

## **Factors Influencing Collaborative Information Behavior in a Digital Environment: A Study in Malaysian Public Sector**

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Received Date: 30 August 2022

Accepted Date: 21 September 2022

Published Date: 1 November 2022

**Abstract.** The increasing number of information resources and systems has resulted in too much information gathered for a specific task. To assist in getting the information sources needed, collaborated information sharing among individuals and departments is necessary to ensure the right decisions making in an organization. This study aims to address the lack of studies investigating the factors responsible for enhancing collaborative information behaviour (CIB), particularly in a digital environment in the public sector. The data was acquired via an online questionnaire as part of the survey research procedure. The survey was sent to 150 accountants in Accounting General's Department (AGD), Malaysia, through purposive sampling, which provided evidence of the significant positive influence of social influence and digital literacy in enhancing the level of CIB in the organization.

**Keywords:** Collaborative information behaviour; digital environment; social influence; digital literacy; public sector, information management, library management.

### **1 Introduction**

The rapid growth of information technologies brings people to collaborate with others more frequently when specific tasks are difficult to resolve by individuals, as it is human nature to ask for help from others (Shah, 2010). Information behaviour often relates to implementing collaborative information behaviour (CIB) in an organization, although individual information behaviour has received much more attention in the literature. According to (Preez, 2019), to achieve the organizational goal, individuals

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need to collaborate and work in a team to ensure they have the same understanding of managing the required information.

In the case of the Accounting General's Department (AGD), a segment of the public sector in Malaysia, the increasing number of information resources and systems has resulted in an information explosion as too much information is gathered simultaneously. This has created a problem that accountants must deal with. For example, data collected from the auditing department may be in another resource or system that is not fully integrated. Thus, accountants need to collect information from various departments or sources to enable them to make decision-making related to budgeting. To get the information sources required, accountants must collaborate with each other or departments to ensure they are making the right decisions for the organization.

In the digital environment of an organization, the digital workspace is a new concept that enables tech-savvy employees to access the systems and tools they need from any device, such as a smartphone, tablet, laptop, or desktop, regardless of location. It is a business mobility trend that has evolved from individual and team productivity. This has led to an actual business process transformation that stems from effective CIB among employees.

However, collaborative information seeking is still a new field, and more research has yet to be carried out by researchers to explore the (Wei, 2021). Due to the selective short literature analysis provided by researchers, it is difficult to do a systematic study of CIB as much more studies is needed to clearly define the rule for the research material selection of this field (Sapa, 2020). This disparity in research has left specific gaps in understanding factors that influence the CIB level. In the case of Malaysia, to the best of the authors' knowledge, there are yet any studies conducted to investigate the factors that could have an impact on CIB, particularly in the Malaysian public sector. As such, to enhance the understanding of the factors that would affect the level of CIB in the Malaysian public sector, this study investigates the relationship between certain factors with the level of CIB in the Malaysian ADG. This particular public sector department was selected since it has digitized its business process extensively, and the management has laid out vision and mission goals to achieve a highly digitized environment that enables effective collaborations. Below are the research questions formulated to address the research problem stated earlier. It also helps libraries provide unparalleled user experience to transform their missions and aspirations (Chuang, 2020; Nunan, et al., 2018; Khanagha, Volberda, and Oshri, 2017; Farzana, Noor Ismawati, and Sulaiman, 2015).

**RQ1:** What are the factors influencing the CIB in the Malaysian digital environment?

**RQ2:** How do these factors influence the CIB in the Malaysian digital environment?

## **2 Literature Review**

### *2.1 Collaborative Information Behaviour*

Previous literature about information-seeking behaviour has been published by researchers as early as the 1950s, but it only focused on individual information-seeking behaviour. Subsequently, more recent studies have offered more understanding of CIB (Pollock et al., 2003 & Fidel et al., 2004). When creating information searching and retrieval procedures to resolve problems, team members collaborated and discovered communication and work activities that affect the desire for collaboration when looking for information. Another study asserts that information searching, sharing, and retrieval will lead to CIB (Hansen, 2005).

In 2013, Karunakaran et al. claimed that CIB happens when a few people work together, understand the needed information, formulate it through presentation sharing amongst members, and undertake the process of searching, retrieving and sharing before putting the information found for use. The study proposes a model of CIB in organizations. In the model, CIB comprises a set of activities that occur in three phases: problem formulation, collaborative information seeking and use of information.

