningkatkan jangkauan mesej	
c) To educate user / Untuk mendidik pengguna	
d) To act as a intermediary for pubic relations / Untuk bertindak sebagai perantara untuk perhubungan awam	
e) To communicate in difficult time / Untuk berkomunikasi dalam masa sukar	
<b>10. What social media tools do you use? / Apakah alat media sosial yang anda gunakan?</b>	
a) Facebook	
b) Twitter	
c) Instagram	
d) YouTube	
e) TikTok	
f) WhatsApp	
g) Others:	
<b>11. What do you use these tools for? Untuk apa anda menggunakan alatan ini?</b>	
a) Communication/ Komunikasi	
b) Information sharing / Perkongsian maklumat	
c) Assessing information / Menilai maklumat	
d) Creating interest groups or networking / Mewujudkan kumpulan minat atau rangkaian	
e) Marketing or promotion / Pemasaran atau promosi	
f) Customer service / Khidmat pelanggan	
g) Community involvement / Penglibatan komuniti	
<b>12. How long have you been using these social media tools (any tool)? / Berapa lama anda telah menggunakan alat media sosial ini (sebarang alat)?</b>	
a) Less than a year / Kurang daripada setahun	
b) Between a year and three years / Antara setahun hingga tiga tahun	
c) Longer than three years / Lebih daripada tiga tahun	

<b>13. Do you have any concerns about using social media tools for work-related purposes? / Adakah anda mempunyai sebarang kebimbangan tentang menggunakan alat media sosial untuk tujuan berkaitan kerja?</b>	
a) No concerns / Tiada kebimbangan	
b) Lack of time / Tidak cukup masa	
c) Not supported by the organization / Tidak disokong oleh organisasi	
d) Can't access these tools from the work computer / Tidak boleh mengakses alatan ini daripada komputer kerja	
e) Not sure how to create good content / Tidak pasti cara mencipta kandungan yang lebih baik	
f) Concern about information privacy / Kebimbangan mengenai privasi maklumat	

**SECTION B: SOCIAL MEDIA CAPABILITIES / BAHAGIAN B: KEUPAYAAN MEDIA**

**Definition / Definisi**

Social media capabilities are a recombination or organizationally learned skills, taking into account new individual skills / *Keupayaan media sosial ialah gabungan semula atau kemahiran yang dipelajari secara organisasi, dengan mengambil kira kemahiran individu baharu.*

**Instruction for this section / Arahan untuk bahagian ini**

This section divided into three dimensions which is Relationship Capability, Service Innovation Capability, and Tools Capability. There are five questions for each dimension. Please answer the following questions that best describes you using the scale 1="Strongly disagree," 2="Disagree", 3="Somewhat disagree", 4="Not sure", 5="Somewhat agree", 6="Agree", 7="Strongly agree" / *Bahagian ini terbahagi kepada empat dimensi iaitu Keupayaan Pemprosesan Maklumat, Keupayaan Hubungan, Keupayaan Inovasi Perkhidmatan, dan Keupayaan Alatan. Terdapat lima soalan untuk setiap dimensi. Sila jawab soalan berikut yang paling menggambarkan anda menggunakan skala 1="Sangat tidak setuju", 2="Tidak bersetuju", 3="Agak tidak bersetuju", 4="Tidak pasti", 5="Agak setuju", 6="Setuju", 7="Sangat setuju"*

Relationship Capability / <i>Keupayaan Perhubungan</i> Relationship capability define as connected networks that involve multiple library interactions and conversations through different channels.  <i>Keupayaan perhubungan ditakrifkan sebagai rangkaian bersambung yang melibatkan berbilang interaksi perpustakaan dan perbualan melalui saluran yang berbeza.</i>		Strongly Disagree ← Strongly Agree						
a) Social media can enhance my interactions in the library and at the same time create my good relationships between them / <i>Media sosial boleh meningkatkan interaksi saya di perpustakaan dan pada masa yang sama mewujudkan hubungan baik saya antara mereka</i>	1	2	3	4	5	6	7	
b) Social media can lead my higher satisfaction, my loyalty and my retention, and it can improve my relationships performance in library / <i>Media sosial boleh membawa kepuasan saya yang lebih tinggi, kesetiaan saya dan pengekalan saya, dan ia boleh</i>	1	2	3	4	5	6	7	

<i>meningkatkan prestasi perhubungan saya di perpustakaan</i>							
c) Social media can enhance my participation for improving the library to be effective and efficiency / <i>Media sosial boleh meningkatkan penyertaan saya untuk menambahbaik perpustakaan menjadi lebih cekap dan efisien</i>	1	2	3	4	5	6	7
d) Social media can help my visibility and connections within the broader library community; also, for assisting in promotion of the work of their faculty / <i>Media sosial boleh membantu keterlihatan dan hubungan saya dalam komuniti perpustakaan yang lebih luas; juga untuk membantu dalam promosi kerja fakulti mereka</i>	1	2	3	4	5	6	7
e) Social media can take my library service to users in their preferred spaces, the opportunity to build a sense of community between my library and users, to support development of collections and help me update on news and other initiatives / <i>Media sosial boleh membawa perkhidmatan perpustakaan saya kepada pengguna di ruang pilihan mereka, peluang untuk membina rasa komuniti antara perpustakaan saya dan pengguna, untuk menyokong pembangunan koleksi dan membantu memastikan maklumat terkini tentang berita dan inisiatif lain</i>	1	2	3	4	5	6	7

Service Innovation Capability / <i>Keupayaan Inovasi Perkhidmatan</i> Service innovation capability define as the new concept of service is being implemented or significantly improved in library.  <i>Keupayaan inovasi perkhidmatan ditakrifkan sebagai konsep perkhidmatan baharu sedang dilaksanakan atau dipertingkatkan dengan ketara di perpustakaan.</i>							
		Strongly Disagree ← Strongly Agree →					
a) Social media able to collaborate more, reduce service complexity and increase my innovation possibilities by integrating internal and external knowledge and make it available and accessible to its patrons / <i>Media sosial dapat bekerjasama lebih banyak, mengurangkan kerumitan perkhidmatan dan meningkatkan kemungkinan inovasi saya dengan menyatupadukan pengetahuan dalaman dan luaran dan menjadikannya tersedia dan boleh diakses oleh pelanggannya.</i>	1	2	3	4	5	6	7
b) Social media create digital way finding for me and transfer what is found to users / <i>Media sosial mencipta pencarian laluan digital untuk saya dan memindahkan perkara yang ditemui kepada pengguna</i>	1	2	3	4	5	6	7
c) Social media act an openness of the data to me, also offers generative and unbounded opportunities resulting in my service innovation / <i>Media sosial bertindak sebagai keterbukaan data kepada saya, juga menawarkan peluang yang generatif dan tidak terhad yang menghasilkan inovasi perkhidmatan saya</i>	1	2	3	4	5	6	7
d) Social media as new forms of knowledge in my library can update information in a timely manner and stimulate more originalities and ideas, thereby promoting my service innovation projects / <i>Media sosial sebagai bentuk pengetahuan baharu di perpustakaan</i>	1	2	3	4	5	6	7



<i>dalam pengiklanan dari segi mendorong pengguna mencari perkhidmatan Baharu</i>							
d) Social media tools can establish my library collaborations with various stakeholders / <i>Alat media sosial boleh mewujudkan kerjasama perpustakaan saya dengan pelbagai pihak berkepentingan</i>	1	2	3	4	5	6	7
e) Social media tools can express my library preferences in various ways (e.g., posting content as text, pictures or videos) / <i>Alat media sosial boleh menyatakan pilihan perpustakaan saya dalam pelbagai cara (cth. menyiarkan kandungan sebagai teks, gambar atau video)</i>	1	2	3	4	5	6	7

**SECTION C: LIBRARIANS' AGILITY / BAHAGIAN C: KEUPAYAAN PERPUSTAKAAN**

**Definition / Definisi**

Librarians' agility refers to ability to react to and adapt changes appropriately and promptly and allows employees to capitalize changes and turn them into opportunities and development / Ketangkasan Pustakawan merujuk kepada keupayaan untuk bertindak balas dan menyesuaikan *perubahan dengan sewajarnya dan segera serta membolehkan pekerja memanfaatkan perubahan dan mengubahnya menjadi peluang dan pembangunan.*

**Instruction for this section / Arahan untuk bahagian ini**

This section focusing on librarians' agility and there are six questions for this section. Please answer the following questions that best describes you using the scale 1="Strongly disagree," 2="Disagree", 3="Somewhat disagree", 4="Not sure", 5="Somewhat agree", 6="Agree", 7="Strongly agree" / *Bahagian ini memfokuskan kepada ketangkasan pustakawan dan terdapat enam soalan untuk bahagian ini. Sila jawab soalan berikut yang paling menggambarkan anda menggunakan skala 1="Sangat tidak setuju", 2="Tidak bersetuju", 3="Agak tidak bersetuju", 4="Tidak pasti", 5="Agak setuju", 6="Setuju", 7="Sangat setuju"*

