
Muhammad Modi Lakulu¹, A.A. Zaidan², Haslina Hassan³, Amalia Baharuddin⁴, Masitha Omar⁵

¹,²,³,⁴,⁵Sultan Idris Education University, Malaysia
modi@fiskik.upsi.edu.my¹

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Abstract: This paper discusses the findings of a review on the current literature of the features of the Management Information System (MIS) that can help workers of organizations to provide essential services from home during the Movement Control Order (MCO) in Malaysia. The findings of the review suggest that a sound MIS must have the necessary features to support reliable services from the standpoint of flexibility, efficiency, robustness, and security to ensure users can be served promptly and uninterruptedly. To help realize such services, organizations must repurpose the functionalities of such systems to support work from home that provide users with accurate, up-to-date information at all time and any place.

Keywords: Features, management information system, organizations, pandemic, work from home

1. Introduction

Over the years, the level of sophistication or complexity of many governmental services has evolved from being traditional to fully electronic, which is accompanied by improved reliability, efficiency, and effectiveness. Today, all developed countries have adopted electronic governments to facilitate information transfer among users with greater ease and flexibility, thus underscoring their ability of such governments in delivering reliable, improved services (Azeez & Lakulu, 2019). Sadly, in the early months of 2020, the World has been plagued with a serious COVID-19 pandemic that has cost many lives. Therefore, to control the spread of the virus, the Malaysian government has implemented Movement Control Order (MCO), which at the time of writing has entered its fifth phase from March 18, 2020 to June 9, 2020, effectively closing many public and private agencies and departments, including learning institutions, such as schools, colleges, universities, and training centers nationwide. Through the enforcement of MCO, virtually all governmental and private organizations have to close, except those providing essential services, such as water, electricity, telecommunications, postal, transportation, finance, broadcasting, health, safety, retail, and food supply.

To minimize economic losses, employers should take the initiative to continue operating from home due to the closure of their premises. In this regard, they can begin experimenting with available new technologies to remain operational by having their employees work from home. However, taking such a bold measure entails the employers to ask a pertinent question: “What are the essential features of an MIS needed in an organization to support workers to work from home?”

Admittedly, most nations in the world, Malaysia included, are not fully prepared to deal with such a devastating pandemic. Now, almost all nations have introduced new norms in all spheres of people’s lives. For example, some sections of society have been forced to work from their homes due to the movement restrictions. In the educational realm, most Malaysian public universities have been struggling to continue providing the essential services to the public as their Management Information Systems (MISs) are not fully flexible to deal with such a scenario. Ideally, such systems should be able to help all categories of users to perform their tasks transcending physical and temporal barriers.

Surely, with such capability, Malaysian universities can render uninterrupted services to their clientele to perform their daily job routines. As acknowledged, the success of an electronic government system depends on a myriad of factors that need to be carefully considered in every phase of its implementation (DeLone & McLean, 1992). Being a new concept, the development of electronic governments has not yet reached a mature process (Ikhlas Fuad, Z. &M. Mahmud, 2011).

The remaining sections of this paper are organized as follows. The second section discusses the findings of related studies on Management Information Systems. Then, the third section elaborates on the methodology of the study by focusing on recent features of such systems. Lastly, the fourth section concludes the study.

2. Related Works
In general, information system management is a computerized database that organizes, summarizes, and analyzes any type of information useful to corporate managers. As a financial-linked system, it involves the process of collecting, processing, storing, and transmitting relevant information to support the management operations in any organization (Hakimpoor & Khariradi, 2018). As such, the management information system is one of the most important tools in any organization to provide reliable, accessible, and understandable information promptly to users (Mary & Ph, 2018). Lately, information system technology has become an important tool to achieve greater efficiency and productivity.

Saini (2012) states that an MIS is basically a software tool which gives a holistic report of processed information to help the management of an organization to make important decisions. Effectively, such a system provides information that is needed to manage organizations efficiently and effectively. For this to materialize, an organized approach is entailed to ensure an MIS can provide relevant, timely information on which managerial decisions are based. The first characteristic of an MIS in the current business model is operational excellence, which is the improvement of efficiency to attain higher profitability.