### *2.2 Factors Affecting Collaborative Information Behaviour*

#### *2.2.1 Vision and Goals*

A vision is a statement regarding what the organization wants to become that provides the organization's character, impression as well as the direction of the organization (Pelicano & Lacaba, 2016). At the same time, goals refer to the organization's future valued outcome, creating the feeling of success in a workplace by meeting job challenges and achieving the organization's objectives (Locke & Latham, 2006).

AGD formulates the Business Strategic Plan 2019-2023, which emphasizes collaborative effort sharing of AGD core values within AGD itself and across agencies (Accountant General's Department of Malaysia, 2019). The plan is believed to enhance the CIB in AGD as motivation by top management is seen as playing an essential role for workers to share information collaboratively. As such, the awareness and understanding of AGD vision and goals is considered to be crucial among accountants of AGD to ensure that CIB takes place in the organization (Hossain & Wigand, 2017).

#### *2.2.2 Digital Literacy*

Digital literacy refers to the capability to locate, evaluate, create and use information through digital technology, any communication tools or networks. It includes understanding how to use the information in multiple formats from various sources when presented via computers and a person's ability to perform tasks effectively, evaluate and apply new knowledge in a digital environment (Okeji et al., 2020). In other words, digital literacy is a valuable skill set for acquiring and sharing

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information and knowledge by fully utilizing the digital tools provided in a workplace.

In line with the above, becoming digitally literate is essential for public sector accountants to access information in the digital environment (Accountant General's Department of Malaysia, 2019). In addition, the inability to access required knowledge will make organizations vulnerable to knowledge loss risks due to employee turnover and the passage of time (Gray, 2006). Thus, it is believed that the digital literacy of an organization's employees is a crucial factor in ensuring that CIB activities are prevalent in the organization.

### *2.3 Models and framework for assessing social media capabilities*

Researchers have developed various models and frameworks for measuring social media capabilities. Prominent models include:

- Uses and Gratification Theory (Hossain, Kim, and Jahan, 2019)
- Social media Specific Strategic Resources & Dynamic Capabilities (Marchand, Hennig-Thurau, and Flemming, 2020)
- Dynamic Capability Approach (Chuang, 2020)

This study used the dimensions from Chuang's (2020) dynamic capability approach. This model was chosen because existing operational agility with social media has given way to a new concept of agility that is inclusive and requires figuring out how companies can achieve agility through social media. The dynamic capability approach is similar to the dynamic capability view (Hitt, Xu, and Carnes, 2016) and the resource-based view (Barney, 1991; Gorovaia and Windsperger, 2018). In this regard, the Resource-based view asserts that distinctive resources and capabilities are fundamental sources of competitive advantage.

This study adapted the dimensions under the dynamic capability approach to examine social media capability (information processing capability, relationship capability, service innovation capability and tools capability). At the same time, library policy is a moderating variable in the relationship between librarian agility and relationship quality. The results indicate that higher agility among librarians will improve relationships between librarians and library patrons.

#### *2.2.3 ICT Facilities*

ICT facilities consist of technologies such as computers, the Internet and network that is made available in an organization (Aman & Yusof, 2022; Mbhata et al., 2011). ICTs were used to support the captured information, which is storage, information retrieval and explicit knowledge distribution, and it is an effective tool in facilitating knowledge acquisition and sharing (Phang & Foong, 2010). Moreover, studies by (Fernandes, 2018) and Cepeda-Carrion et al. (2012) demonstrated that ICT positively affects knowledge access and is essential for collaborative organizational learning. ICT implementation in the Malaysian Public Sector shows tremendous and positive growth where IT is now a mandatory and integrated part of business processes in

enhancing core functions and services provided by agencies (JANM, 2019). Hence, it is posited in this study that to enable CIB among public sector accountants, the organization needs to provide ICT facilities to ensure everybody gets the information that they are supposed to get.