	Strongly Disagree ← Strongly Agree →						
	1	2	3	4	5	6	7
a) I have been fast in detecting the changes that occurred among users especially related to library services / <i>Saya telah pantas dalam mengesan perubahan yang berlaku di kalangan pengguna terutamanya berkaitan perkhidmatan perpustakaan</i>	1	2	3	4	5	6	7
b) I can predict the changes in technology and able to respond and adapt to unpredictable changes quickly and efficiently / <i>Saya boleh meramalkan perubahan dalam teknologi dan mampu bertindak balas serta menyesuaikan diri dengan perubahan yang tidak dapat diramalkan dengan cepat dan cekap</i>	1	2	3	4	5	6	7
c) I can carry out a series of specific tasks in successfully, in addition to managing the opportunities and risks in the library activities effectively / <i>Saya boleh melaksanakan beberapa siri tugas khusus dengan jayanya, di samping</i>	1	2	3	4	5	6	7

<i>mengurus peluang dan risiko dalam aktiviti perpustakaan dengan berkesan</i>							
d) I can make decision quickly and effectively to unexpected opportunities, and providing the solutions in advance / <i>Saya boleh membuat keputusan dengan cepat dan berkesan terhadap peluang yang tidak dijangka dan menyediakan penyelesaian lebih awal</i>	1	2	3	4	5	6	7
e) I can take a strategic plan from social media to fulfill users needs / <i>Saya boleh mengambil pelan strategik daripada media sosial untuk memenuhi keperluan pengguna</i>	1	2	3	4	5	6	7
f) I'm not afraid to make mistakes and willingness to take risks / <i>Saya berani melakukan kesilapan dan sanggup mengambil risiko</i>	1	2	3	4	5	6	7

**SECTION D: RELATIONSHIP QUALITIES / BAHAGIAN D: KUALITI PERHUBUNGAN**

**Definition / Definisi**

Relationship quality is a trust exists when one party has confidence in the reliability and integrity of the other / *Kualiti perhubungan ialah kepercayaan wujud apabila satu pihak mempunyai keyakinan terhadap kebolehpercayaan dan integriti pihak yang lain.*

**Instruction for this section / Arahan untuk bahagian ini**

This section focusing on relationship quality and there are six questions for this section. Please answer the following questions that best describes you using the scale 1="Strongly disagree," 2="Disagree", 3="Somewhat disagree", 4="Not sure", 5="Somewhat agree", 6="Agree", 7="Strongly agree" / *Bahagian ini memfokuskan kepada kualiti perhubungan dan terdapat enam soalan untuk bahagian ini. Sila jawab soalan berikut yang paling menggambarkan anda menggunakan skala 1="Sangat tidak setuju", 2="Tidak bersetuju", 3="Agak tidak bersetuju", 4="Tidak pasti", 5="Agak setuju", 6="Setuju", 7="Sangat setuju"*

	Strongly Disagree ← Strongly Agree →						
	1	2	3	4	5	6	7
a) I make beneficial decisions under any circumstances for my users / <i>Saya membuat keputusan yang berfaedah dalam apa jua keadaan untuk pengguna saya</i>	1	2	3	4	5	6	7
b) I willing to assist my user without no doubt / <i>Saya bersedia membantu pengguna saya tanpa sebarang keraguan</i>	1	2	3	4	5	6	7
c) I do the best to maintain the relationship with my users / <i>Saya melakukan yang terbaik untuk mengekalkan hubungan dengan pengguna saya</i>	1	2	3	4	5	6	7
d) I always try to keep my users promises / <i>Saya sentiasa cuba untuk memenuhi janji pengguna saya</i>	1	2	3	4	5	6	7
e) I feel confident that my users can deal with whatever problems might come up in our relationship / <i>Saya yakin bahawa pengguna saya boleh menangani sebarang masalah yang mungkin timbul dalam hubungan kami</i>	1	2	3	4	5	6	7

f) I consider happy in relationship with my users / <i>Saya menganggap gembira dalam hubungan dengan pengguna saya</i>	1	2	3	4	5	6	7
--	---	---	---	---	---	---	---

The questionnaire is over. Thank you for answering this questionnaire. Your cooperation kindly appreciated. / Soal selidik tamat. Terima kasih menjawab soal selidik ini. Kerjasama anda amat dihargai.

## APPENDIX 2

### UiTM Research Ethics Approval

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UNIVERSITI  
TEKNOLOGI  
MARA

Pejabat  
Timbalan Naib Canselor  
(Penyelidikan dan Inovasi)

Reference : 600-TNCPI (5/1/6)  
Our reference : REC/06/2022 (PG/MR/139)  
Date : 28 June 2022

**Dr Mad Khir Johari bin Abdullah Sani**  
(Haslina binti Husain - 2020445024)  
Faculty of Information Management  
UiTM Puncak Perdana Campus  
Seksyen U10  
40150 Shah Alam  
SELANGOR

Dear Dr Mad Khir Johari,

#### APPROVAL LETTER - UiTM RESEARCH ETHICS COMMITTEE

Thank you for submitting your research proposal to the Research Ethics Committee (REC). After considering your application, the Committee approved your proposal titled "Social Media Capabilities in Academic Libraries: Influence on Librarians' Agility and Relationship Quality (Librarian-User)" at UM, UKM, USM, UPM, UIA, UTP, UUM, UTEM, UMT, UMK, UNISZA, UiTM, UMK, UTHM, UPSI, USIM, UNIMAS, UMS, UPM and UiTM.

Details of the approval are as follows:

<b>Ref. number:</b>	REC/06/2022 (PG/MR/139)
<b>Approval Period:</b>	28 June 2022 until 4 October 2023
<b>Authorised personnel:</b>	1. Dr Mad Khir Johari bin Abdullah Sani 2. Haslina binti Husain

The UiTM Research Ethics Committee operates in accordance to the ICH Good Clinical Practice Guidelines, Malaysian Good Clinical Practice Guidelines and the Declaration of Helsinki. The approval of this project is conditional upon your continuing compliance with these guidelines and declaration.

We draw to your attention the requirement that a report on this research, must be submitted every 12 months from the date of the approval or on the completion of the project, whichever occurs first. Failure to submit reports will result in withdrawal of consent for the project to proceed. Amendments, if any, to the study documents are to be submitted to the REC for approval.

If you require further information, please contact the REC Secretariat at 03-55448069/03-55442794 or email at [recsecretariat@uitm.edu.my](mailto:recsecretariat@uitm.edu.my).

Yours sincerely,



**EMERITUS PROFESSOR DATO' DR RAYMOND AZMAN ALI**  
Chairman  
UiTM Research Ethics Committee

c.c.: Dean, Faculty of Information Management, UiTM

Universiti Teknologi MARA  
Ara 3, Bandarau Watassan



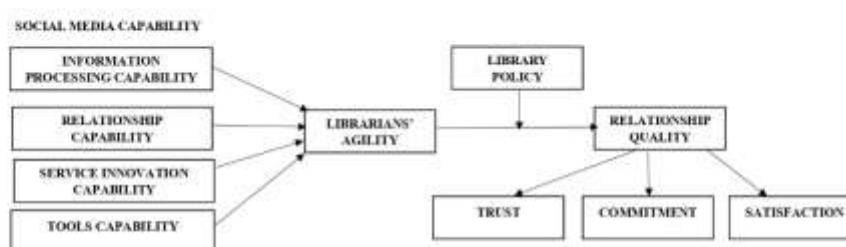
## APPENDIX 3

### Pre-test Expert Validation Feedback (Associate Prof Dr Roziya Abu)

<b>PRE TEST EXPERT VALIDATION FORM</b>
<b>RESEARCH TITLE: SOCIAL MEDIA CAPABILITY IN ACADEMIC LIBRARIES: INFLUENCE LIBRARIANS' AGLITY AND RELATIONSHIP QUALITY (LIBRARIAN USER)</b>

RESEARCH OBJECTIVES	RESEARCH QUESTIONS
1. To measure the level of social media capability in academic libraries in Malaysia	What is the level of social media capability in the academic libraries in Malaysia?
2. To determine the significance effect of social media capability on librarians' agility	To what extent the social media capability has a significant effect on librarians' agility?
3. To determine the significant effect of librarians' agility on relationship quality	What is the effect of the librarians' agility on relationship quality?
4. To determine how library policy moderate the relationship between librarians' agility and relationship quality	To what extent the library policy moderates the relationship between librarians' agility and relationship quality?

