

UNIVERSITI TEKNOLOGI MARA

**ASSESSING THE RELATIONSHIP
BETWEEN TECHNOLOGY,
ORGANIZATION, ENVIRONMENT
AS FACTORS FOR BIG DATA
ADOPTION AND
ORGANIZATIONAL IMPACT IN
MALAYSIA'S GOVERNMENT
LINKED AGENCIES**

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

**College of Computing, Informatics and
Mathematics**

July 2023

ABSTRACT

Big Data Adoption (BDA) is has been found to be effective in increasing the capacity of Malaysia's Government-Linked Agencies (GLAs) since it offers better opportunities to be competitive through its insights. Even though data analytics are increasingly used by government and public sectors and around the world to enable decision process, however limited attention has been given from the research perspective and matter how it has been implemented in the Government-Linked Agencies, specifically in Malaysia. Started with massive data generated from various process from business activities, BD has great potential to exploit. BD have unique characteristics which able to transform at a lowest cost, reassure organization to gain significant meaning, valuable insights with the existing IT infrastructure in everyday operations. To date, Malaysia's GLAs have yet to explore effective ways to better understand factors to adopt BD. Despite the imperative of such technologies and their global reach, they are still in their nascent stages in Malaysia and there is little research on discovering the BDA specifically by GLAs. The problem addressed in this study is lack of strategies available to support the implementation. Hence, this study addresses this gap and investigates potential factors influencing BDA and OI in this context. Mainly, this study proposed a research model based on combining Technology, Organization, Environment (TOE) framework, Diffusion of Innovation (DOI) theory and Innovation of Diffusion Theory (IDT). The research model was developed through the factors identified by a comprehensive literature review. Six hypotheses were developed and the significance of the relationships between the factors was investigated using quantitative approach. This study involved three phases of data collection methods, namely pre-testing and validity and reliability of instruments, pilot study and actual survey. This study covers Malaysia's GLAs under Federal Ministries in Putrajaya in which from 186 agencies, 134 questionnaires are answered. Questionnaire containing five sections were used to collect and analyze the data. A total of 138 questionnaires were collected and only 134 were analyzed using SPSS and Smart-PLS software. Basically, from the research questions this study gives clear understanding on the level of BDA in Malaysia's GLAs, TOE determinants factors and the relationship between them as well as OI. The data resulted that TOE factors influence for BDA and gives OI in this setting. Finding shows all the hypotheses are accepted. The result also shows Compatibility ($\beta=0.90$, p-value=0.00), Relative Advantage ($\beta=0.849$, p-value=0.00), Security and Privacy ($\beta=0.885$, p-value=0.00), Financial Readiness ($\beta=0.903$, p-value=0.00), Firm Size ($\beta=0.871$, p-value=0.00), Skill ($\beta=0.395$, p-value=0.00), Top Management Support ($\beta=0.823$, p-value=0.00), Competitive Pressure ($\beta=0.917$, p-value=0.00), Government Support ($\beta=0.86$, p-value=0.00) and Market Turbulence ($\beta=0.893$, p-value=0.00) were all had significant factors for BDA in Malaysia's GLAs. The result of the study has contributed to the development of the research model and theory of BDA, especially in Government-Linked Agencies. The GLAs get better understanding in the importance aspects to optimize the technology for the great impact from BD initiatives.

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