#### 2.2.4 Social Influence

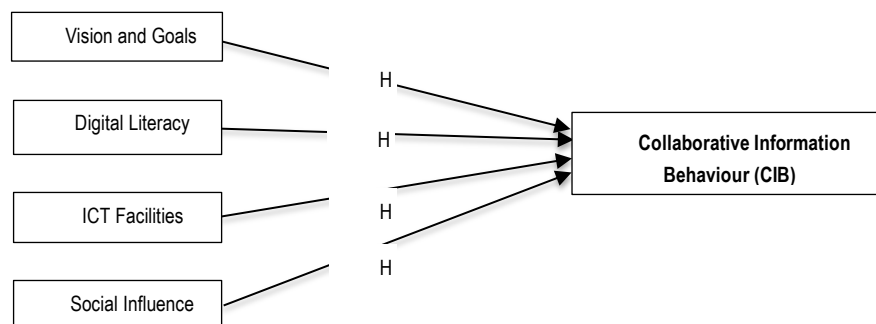
Social influence refers to an individual ascertaining the importance of other people's beliefs and whether they should use a new system or technology (Venkatesh et al., 2003). In addition, (Moussaïd et al., 2013) described that social influence is an individual process in adopting their opinion, beliefs and changes in their behaviour regarding social interactions with others. It plays a significant role in spreading ideas and the use of innovations in others.

In AGD, it is crucial that accountants enhance their services and seek new ideas through brainstorming while seeking information. In this study, it is believed that through social influence, employees will tend to use the same methods and tools to seek information in completing their tasks and resolving issues at hand. For example, suppose a supervisor is observed to be utilizing a knowledge portal to seek information to provide better service delivery and working collaboratively while utilizing technology. In that case, their subordinates will also use the same methods and tools in completing their tasks and projects.

### 3 Theoretical Framework and Hypothesis

A theoretical framework represents researchers' beliefs and their association with each other about specific phenomena, which in this case are variables or concepts (Sekaran & Bougie, 2016). The theoretical framework for this study is proposed in Figure 1 below.

Figure 1: Theoretical Framework



Based on the theoretical framework and the sections discussed above, the following hypotheses are proposed:

**H1:** Vision and Goals have a positive and significant relationship with CIB

**H2:** Digital Literacy has a positive and significant relationship with CIB

**H3:** ICT facilities have a positive and significant relationship with CIB

**H4:** Social influence has a positive and significant relationship with CIB

## 4 Research Methodology

This study used a survey research method to gather data needed to test the hypotheses presented in the research framework. A questionnaire was developed based on the measuring items of the constructs adopted from previous studies (Choo et al., 2008; Kim & Lee, 2006; Nikou et al., 2022; Salleh et al., 2012; Venkatesh et al., 2003; Wu et al., 2018). Each construct was assessed using several items in the form of statements. "Strongly agree," "agree," "undecided," "disagree," and "strongly disagree" are the five-point Likert scales connected with each item. Respondents were asked to rate their level of agreement with each statement.

The developed measuring items were submitted to two Information Systems academicians to be reviewed. As a result, several items were rephrased, while several were omitted from the questionnaire. The questionnaire was then pilot-tested by 30 potential respondents prior to collecting the research data. The questionnaire was revised based on the feedback and suggestions received during the pre-testing exercises.

The target population for the survey is all accountants in AGD. Utilizing the probability sampling method, which considers that every member of the population has an equal chance of being selected in the sample (De Vaus, 2002), the survey questionnaire was sent to all 150 accountants in AGD using MS form. This is to ensure that every accountant in AGD has an equal chance to participate in the survey. The survey received responses from 68 participants, yielding a response rate of 45.3%. Two responses were considered invalid as the answers were the same for all items and were dropped from the dataset. Statistical software, SPSS Version 24.0 and SmartPLS Version 3.0, were used to analyze the data. SPSS Version 24.0 was utilized for descriptive analysis, while SmartPLS Version 3.0 was used for partial least square structural equation modelling.

## 5 Findings

### 5.1 Descriptive Analysis

Table 1 presents the demographic details of the respondents. Of 66 respondents, 30.3% were male, while the remaining were female. 51.5% of respondents were aged between 41 to 50 years old, followed by those aged 31 to 40 (39.4%). In terms of academic qualification, (60.6%) of accountants completed their degree In Accounting,

30.3% had post-graduate qualifications, and 7.6% completed their PhD. The respondents mainly work as Principal Assistant Director (24.2%), Assistant Director (19.7%), Senior Chief Assistant Director & Senior Assistant Director (19.7%). Their working experience in current positions was 33.3% (1-5 years), 27.3% (11-15 years) and 24.2% (16-20 years).