Table 1: Proposed Research Objectives and Research Questions for the intended study



Theoretical Framework of the Study

1

SECTION A. SOCIAL MEDIA CAPABILITY											
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number											
7 Point Likert Scale: 1-Strongly Disagree 2-Disagree 3-Somewhat Disagree 4-Neither Agree Nor Disagree 5- Somewhat Agree 6-Agree 7-Strongly Agree											
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments	
		Relevancy				Clarity					
		(1) Not relevant at all	(2) Somewhat Not Relevant	(3) Relavant But Not Much Relevant	(4) Very Relevant	(1) Not Clear	(2) Somewhat Social Relevant	(3) Clear But Not Much Relevant	(4) Very Clear		
<b>Information Processing Capability</b> - Information processing capability refers to a company's ability to source, communicate, and respond to information derived from interactions facilitated by social media. (Marchand, Fleming-Thron and Fleming (2020); Gubba, Buyya, Muresic, and Palaniyandi (2013); Utim and He (2017); Akhtar, Khan, Tariq, and Jayasudhama (2018); Chong (2020); Leskova-Spocanu, and Nastic (2007)	1. Information processing capability is useful				✓				✓		
	2. Information processing capability is important				✓				✓		
	3. Information processing capability is valuable				✓				✓		
	4. Others unlikely to have similar information processing capability like others	✓					✓				
	5. We have unique information processing capability				✓				✓		

2

SECTION B. SOCIAL MEDIA CAPABILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Very Relevant	(3) Relevant But Not Much	(4) Very Relevant	(1) Not Clear	(2) Not Very Clear	(3) Clear But Not Much	(4) Very Clear	
<b>Relationship Capability</b> - Relationship capability define as connected networks that involve multiple business interactions and cooperations through different channels (Marchand, Henning-Thurns & Floerzing (2020), Traian, Andriolis, Rapp, Agrihasti (2014); Foltosa, Trif, and Tulea (2019); Zhan and Flynn (2017); Jernisti parret, Serthoua, and Setyokul (2018); Wali and Asad-Wali (2018); Blatti, Farhan, Almasri, and Sharif (2019); Zhan, and Flynn (2017); Kasmart, Kasli, and Hoyar (2004); Chong, Shen, and Lin (2016); Agrihasti et al.(2016)	1. We proactively review the likely effects of changes in our library environment on customers				✓				✓	
	2. We proactively generate knowledge about the changes in the market characteristics and trends				✓				✓	
	3. We continuously evaluate the technical feasibility of developing new services				✓				✓	
	4. We continuously analyse the changes in the relationship environment which can affect our library				✓				✓	
	5. We ensure that the output of our work is disseminated across the organization				✓				✓	

3

SECTION C. SOCIAL MEDIA CAPABILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Very Relevant	(3) Relevant But Not Much	(4) Very Relevant	(1) Not Clear	(2) Not Very Clear	(3) Clear But Not Much	(4) Very Clear	
<b>Service Innovation Capability</b> - Service innovation capability define as the new concept of service is being implemented or significantly improved. (Marchand, Henning-Thurns, and Floerzing (2020); Glynn (1996); Hipp and Grupp (2005); Nilsson, Hillebrand, Vermeulen, and Kemp (2006); Vargo and Lusch (2006); Miles (1995); White (2001); Berry (1983); Li et al. (2012); Liang et al. (2012); Rowley (2011)	1. Our library reduces the developing time of new products and services				✓			✓		Maybe it can include some example of what is the new product and services
	2. Our library is flexible to provide products and services according to the demands of the customers				✓				✓	
	3. Our library develops in-house solutions to improve our information processes				✓				✓	
	4. Our library actively works to constantly adjust information processes				✓				✓	
	5. Our library adopts innovative work designs				✓				✓	

4

SECTION D. SOCIAL MEDIA CAPABILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Relevant	(3) Relevant But Not Much	(4) Very Relevant	(1) Not Clear	(2) Not Clear	(3) Clear But Not Much	(4) Very Clear	
<b>Tools Capability</b> Tools capability define as tool to connect end customers promptly and directly with relatively low costs and high efficiency. (Marsland, Fleunigen and Elezovic (2020); Joo, Marr, and Kasoulakis (2009); Read et al. (2012); Brook (2012); Fernandez (2009); Anari, Aseni, Asemi, and Abu Bakar (2013); Hinchliffe, and Leon (2011); Aramgarn and Balasubramani (2019))	1. We have our scheme for IT standardization				✓			✓		Simple explanation what you mean with scheme is highly recommended
	2. We have ability to integrate IT				✓				✓	
	3. We understand the trend of IT									
	4. We have ability to integrate functional requirement				✓			✓		Explanation what you mean with functional requirement is highly recommended
	5. We have ability to leverage information technology as strategic core competence				✓				✓	

5

SECTION E. LIBRARIANS' AGILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Relevant	(3) Relevant But Not Much	(4) Very Relevant	(1) Not Clear	(2) Not Clear	(3) Clear But Not Much	(4) Very Clear	
<b>Sensing Agility</b> - Sensing agility is the organizational ability to investigate and monitor events and changes in the environment (changes in customer preferences, movements of new competitors, new technologies) in good time. (Park (2011))	1. The organization has been first in terms of detecting changes that occur in customer preferences for products				✓				✓	
	2. The organization has been first detect changes that occur in customer preferences for products				✓				✓	
	3. The organization has been first to detect changes in technology				✓				✓	

6

SECTION F. LIBRARIANS' AGILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Sure	(3) Relevant	(4) Very Relevant	(1) Not Clear	(2) Not Sure	(3) Clear	(4) Very Clear	
<b>Decision Making Agility</b> – Decision making agility is the ability to gather, restructure, and evaluate relevant information from various sources to explain the impact of the business on time and identify opportunities and risks based on the interpretation of events. (Wagoh (2016))	1. The organization analyses important events concerning customers, competitors, and technology without any delay			✓				✓		If possible change the word delay to something that is measurable
	2. The organization detect the opportunities and threats to changes in customers, competitors, and technology in time			✓			✓			
	3. The organization carries out a specific action plan in order to meet customer needs without any delay			✓				✓		

7

SECTION G. LIBRARIANS' AGILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Instruction and Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Sure	(3) Relevant	(4) Very Relevant	(1) Not Clear	(2) Not Sure	(3) Clear	(4) Very Clear	
<b>Acting Agility or Practicing</b> – Acting agility or practicing is the task of action consists of a series of activities to restructure organizational resources and modify business processes based on the working principles resulting from the decision-making task to react to changes in the environment. (Eisenhardt and Martin (2000); Wagoh (2016))	1. The organization can reconfigure its resources in the proper time			✓				✓		'Proper time' requires an explanation
	2. The organization can re-adjust operation carried out in a timely manner			✓			✓			
	3. The organization can use new technology in the proper time			✓				✓		

8

SECTION II. RELATIONSHIP QUALITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Instruction and Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Very Relevant	(3) Relevant But Slight Rejection	(4) Very Relevant	(1) Not Clear	(2) Not Very Clear	(3) Clear But Slight Rejection	(4) Very Clear	
<b>Relationship Trust</b> – Relationship trust is the reliability and integrity of the exchange partner. (Oferon and Hitt, (1994); Rapp, Tannir, and Aguilera (2010); Hsu, Lee, and Seo (2008))	1. Our user makes beneficial decisions to us under any circumstances	✓					✓			
	2. Our user is willing to provide assistance to us without exception			✓					✓	Change to : Our user is willing to provide assistance to us
	3. Our user is sincere at all times	✓					✓			
	4. We and our user have friendly relations				✓				✓	Consider using good instead of friendly

9

SECTION I. RELATIONSHIP QUALITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Instruction and Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Very Relevant	(3) Relevant But Slight Rejection	(4) Very Relevant	(1) Not Clear	(2) Not Very Clear	(3) Clear But Slight Rejection	(4) Very Clear	
<b>Relationship Commitment</b> – Relationship commitment is a conscious desire to maintain a special relationship. (Palmiter et al. (2006); Rapp, Tannir, and Aguilera (2010); Hsu, Lee, and Seo (2008))	1. We and our user do our best to maintain the relationship	✓					✓			
	2. The relationship between us and our user is strengthened	✓					✓			
	3. We and our user always try to keep each other's promises			✓					✓	Uses expectation rather than promises
	4. We and our user are willing to continue the relationship			✓					✓	Overall this section: requires rewriting

10

SECTION J. RELATIONSHIP QUALITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1-Strongly Disagree 2-Disagree 3-Somewhat Disagree 4-Neither Agree Nor Disagree 5- Somewhat Agree 6-Agree 7-Strongly Agree										
Construct & Operational Definition	Instruction and Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Clear	(3) Somewhat Relevant	(4) Very Relevant	(1) Not Clear	(2) Somewhat Clear	(3) Clear	(4) Very Clear	
<b>Relationship Satisfaction</b> - Relationship satisfaction is the consumer's overall satisfaction with the relationship. (Booris et al., 2002).	1. Relatively to your competitive, how well does your library perform on customer satisfaction, customer loyalty and customer organization			✓				✓		I am not sure respondent will be able to answer this question unless they/the organization did a competitors review analysis
	2. Our company objectives are driven by customer satisfaction				✓				✓	
	3. Our competitive advantage is based on understanding customers'				✓				✓	
	4. We frequently measure customer satisfaction				✓				✓	

11

• Overall time taken to complete the instrument:	<u>good</u>	Comments:	<u>Slightly changes needed here and there</u>
• Font size recommendation:	<input checked="" type="checkbox"/> Minimal	<input type="checkbox"/> Change to bigger font size	<input type="checkbox"/> Change to smaller font size
• Language used for questionnaire:	<input type="checkbox"/> English	<input type="checkbox"/> Bahasa Malaysia	<input checked="" type="checkbox"/> Bilingual (English and Bahasa Malaysia)

BY SIGNING HERE: I verify that the above information is accurate and complete.

*Rozliza Abu*

19 Jun 2022

Signature:

Date:

13

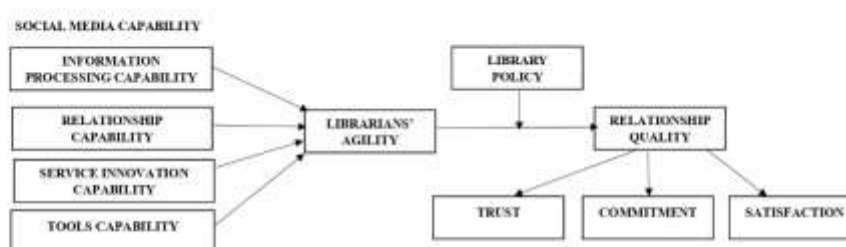
## APPENDIX 4

### Pre-test Expert Validation Feedback (Dr Norshila Shaifuddin)

**PRE TEST EXPERT VALIDATION FORM**  
**RESEARCH TITLE: SOCIAL MEDIA CAPABILITY IN ACADEMIC LIBRARIES: INFLUENCE LIBRARIANS' AGLITY AND RELATIONSHIP QUALITY (LIBRARIAN USER)**

RESEARCH OBJECTIVES	RESEARCH QUESTIONS
1. To measure the level of social media capability in academic libraries in Malaysia	What is the level of social media capability in the academic libraries in Malaysia?
2. To determine the significance effect of social media capability on librarians' agility	To what extent the social media capability has a significant effect on librarians' agility?
3. To determine the significant effect of librarians' agility on relationship quality	What is the effect of the librarians' agility on relationship quality?
4. To determine how library policy moderate the relationship between librarians' agility and relationship quality	To what extent the library policy moderates the relationship between librarians' agility and relationship quality?

Table 1: Proposed Research Objectives and Research Questions for the intended study



Theoretical Framework of the Study

1

SECTION A. SOCIAL MEDIA CAPABILITY		Your Assessment (Kindly tick (✓) which appropriate)								Comments
Construct & Operational Definition	Questionnaire Items	Relevancy				Clarity				
		(1) Not relevant at all	(2) Somewhat Not Relevant	(3) Relevant But Not Much Relevant	(4) Very Relevant	(1) Not Clear	(2) Not Very Clear	(3) Clear But Not Very Clear	(4) Very Clear	
		<b>Information Processing Capability</b> - Information processing capability refers to a company's ability to source, communicate, and respond to information derived from interactions facilitated by social media (Marchand, Fleming-Thron and Fleming (2020); Gubbs, Bayya, Marwac, and Palaniyandi (2013); Uden and He (2017); Akhtar, Khan, Tariq, and Jayasudhama (2018); Chiong (2020); Leskovar-Spocanu, and Santic (2007))	1. Information processing capability is useful 2. Information processing capability is important 3. Information processing capability is valuable 4. Others unlikely to have similar information processing capability like others 5. We have unique information processing capability		X				X	
			X				X			
			X				X			
			X				X			
			X				X			

2

SECTION B. SOCIAL MEDIA CAPABILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Less than Some Relevant	(3) Relevant But Not Much Relevant	(4) Very Relevant	(1) Not Clear	(2) Less than Some Relevant	(3) Clear But Not Much Relevant	(4) Very Clear	
<b>Relationship Capability</b> - Relationship capability define as connected networks that involve multiple business interactions and cooperations through different channels (Marchand, Henning-Thurns & Flörzing (2020), Traian, Andriolis, Rogy, Agrihasti (2014); Fofana, Trif, and Telen (2019), Zhan and Hyun (2017), Jernatzi jernatzi, Serban, and Serjokol (2018), Wali and Asad-Wali (2018), Blatti, Farhan, Almasri, and Sharif (2019), Zhan, and Hyun (2017); Kassarz, Kraft, and Hoyer (2004); Chang, Shen, and Lin (2016), Agrihasti et al (2016)	1. We proactively review the likely effects of changes in our library environment on customers			X			X			items are too general and not associated with operational definition, more specifically connected networks.....
	2. We proactively generate knowledge about the changes in the market characteristics and trends			X			X			
	3. We continuously evaluate the technical feasibility of developing new services			X			X			
	4. We continuously analyse the changes in the relationship environment which can affect our library			X			X			
	5. We ensure that the output of our work is disseminated across the organization			X			X			

3

SECTION C. SOCIAL MEDIA CAPABILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Less than Some Relevant	(3) Relevant But Not Much Relevant	(4) Very Relevant	(1) Not Clear	(2) Less than Some Relevant	(3) Clear But Not Much Relevant	(4) Very Clear	
<b>Service Innovation Capability</b> - Service innovation capability define as the new concept of service is being implemented or significantly improved. (Marchand, Henning-Thurns, and Flörzing (2020), Glynn (1996); Hipp and Grupp (2005); Nijssen, Hillebrand, Vermeulen, and Kemp (2006); Vargo and Lusch (2006); Miles (1995); White (2001); Berry (1983); Li et al. (2012); Liang et al. (2012); Rowley (2011)	1. Our library reduces the developing time of new products and services			X			X			same as above, items are too general and do not relate with the social media capability in the context of service innovation.....
	2. Our library is flexible to provide products and services according to the demands of the customers			X			X			
	3. Our library develops in-house solutions to improve our information processes			X			X			
	4. Our library actively works to constantly adjust information processes			X			X			
	5. Our library adopts innovative work designs			X			X			

4

SECTION D. SOCIAL MEDIA CAPABILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Relevant Some Relevance	(3) Relevant But Not Much Relevance	(4) Very Relevant	(1) Not Clear	(2) Not Clear Some Relevance	(3) Clear But Not Much Relevance	(4) Very Clear	
<b>Tools Capability</b> Tools capability defines as tool to connect end customers promptly and directly with relatively low costs and high efficiency. (Machand, Hemant, Thirum and Elizabeth (2020); Jiv, Marr, and Kasotakis (2009); Read et al. (2012); Brook (2012); Fernandez (2009); Anam, Asenn, Asem, and Abu Bakar (2013); Hinchliffe, and Leon (2011); Arunagani and Balasubramani (2019))	1. We have our scheme for IT standardization		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>			Items do not relate to the operational definitions
	2. We have ability to integrate IT		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>			
	3. We understand the trend of IT		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>			
	4. We have ability to integrate fractional requirement		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>			
	5. We have ability to leverage information technology as strategic core competence		<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>		

5

SECTION E. LIBRARIANS' AGILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Relevant Some Relevance	(3) Relevant But Not Much Relevance	(4) Very Relevant	(1) Not Clear	(2) Not Clear Some Relevance	(3) Clear But Not Much Relevance	(4) Very Clear	
<b>Sensing Agility</b> - Sensing agility is the organizational ability to investigate and monitor events and changes in the environment (changes in customer preferences, movements of new competitors, new technologies) in good time. (Park (2011))	1. The organization has been first in terms of detecting changes that occur in customer preferences for products									
	2. The organization has been first detect changes that occur in customer preferences for products									
	3. The organization has been first to detect changes in technology									