Table 1. Demographic Profiles of Respondents

		<b>Frequency</b>	<b>Percentage</b>
Gender	Male	20	30.3
	Female	46	69.7
Age	Below 30 years old	2	3
	31 to 40 years old	26	39.4
	41 to 50 years old	34	51.5
	Above 50 years old	4	6.1
Academic Qualification	Degree in Accounting	40	60.6
	Degree in Other Disciplines	1	1.5
	Masters	20	30.3
	PhD	5	7.6
Current Position	Deputy Director	9	13.6
	Senior Chief Assistant Director	13	19.7
	Principal Assistant Director	16	24.2
	Senior Assistant Director	13	19.7
	Assistant Director	15	22.7
Working Experience in current position	1 - 5 years	22	33.3
	6 - 10 years	10	15.2
	11 - 15 years	18	27.3
	16 – 20 years	16	24.2

5.2 Reliability, Convergent and Discriminant Validity Assessment

Table 2 shows that the Cronbach Alpha values for all constructs were substantially above 0.7, indicating that the questionnaire was acceptable in terms of reliability. Factor loadings for several items were found to be below 0.5 (three items); thus, they were dropped from the data analysis. The factor loadings for all other items are well above 0.5, while the composite reliability and average variance extracted (AVE) are above 0.7 and 0.5, respectively. These values suggest that the instrument has fulfilled the convergent validity requirements.

Table 2: Cronbach Alpha, Composite Reliability and AVE values

	<b>Cronbach's Alpha</b>	<b>Composite Reliability</b>	<b>AVE</b>
CIB	0.828	0.879	0.594
Digital Literacy	0.765	0.862	0.677
ICT Facilities	0.852	0.899	0.690
Social Influence	0.881	0.918	0.736
Vision and Goals	0.923	0.942	0.766

The discriminant validity of the instrument was ascertained using the (Fornell & Larcker, 1981) criteria. According to (Hair et al., 2017), discriminant validity can be assumed when the square root of the AVE of the construct surpasses the correlation value between constructs. As shown in Table 3, this requirement is also met, suggesting no discriminant validity issue.

Table 3: Discriminant Validity

	<b>CIB</b>	<b>Digital Literacy</b>	<b>ICT Facilities</b>	<b>Social Influence</b>	<b>Vision and Goals</b>
CIB	<b>0.771</b>				
Digital Literacy	0.597	<b>0.823</b>			
ICT Facilities	0.540	0.664	<b>0.831</b>		
Social Influence	0.667	0.417	0.470	<b>0.858</b>	
Vision and Goals	0.411	0.632	0.773	0.316	<b>0.875</b>

5.3 Hypotheses testing

The structural model is assessed using SmartPLS software to test the hypotheses, and the results are summarized in Table 4. The path coefficient values of the



relationships between the independent variables and CIB, the directions of the actual effects, and the significance levels of the relationships are summarized in the table.

Table 4: Hypotheses testing results

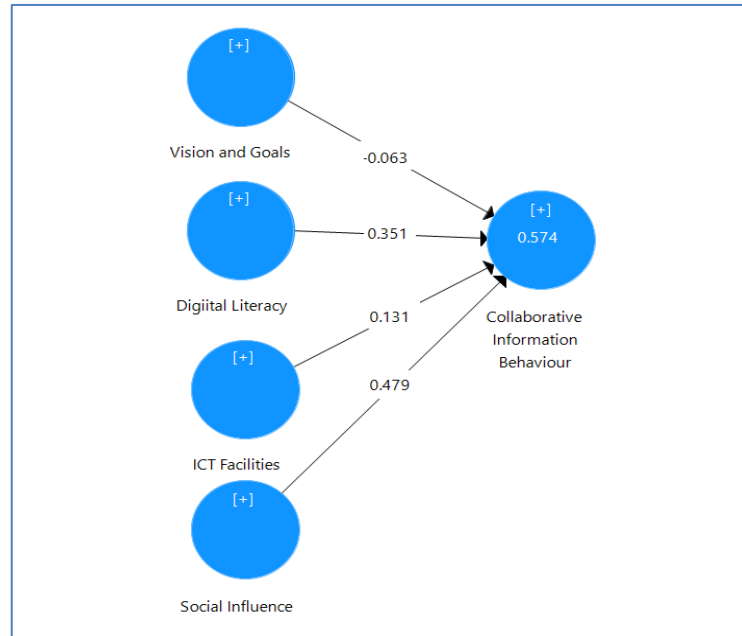
Hypothesis	Actual Effect	Path Coefficient	Observed T-statistics	Significance level
H1: Vision and Goals -> CIB	-	-0.063	0.411	Not significant
H2: Digital Literacy -> CIB	+	0.351	2.219	0.01
H3: ICT Facilities -> CIB	+	0.131	0.893	Not significant
H4: Social Influence -> CIB	+	0.479	5.995	0.01