6

SECTION F. LIBRARIANS' AGILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Sure/Not Relevant	(3) Relevant But Not Much	(4) Very Relevant	(1) Not Clear	(2) Not Sure/Not Relevant	(3) Clear But Not Much	(4) Very Clear	
<b>Decision Making Agility</b> – Decision making agility is the ability to gather, restructure, and evaluate relevant information from various sources to explain the impact of the business on time and identify opportunities and risks based on the interpretation of events. (Wagoh (2016))	1. The organization analyses important events concerning customers, competitors, and technology without any delay				X				X	
	2. The organization detect the opportunities and threats to changes in customers, competitors, and technology in time				X				X	
	3. The organization carries out a specific action plan in order to meet customer needs without any delay				X				X	

7

SECTION G. LIBRARIANS' AGILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Instruction and Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Sure/Not Relevant	(3) Relevant But Not Much	(4) Very Relevant	(1) Not Clear	(2) Not Sure/Not Relevant	(3) Clear But Not Much	(4) Very Clear	
<b>Acting Agility or Practicing</b> – Acting agility or practicing is the task of action consists of a series of activities to reassemble organizational resources and modify business processes based on the working principles resulting from the decision-making task to react to changes in the environment. (Eisenhardt and Martin (2000); Wagoh (2016))	1. The organization can reconfigure its resources in the proper time				X				X	
	2. The organization can re-adapt operations-carried out in a timely manner				X				X	
	3. The organization can use new technology in the proper time				X				X	

8

SECTION II. RELATIONSHIP QUALITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Instruction and Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Very Relevant	(3) Relevant But Slight Deficient	(4) Very Relevant	(1) Not Clear	(2) Not Very Clear	(3) Clear But Slight Deficient	(4) Very Clear	
<b>Relationship Trust</b> – Relationship trust is the reliability and integrity of the exchange partner. (Sofron and Hitt, (1994); Rapp, Tammar, and Aguilera (2010); Hsu, Lee, and Seo (2003))	1. Our user makes beneficial decisions to us under any circumstances				X				X	
	2. Our user is willing to <b>provide assistance</b> to assist us without exception				X				X	
	3. Our user is sincere at all times				X				X	
	4. We and our user have friendly relations				X				X	

9

SECTION I. RELATIONSHIP QUALITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Instruction and Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Very Relevant	(3) Relevant But Slight Deficient	(4) Very Relevant	(1) Not Clear	(2) Not Very Clear	(3) Clear But Slight Deficient	(4) Very Clear	
<b>Relationship Commitment</b> – Relationship commitment is a conscious desire to maintain a special relationship. (Palmaris et al. (2006); Rapp, Tammar, and Aguilera (2010); Hsu, Lee, and Seo (2003))	1. We and our user do our best to maintain the relationship				X				X	
	2. The relationship between us and our users is strengthened				X				X	
	3. We and our user always try to keep each other's promises				X				X	
	4. We and our user are willing to continue the relationship				X				X	

10

SECTION J. RELATIONSHIP QUALITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1-Strongly Disagree 2-Disagree 3-Somewhat Disagree 4-Neither Agree Nor Disagree 5- Somewhat Agree 6-Agree 7-Strongly Agree										
Construct & Operational Definition	Instruction and Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Clear	(3) Somewhat Relevant	(4) Very Relevant	(1) Not Clear	(2) Somewhat Clear	(3) Somewhat Clear	(4) Very Clear	
<b>Relationship Satisfaction</b> - Relationship satisfaction is the consumer's overall satisfaction with the relationship. (Booris et al., 2002).	1. Relatively to your competitive, how well does your library perform on customer satisfaction, customer loyalty and customer organization				X				X	
	2. Our company objectives are driven by customer satisfaction				X				X	
	3. Our competitive advantage is based on understanding customers'				X				X	
	4. We frequently measure customer satisfaction				X				X	

11

• Overall time taken to complete the instrument:	20 min	Comments:	
• Font size recommendation:	<input checked="" type="checkbox"/> Minimal	<input type="checkbox"/> Change to bigger font size	<input type="checkbox"/> Change to smaller font size
• Language used for questionnaire:	<input type="checkbox"/> English	<input type="checkbox"/> Bahasa Malaysia	<input checked="" type="checkbox"/> Bilingual (English and Bahasa Malaysia)

BY SIGNING HERE: I verify that the above information is accurate and complete.

\_\_\_\_\_  
Signature: norshila

\_\_\_\_\_  
Date: 1/4/2022

13

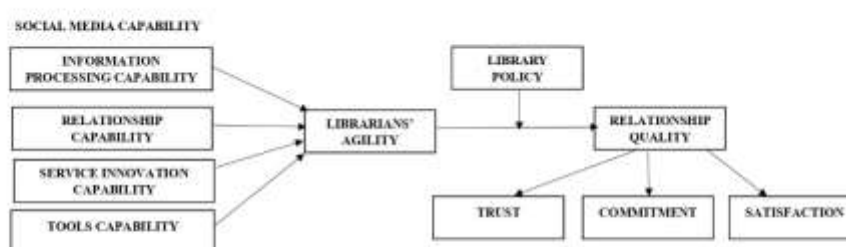
## APPENDIX 5

### Pre-test Expert Validation Feedback (Puan Nordelina Zulkarnain)

<b>PRE TEST EXPERT VALIDATION FORM</b>
<b>RESEARCH TITLE: SOCIAL MEDIA CAPABILITY IN ACADEMIC LIBRARIES: INFLUENCE LIBRARIANS' AGLITY AND RELATIONSHIP QUALITY (LIBRARIAN USER)</b>

RESEARCH OBJECTIVES	RESEARCH QUESTIONS
1. To measure the level of social media capability in academic libraries in Malaysia	What is the level of social media capability in the academic libraries in Malaysia?
2. To determine the significance effect of social media capability on librarians' agility	To what extent the social media capability has a significant effect on librarians' agility?
3. To determine the significant effect of librarians' agility on relationship quality	What is the effect of the librarians' agility on relationship quality?
4. To determine how library policy moderate the relationship between librarians' agility and relationship quality	To what extent the library policy moderates the relationship between librarians' agility and relationship quality?

Table 1: Proposed Research Objectives and Research Questions for the intended study



Theoretical Framework of the Study

1

SECTION A. SOCIAL MEDIA CAPABILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1-Strongly Disagree 2-Disagree 3-Somewhat Disagree 4-Neither Agree Nor Disagree 5- Somewhat Agree 6-Agree 7-Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Somewhat Not Relevant	(3) Relavent But Not Much Relevant	(4) Very Relevant	(1) Not Clear	(2) Somewhat Social Relevant	(3) Clear But Not Much Relevant	(4) Very Clear	
<b>Information Processing Capability</b> - Information processing capability refers to a company's ability to source, communicate, and respond to information derived from interactions facilitated by social media. (Marchand, Fleming-Thron and Fleming (2020); Gubba, Bayya, Marwan, and Palaniyandi (2013); Utim and He (2017); Akhtar, Khan, Tariq, and Jayasudhama (2018); Chong (2020); Leskova-Spocanu, and Nastic (2007)	1. Information processing capability is useful				/				/	
	2. Information processing capability is important				/				/	
	3. Information processing capability is valuable				/				/	
	4. Others unlikely to have similar information processing capability like others				/				/	
	5. We have unique information processing capability				/				/	

2

SECTION B. SOCIAL MEDIA CAPABILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Very Relevant	(3) Relevant But Not Much	(4) Very Relevant	(1) Not Clear	(2) Not Very Clear	(3) Clear But Not Much	(4) Very Clear	
<b>Relationship Capability</b> - Relationship capability define as connected networks that involve multiple business interactions and cooperations through different channels (Marchand, Henning-Thurns & Floerzing (2020), Traian, Andriolis, Rogg, Agrihasti (2014); Foltosa, Trif, and Tulea (2019); Zhou and Flynn (2017); Jemshi parrot, Senhwan, and Setyadil (2018); Wali and Ansh-Wali (2018); Blatti, Farhan, Ahmad, and Sharif (2019); Zhan, and Flynn (2017); Kassarz, Kraft, and Hoyer (2004); Chang, Shen, and Lin (2016); Agrihasti et al (2016)	1. We proactively review the likely effects of changes in our library environment on customers				/				/	
	2. We proactively generate knowledge about the changes in the market characteristics and trends				/				/	
	3. We continuously evaluate the technical feasibility of developing new services				/				/	
	4. We continuously analyse the changes in the relationship environment which can affect our library				/				/	
	5. We ensure that the output of our work is disseminated across the organization				/				/	

3

SECTION C. SOCIAL MEDIA CAPABILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Very Relevant	(3) Relevant But Not Much	(4) Very Relevant	(1) Not Clear	(2) Not Very Clear	(3) Clear But Not Much	(4) Very Clear	
<b>Service Innovation Capability</b> - Service innovation capability define as the new concept of service is being implemented or significantly improved. (Marchand, Henning-Thurns, and Floerzing (2020); Glynn (1996); Hipp and Grupp (2005); Nijssen, Hildebrand, Vermeulen, and Kemp (2006); Vargo and Lusch (2006); Miles (1995); White (2001); Berry (1983); Li et al. (2012); Liang et al. (2012); Rowley (2011)	1. Our library reduces the developing time of new products and services				/				/	
	2. Our library is flexible to provide products and services according to the demands of the customers				/				/	
	3. Our library develops in-house solutions to improve our information processes				/				/	
	4. Our library actively works to constantly adjust information processes				/				/	
	5. Our library adopts innovative work designs				/				/	

4

SECTION D. SOCIAL MEDIA CAPABILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Relevant	(3) Relevant But Not Much	(4) Very Relevant	(1) Not Clear	(2) Not Clear	(3) Clear But Not Much	(4) Very Clear	
<b>Tools Capability</b> Tools capability define as tool to connect end customers promptly and directly with relatively low costs and high efficiency. (Machand, Identification and Flexibility (2020); Jiv, Marr, and Kasoutakis (2009); Reed et al. (2012); Brook (2012); Fernandez (2009); Anon, Anon, Anon, and Abu Bakar (2013); Hinchliffe, and Leon (2011); Arunagani and Balasubramani (2019)	1. We have our scheme for IT standardization				/				/	
	2. We have ability to integrate IT				/				/	
	3. We understand the trend of IT				/				/	
	4. We have ability to integrate fractional requirement				/				/	
	5. We have ability to leverage information technology as strategic core competence				/				/	Banyak in house sistem telah digunakan sendiri – kapakanan staf RDMS, FIS , EKMM

5

SECTION E. LIBRARIANS' AGILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Relevant	(3) Relevant But Not Much	(4) Very Relevant	(1) Not Clear	(2) Not Clear	(3) Clear But Not Much	(4) Very Clear	
<b>Sensing Agility</b> – Sensing agility is the organizational ability to investigate and monitor events and changes in the environment (changes in customer preferences, movements of new competitors, new technologies) in good time. (Park (2011)	1. The organization has been first in terms of detecting changes that occur in customer preferences for products				/				/	
	2. The organization has been first detect changes that occur in customer preferences for products				/				/	
	3. The organization has been first to detect changes in technology			/				/		Correct : teknologi

6

SECTION F. LIBRARIANS' AGILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Sure/Not Relevant	(3) Relevant But Not Much	(4) Very Relevant	(1) Not Clear	(2) Not Sure/Not Relevant	(3) Clear But Not Much	(4) Very Clear	
<b>Decision Making Agility</b> – Decision making agility is the ability to gather, restructure, and evaluate relevant information from various sources to explain the impact of the business on time and identify opportunities and risks based on the interpretation of events. (Wagoh (2016))	1. The organization analyses important events concerning customers, competitors, and technology without any delay			✓				✓		Analisis keas / mpak program
	2. The organization detect the opportunities and threats to changes in customers, competitors, and technology in time				✓					
	3. The organization carries out a specific action plan in order to meet customer needs without any delay				✓					

7

SECTION G. LIBRARIANS' AGILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Instruction and Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Sure/Not Relevant	(3) Relevant But Not Much	(4) Very Relevant	(1) Not Clear	(2) Not Sure/Not Relevant	(3) Clear But Not Much	(4) Very Clear	
<b>Acting Agility or Practicing</b> – Acting agility or practicing is the task of action consists of a series of activities to reassemble organizational resources and modify business processes based on the working principles resulting from the decision-making task to react to changes in the environment. (Eisenhardt and Martin (2000); Wagoh (2016))	1. The organization can reconfigure its resources in the proper time				✓				✓	
	2. The organization can re-adapt operations-carried out in a timely manner				✓		✓			
	3. The organization can use new technology in the proper time				✓	✓				

8

SECTION II. RELATIONSHIP QUALITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Instruction and Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Very Relevant	(3) Relevant But Not Very Relevant	(4) Very Relevant	(1) Not Clear	(2) Not Very Clear	(3) Clear But Not Very Clear	(4) Very Clear	
<b>Relationship Trust</b> – Relationship trust is the reliability and integrity of the exchange partner. (Ongoren and Hitt, (1994); Rapp, Turner, and Aguilera (2010); Hsu, Lee, and Seo (2008))	1. Our user makes beneficial decisions to us under any circumstances			✓				✓		
	2. Our user is willing to provide assistance to us without exception			✓				✓		
	3. Our user is sincere at all times			✓			✓			
	4. We and our user have friendly relations			✓				✓		

9

SECTION I. RELATIONSHIP QUALITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Instruction and Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Very Relevant	(3) Relevant But Not Very Relevant	(4) Very Relevant	(1) Not Clear	(2) Not Very Clear	(3) Clear But Not Very Clear	(4) Very Clear	
<b>Relationship Commitment</b> – Relationship commitment is a conscious desire to maintain a special relationship. (Palmiter et al. (2006); Rapp, Turner, and Aguilera (2010); Hsu, Lee, and Seo (2008))	1. We and our user do our best to maintain the relationship				✓				✓	
	2. The relationship between us and our user is strengthened				✓				✓	
	3. We and our user always try to keep each other's promises				✓				✓	
	4. We and our user are willing to continue the relationship				✓				✓	

10

SECTION J. RELATIONSHIP QUALITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1-Strongly Disagree 2-Disagree 3-Somewhat Disagree 4-Neither Agree Nor Disagree 5- Somewhat Agree 6-Agree 7-Strongly Agree										
Construct & Operational Definition	Instruction and Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Clear	(3) Somewhat Relevant	(4) Very Relevant	(1) Not Clear	(2) Somewhat Clear	(3) Somewhat Clear	(4) Very Clear	
<b>Relationship Satisfaction</b> - Relationship satisfaction is the consumer's overall satisfaction with the relationship. (Booris et al., 2002).	1. Relatively to your competitive, how well does your library perform on customer satisfaction, customer loyalty and customer organization			✓				✓		
	2. Our company objectives are driven by customer satisfaction			✓				✓		Objektif dipengaruhi banyak faktor
	3. Our competitive advantage is based on understanding customers'			✓				✓		
	4. We frequently measure customer satisfaction				✓				✓	

11

• Overall time taken to complete the instrument:	<u>good</u>	Comments:	<u>ok</u>
• Font size recommendation:	<input checked="" type="checkbox"/> Minimal	<input type="checkbox"/> Change to bigger font size	<input type="checkbox"/> Change to smaller font size
• Language used for questionnaire:	<input type="checkbox"/> English	<input type="checkbox"/> Bahasa Malaysia	<input checked="" type="checkbox"/> Bilingual (English and Bahasa Malaysia)

BY SIGNING HERE: I verify that the above information is accurate and complete.

Nordelina Zulkarnain

7 Februari 2022

Signature:

Date:

13

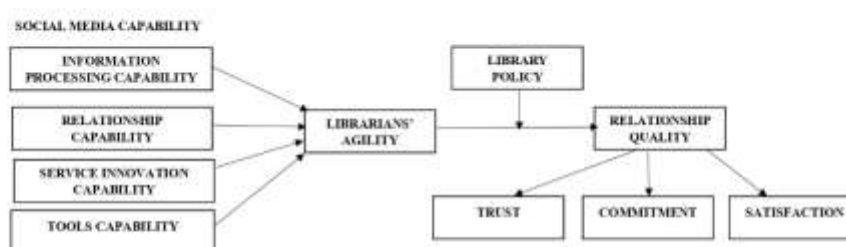
## APPENDIX 6

### Pre-test Expert Validation Feedback (Puan Noorsuzila Mohamad)

PRE TEST EXPERT VALIDATION FORM	
<b>RESEARCH TITLE: SOCIAL MEDIA CAPABILITY IN ACADEMIC LIBRARIES: INFLUENCE LIBRARIANS' AGLITY AND RELATIONSHIP QUALITY (LIBRARIAN USER)</b>	

RESEARCH OBJECTIVES	RESEARCH QUESTIONS
1. To measure the level of social media capability in academic libraries in Malaysia	What is the level of social media capability in the academic libraries in Malaysia?
2. To determine the significance effect of social media capability on librarians' agility	To what extent the social media capability has a significant effect on librarians' agility?
3. To determine the significant effect of librarians' agility on relationship quality	What is the effect of the librarians' agility on relationship quality?
4. To determine how library policy moderate the relationship between librarians' agility and relationship quality	To what extent the library policy moderates the relationship between librarians' agility and relationship quality?