#### 5.4 Measurement Model Assessment

The results of the bootstrap output of the measurement model were extracted and displayed in Figure 2. The predictive relevance of  $R^2$  is found to be relatively high and significant. The  $R^2$  value of 0.574 indicates a strong explanation of the variance in CIB caused by digital literacy and social influence constructs. Using the inverse square root method suggested by Kock & Hadaya (2018), a path coefficient with a minimum absolute magnitude of 0.35 would require a minimum sample size of 51 for data analysis using PLS-SEM. Thus, the 66 datasets collected for this study have met the minimum sample size requirement. The SRMR value is the difference between the observed correlation and the model implied correlation matrix. A value less than 0.10 or of 0.08 (Hu & Bentler, 1999) are considered a good fit. Thus, the SRMR value of 0.095 obtained from the bootstrap output indicates that the model is regarded as a good fit.

Figure 2. Measurement Model Bootstrap Output

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## 6 Discussion

The aim of the study has been to identify and examine the relationship between several factors with CIB in a digital environment in the public sector. The findings have shown that the relationships between digital literacy and social influence are significantly positive with CIB. Meanwhile, no significant associations are found between ICT facilities and vision and goals with CIB. The findings are also quite comparable to previous studies (Gray 2006 and Moussaïd et al., 2013). The results suggest that digital literacy and social influence positively influence the CIB level in AGD, with the latter construct having a slightly higher positive effect on the level of CIB.

The study's findings reveal that a more important inducer of CIB is the social influence amongst employees rather than ICT facilities. This sends a strong message to the public sector management that they should emphasize implementing exercises that could enhance the social influence factor by encouraging employees to become more willing to impart their knowledge to others collaboratively.

In addition to encouraging employees to share knowledge collaboratively, the next significant factor influencing CIB, digital literacy, confirms the importance of equipping employees with the technical know-how to locate, evaluate, create and use the information through the usage of digital technology. The more skilled the employees in using digital technology, the higher the chance they will use it to support their collaborative search and sharing of knowledge.

Finally, vision and goals were found to have an insignificant negative effect on CIB. This signifies that the vision and goals formulated by the management are incapable of inducing CIB in the employees. What could also be construed from this finding is that the vision and goals promoted by the management might need to be revisited to create a more precise desired effect on CIB.

## 7 Conclusion

Motivated by the scarcity of studies investigating the factors responsible for enhancing the level of CIB in a digital environment, particularly in the public sector, this study has attempted to address this gap. While its objective has been successfully achieved, it is also subject to several limitations. Firstly, the study focused only on AGD, which means that more studies need to be conducted in other public department offices to enable the findings to be validated and generalized to the public sector in general. To this effect, this suggests that future research can further replicate this study with attention given to investigating CIB in other types of professions in the public sector. Secondly, a qualitative study might be warranted to investigate the initiatives needed to be implemented by the public sector to nurture the precise social influence that is highly influencing CIB, according to this study.

various libraries, including private and speciality libraries.

## Acknowledgements

This research was sponsored by Institute of Graduate Studies (IPsIs) through Journal Support Fund (JSF) 2022. The registration fees is funded by Pembiayaan Yuran Prosiding Berindeks (PYPB), Tabung Dana Kecemerlangan Pendidikan (DKP), Universiti Teknologi MARA (UiTM), Malaysia.

## Paper Contribution to Related Field of Study

This research paper contributes to the field of Library and Information Management.

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