Table 1: Proposed Research Objectives and Research Questions for the intended study



Theoretical Framework of the Study

1

SECTION A. SOCIAL MEDIA CAPABILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1-Strongly Disagree 2-Disagree 3-Somewhat Disagree 4-Neither Agree Nor Disagree 5- Somewhat Agree 6-Agree 7-Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Somewhat Not Relevant	(3) Relavant But Not Useful	(4) Very Relevant	(1) Not Clear	(2) Somewhat Not Clear	(3) Clear But Not Useful	(4) Very Clear	
<b>Information Processing Capability</b> - Information processing capability refers to a company's ability to source, communicate, and respond to information derived from interactions facilitated by social media. (Marchand, Fleming-Thron and Fleming (2020); Gubba, Buyya, Muresic, and Palaniyandi (2013); Udem and He (2017); Akhtar, Khan, Tariq, and Jayasudhama (2018); Chong (2020); Leskova-Spocanu, and Nastic (2007)	1. Information processing capability is useful				✓					
	2. Information processing capability is important				✓					
	3. Information processing capability is valuable				✓					
	4. Others unlikely to have similar information processing capability like others	✓					✓			
	5. We have unique information processing capability				✓				✓	

2

SECTION B. SOCIAL MEDIA CAPABILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Relevant Some Relevance	(3) Relevant But Not Much Relevance	(4) Very Relevant	(1) Not Clear	(2) Not Clear Some Relevance	(3) Clear But Not Much Relevance	(4) Very Clear	
<b>Relationship Capability</b> - Relationship capability define as connected networks that involve multiple business interactions and cooperations through different channels (Marchand, Henning-Thurns & Floerzing (2020), Traian, Andrioli, Rogg, Agrihasti (2014); Foltosa, Trif, and Tiden (2019), Zhan and Hyan (2017), Jernasti parset, Setiawan, and Setiyokil (2018), Wali and Ansh-Wali (2018); Blatti, Farhan, Almasri, and Sharif (2019), Zhan, and Hyan (2017); Kasmart, Kraf, and Hoyar (2004); Chong, Shen, and Lin (2016), Agrihasti et al.(2016)	1. We proactively review the likely effects of changes in our library environment on customers				✓				✓	
	2. We proactively generate knowledge about the changes in the market characteristics and trends				✓				✓	
	3. We continuously evaluate the technical feasibility of developing new services				✓				✓	
	4. We continuously analyse the changes in the relationship environment which can affect our library				✓				✓	
	5. We ensure that the output of our work is disseminated across the organization				✓				✓	

3

SECTION C. SOCIAL MEDIA CAPABILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Relevant Some Relevance	(3) Relevant But Not Much Relevance	(4) Very Relevant	(1) Not Clear	(2) Not Clear Some Relevance	(3) Clear But Not Much Relevance	(4) Very Clear	
<b>Service Innovation Capability</b> - Service innovation capability define as the new concept of service is being implemented or significantly improved. (Marchand, Henning-Thurns, and Floerzing (2020); Glynn (1996); Hipp and Grupp (2005); Nijssen, Hildebrand, Vermeulen, and Kemp (2006); Vargo and Lusch (2006); Miles (1995); White (2001); Berry (1983); Li et al. (2012); Liang et al. (2012); Rowley (2011)	1. Our library reduces the developing time of new products and services		✓					✓		
	2. Our library is flexible to provide products and services according to the demands of the customers			✓				✓		
	3. Our library develops in-house solutions to improve our information processes				✓				✓	
	4. Our library actively works to constantly adjust information processes				✓				✓	
	5. Our library adopts innovative work designs				✓				✓	

4

SECTION D. SOCIAL MEDIA CAPABILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Relevant	(3) Relevant But Not Much	(4) Very Relevant	(1) Not Clear	(2) Not Clear	(3) Clear But Not Much	(4) Very Clear	
<b>Tools Capability</b> Tools capability define as tool to connect end customers promptly and directly with relatively low costs and high efficiency. (Machand, Benoit, Thirion and Fleury (2020); Jiv, Marr, and Kasotakis (2009); Read et al. (2012); Brook (2012); Fernandez (2009); Anon, Anon, Anon, and Abu Bakar (2013); Hinchliffe, and Leon (2011); Arunagom and Balasubramani (2019)	1. We have our scheme for IT standardization				✓			✓		
	2. We have ability to integrate IT			✓				✓		
	3. We understand the trend of IT				✓				✓	
	4. We have ability to integrate fractional requirement				✓				✓	
	5. We have ability to leverage information technology as strategic core competence				✓				✓	

5

SECTION E. LIBRARIANS' AGILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Relevant	(3) Relevant But Not Much	(4) Very Relevant	(1) Not Clear	(2) Not Clear	(3) Clear But Not Much	(4) Very Clear	
<b>Sensing Agility</b> - Sensing agility is the organizational ability to investigate and monitor events and changes in the environment (changes in customer preferences, movements of new competitors, new technologies) in good time. (Park (2011))	1. The organization has been first in terms of detecting changes that occur in customer preferences for products				✓				✓	
	2. The organization has been first detect changes that occur in customer preferences for products				✓				✓	
	3. The organization has been first to detect changes in technology				✓				✓	

6

SECTION F. LIBRARIANS' AGILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Sure/Not Relevant	(3) Relevant But Not Much	(4) Very Relevant	(1) Not Clear	(2) Not Sure/Not Relevant	(3) Clear But Not Much	(4) Very Clear	
<b>Decision Making Agility</b> – Decision making agility is the ability to gather, restructure, and evaluate relevant information from various sources to explain the impact of the business on time and identify opportunities and risks based on the interpretation of events. (Wagoh (2016))	1. The organization analyses important events concerning customers, competitors, and technology without any delay			✓				✓		
	2. The organization detect the opportunities and threats to changes in customers, competitors, and technology in time				✓				✓	
	3. The organization carries out a specific action plan in order to meet customer needs without any delay			✓				✓		

7

SECTION G. LIBRARIANS' AGILITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Instruction and Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Sure/Not Relevant	(3) Relevant But Not Much	(4) Very Relevant	(1) Not Clear	(2) Not Sure/Not Relevant	(3) Clear But Not Much	(4) Very Clear	
<b>Acting Agility or Practicing</b> – Acting agility or practicing is the task of action consists of a series of activities to reassemble organizational resources and modify business processes based on the working principles resulting from the decision-making task to react to changes in the environment. (Eisenhardt and Martin (2000); Wagoh (2016))	1. The organization can reconfigure its resources in the proper time			✓				✓		
	2. The organization can re-adapt operations-carried out in a timely manner				✓				✓	
	3. The organization can use new technology in the proper time			✓				✓		

8

SECTION II. RELATIONSHIP QUALITY											
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number											
7 Point Likert Scale: 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree											
Construct & Operational Definition	Instruction and Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments	
		Relevancy				Clarity					
		(1) Not relevant at all	(2) Not Very Relevant	(3) Relevant But Slight Deficient	(4) Very Relevant	(1) Not Clear	(2) Not Very Clear	(3) Clear But Slight Deficient	(4) Very Clear		
<b>Relationship Trust</b> – Relationship trust is the reliability and integrity of the exchange partner. (Oforjen and Hitt, (1994); Rapp, Turner, and Aguilera (2010); Hsu, Lee, and Seo (2008))	1. Our user makes beneficial decisions to us under any circumstances			✓					✓		
	2. Our user is willing to provide assistance to us without exception			✓					✓		
	3. Our user is sincere at all times			✓					✓		
	4. We and our user have friendly relations			✓					✓		

9

SECTION I. RELATIONSHIP QUALITY											
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number											
7 Point Likert Scale: 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree											
Construct & Operational Definition	Instruction and Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments	
		Relevancy				Clarity					
		(1) Not relevant at all	(2) Not Very Relevant	(3) Relevant But Slight Deficient	(4) Very Relevant	(1) Not Clear	(2) Not Very Clear	(3) Clear But Slight Deficient	(4) Very Clear		
<b>Relationship Commitment</b> – Relationship commitment is a conscious desire to maintain a special relationship. (Palmiter et al. (2006); Rapp, Turner, and Aguilera (2010); Hsu, Lee, and Seo (2008))	1. We and our user do our best to maintain the relationship				✓					✓	
	2. The relationship between us and our user is strengthened				✓					✓	
	3. We and our user always try to keep each other's promises				✓					✓	
	4. We and our user are willing to continue the relationship				✓					✓	

10

SECTION J. RELATIONSHIP QUALITY										
Using the Scale Given, Please Indicate to What Extent You Agree on The Given Statement by Circle on The Appropriate Number										
7 Point Likert Scale: 1=Strongly Disagree 2=Disagree 3=Somewhat Disagree 4=Neither Agree Nor Disagree 5= Somewhat Agree 6=Agree 7=Strongly Agree										
Construct & Operational Definition	Instruction and Questionnaire Items	Your Assessment (Kindly tick (✓) which appropriate)								Comments
		Relevancy				Clarity				
		(1) Not relevant at all	(2) Not Relevant Some	(3) Relevant But Not Much	(4) Very Relevant	(1) Not Clear	(2) Not Very Clear	(3) Clear But Not Much	(4) Very Clear	
<b>Relationship Satisfaction</b> – Relationship satisfaction is the consumer's overall satisfaction with the relationship. (Booris et al., 2002).	1. Relatively to your competitive, how well does your library perform on customer satisfaction, customer loyalty and customer organization			✓				✓		
	2. Our company objectives are driven by customer satisfaction				✓				✓	
	3. Our competitive advantage is based on understanding customers'				✓				✓	
	4. We frequently measure customer satisfaction				✓				✓	

11

• Overall time taken to complete the instrument:	45 min	Comments:	
• Font size recommendation:	<input checked="" type="checkbox"/> Minimal	<input type="checkbox"/> Change to bigger font size	<input type="checkbox"/> Change to smaller font size
• Language used for questionnaire:	<input checked="" type="checkbox"/> English	<input type="checkbox"/> Bahasa Malaysia	<input type="checkbox"/> Bilingual (English and Bahasa Malaysia)

BY SIGNING HERE, I verify that the above information is accurate and complete.

*Neerazita*  
Signature:

20.1.2022  
Date:

13

## APPENDIX 7

### One of the Sample of Application Letter to do the Research

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UNIVERSITI  
TEKNOLOGI  
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Fakulti  
Pengurusan  
Maklumat

Rujukan Kami: 600-FPM (HEA 5/3)  
Tarikh: 2 Ogos 2022

Timbalan Ketua Pustakawan Kanan  
Perpustakaan Utama  
Universiti Malaya  
50603 Lembah Pantai  
Kuala Lumpur  
(U/P: Encik Mahbob Yusof)

Tuan/Puan,

#### MEMOHON KEBENARAN UNTUK MENJALANKAN PENYELIDIKAN

Dengan hormatnya perkara di atas adalah dirujuk.

2. Adalah dimaklumkan bahawa pelajar berikut dari Program Doktor Falsafah Pengurusan Maklumat, Fakulti Pengurusan Maklumat, UiTM Kampus Puncak Perdana, Shah Alam memohon kebenaran untuk menjalankan penyelidikan di organisasi tuan/puan.

3. Sehubungan itu, mohon kebenaran untuk pelajar tersebut mengedar soal selidik melalui pejabat tuan/puan kepada warga kerja Perpustakaan Utama, Universiti Malaya.

4. Maklumat pelajar yang terlibat dalam penyelidikan ini adalah seperti berikut:

Nama	:	Haslina Husain
No. Pelajar	:	2020445024
Bahagian	:	4 (Semester Empat)
Kod Program	:	IM950
Program	:	Doktor Falsafah Pengurusan Maklumat
Kampus	:	UiTM Kampus Puncak Perdana

5. Adalah diharapkan pihak tuan/puan dapat memberikan peluang kepada pelajar berkenaan di dalam proses penyelidikan ilmiah ini. Segala maklumat peribadi dan sulit tidak akan dinyatakan di dalam laporan pelajar itu nanti.

Kerjasama dan sokongan yang diberikan oleh pihak tuan/puan di dalam perkara ini amatlah dihargai dan didahului dengan ucapan ribuan terima kasih.

Sekian.

Fakulti Pengurusan Maklumat  
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Faks: (+603) 7962 2007  
Web: [fim.uitm.edu.my](http://fim.uitm.edu.my)



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10120156



Yang benar



Dr. Md. Khir Johari Abdullah Sani  
Timbalan Dekan/Penyelia  
b.p: Dekan

**"WAWASAN KEMAKMURAN BERSAMA 2030"**  
**"BERKHIDMAT UNTUK NEGARA"**

# APPENDIX 8

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Indexed in Clarivate Analytics WoS, and ScienceOPEN  
<https://www.amerubs.org>



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<https://im.uitm.edu.my/index.php/search/conferences/342-ics2022>



5th International Conference on Information Science  
Royale Chulan, Penang, Malaysia, 19-21 Sep 2022  
Organised by Faculty of Information Management, UTM, Malaysia

### Social Media Capabilities In Academic Libraries: Influence on librarians' agility and relationship quality (librarian-user)

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#### Abstract

This study explores the impact of social media on academic libraries, focusing on librarians' agility and relationship quality. It collected quantitative data from 30 librarians at Tun Abdul Razak Library using an online survey. The study's objectives included measuring social media capability, assessing its influence on librarian's agility and relationship quality, and examining how library policies moderate the relationship librarians' agility and relationship quality with users. The findings indicate that respondents had a high level of social media capability, which positively influenced both librarians' agility and relationship quality with users.

Keywords: academic libraries ; librarians' agility ; librarian ; social media

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DOI: <https://doi.org/10.21834/e-bj.v8iS112.5004>

#### 1.0 Introduction

Although previous studies have showed interest in social media values for organizations, there are very limited empirical studies on finding the influence of using social media on the librarians' agility and relationship quality (librarian-user). There is a gap in the past literature which is: (i) Uncertainty regarding the effects of social media capability on librarians' agility and relationship management (Becker, 2021; Mayowa & Adebare, 2018; Hassanzadeh, Saberi, & Doroudi, 2020), (ii) Incapability of social media in providing an ideal length to examine the process of value creation (Ahmadi & Ershadi, 2021) in librarians' agility led to relationship quality (librarian-user). Hence, future-ready librarians must be prepared to provide a wider range of communication materials. As a result, users will be able to communicate more effectively with the library as well as with one another and the wider outside world (Singh, 2020). According to Wan et al. (2019), with the rapid increase of smart phones, more than 86% of the people in the world have access to social media. According to the Malaysian Communication and Multimedia Commission (2020), the internet users increased 1.3% from 87.4% in 2018 and the highest places access to the internet was from home which consists of 70.5%. The top five online activities were for text communication (98.1%), social media (93.3%), watching the video (87.3%), voice/video communication (81.1%), and getting information (74.3%). The top five social networking applications recorded by Malaysian Communication and Multimedia Commission (2020) were Facebook

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DOI: <https://doi.org/10.21834/e-bj.v8iS112.5004>

29

# APPENDIX 9

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<https://ipim.uitm.edu.my/research/conference/itmahub-2023>

2<sup>nd</sup> International Conference on Information Science,  
Technology, Management, Humanities, and Business  
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## How Librarian's Social Media Capabilities Influence their Agility in Developing the Services

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### Abstract

This study developed a tool to measure social media capability's impact on librarians' agility in 20 Malaysian academic libraries. A 26-item survey gathered data from 200 librarians. Results, analyzed with SPSS and Smart-PLS, indicated strong internal reliability (Cronbach's alpha 0.787-0.945). While one hypothesis was unsupported, three others were confirmed, highlighting the significant role of social media capability in enhancing librarians' agility. The research suggests the potential for future studies in this area.

Keywords: social media platform; librarian; agility; academic libraries; networking

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### 1.0 Introduction

Social media is an important medium in today's society. The usage is increasing when the information revolution 4.0 erupts. Almost all fields of work use social media platforms for specific use. Certainly, all academic libraries today have their social media for disseminating information, communication, teaching and learning, marketing, and so on. Librarian must get along with this enhancement of social media and use it beneficially for their professionalism and their institutions. Social media capability was defined by Bolat et al. (2016) as social media skills are a recombination of organizationally learned skills, taking into account new individual skills. In the digital world today, librarians are made aware of this and they have started to embrace technologies such as social media. The majority of existing research focuses on how social media are used in libraries and librarian's or users' attitudes toward libraries that use social media.

### 2.0 Literature Review

#### 2.1 Social Media Use in Library Fields

Since the start of the 21st century, social media has fundamentally modified the marketing situation and channels in all walks of life in just over a decade. During COVID-19, numerous libraries in various countries use social media for marketing and services (Koulouris

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Haslina Husain obtained Bachelor Library and Information Science (Hons.) in 2003 from Universiti Teknologi MARA (UiTM), Selangor, Master of Information and Library Science (2007) from University of Malaya and PhD in Information Management (2024) from the Universiti Teknologi MARA (UiTM), Selangor. Her PhD thesis involves methods and theory in social media capability and librarians' agility includes relationship quality, and library policy. Currently she is working as senior librarian at University of Malaya Library.

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