Over recent years, studies on the use of MIS have gained strong traction that focuses on how individuals, groups, and organizations evaluate, design, implement, manage, and utilize such a system to generate information to improve efficiency and effectiveness of decision making, including systems that are referred to as decision-support systems, expert systems, and executive information systems. For example, Yousef El-Ebiary et al. (2018) carried out a study on the effectiveness of the implementation of an MIS at Al-Madinah International University (MEDIU) in Malaysia, highlighting its benefits and challenges faced by the institution. From the security standpoint, Soomro, Shah, and Ahmed, (2016) assert that issues related to information security should be taken into account in the implementation of such a complex information system in an organization. Such recommendations raised the interest of the authors to review the existing literature regarding the important role of an MIS in information security.

3. Methodology

This study was based on a review of several selected studies reported in the current literature by focusing on the characteristics and features of the management information system to support working from home.

Features of Information Management System

Information Management System (IMS) and Management Information System (MIS) are interchangeably used to refer to a computer-based system to help organizations to evaluate and organize data for their organizational operations. For an IMS to work effectively, it must support several types of software services that work tightly together to ensure data can be searched and organized as needed. Ideally, an effective IMS should be flexible, user-friendly, versatile, and highly efficient, thus requiring a host of software tools, such as content management, document management, records management, digital asset management, and learning management systems.

The advent of computer technology has revolutionized all business processes that virtually eliminates the use of papers. In this regard, the electronic document management has made it easier for all business operations to be carried out automatically and digitally. Essential, the electronic document management refers to a computerized system that facilitates the creation, capture, organization, storage, retrieval, manipulation, and controlled circulation of documents in the electronic format (Farik et al., 2015). According to (Khairymustaffa & Kittanah, 2016), the use of electronic document management can significantly help organizations to organize their data efficiently and effectively, such as information indexing, archiving, summary, search, and retrieval, which leads to better organizational operations.

From the monitoring perspective, Phillips, (2013) states that the first management practice is to accurately observe IT performance and give the management an additional tool for decision making. In this respect, the more IT-related processes that an organization can monitor, the more likely that the best practices and deficiencies in IT management can be identified. Thus, IT values can be derived from properly managed systems and processes revolving around the information systems portfolio. Also, strategic planning for IT functionalities is a critical organizational activity that must bring together the business and IT perspectives to create high-performing systems that serve the business. Effectively, a strong synergy between IT strategic planning and business strategic planning can help realize high IT values.
According to Maican & Lixandroiu (2016), for an ECM suite to be effective, it must have the following components:


- Image-processing applications: document capture (scanning hardware and software, optical and intelligent character recognition technologies and form-processing technology) with the ability to store images of scanned documents in the repository as a regular content type in a folder and to route them through an electronic process.

- Workflow/business process management (bpm): document review and approval workflow, often including graphical process builders and serial and parallel routing.

- Records management: The long-term retention of content through automation and policies to ensure legal, regulatory, and industry compliance and to enforce the retention of critical business documents based on a records retention schedule.

- Web content management: content creation functions, such as templates, workflow, and change management and content deployment functions that deliver pre-packaged or on-demand content to web servers.

- Social content: document sharing, collaboration, knowledge management, and project team support. Blogs, wikis, and support for other online interactions are also important components. Social content, including video, is the fastest-growing category of new content in the enterprise.

- Extended components: document composition, e-forms, search, content and analytics, email and information archiving, email management, and packaged application integration.

On the other hand, the findings of a study carried out by (Azeez & Lakulu, 2018) suggest that the success of m-government services can be evaluated based on 8 critical features, namely system quality, information quality, service quality, citizen’s use or usefulness, citizen’s satisfaction, citizen’s trust, perceived m-government service quality, and perceived effectiveness of m-government services to support m-government services.

- System Quality - The quality of processing the same information system, which usually includes software and data components, and of measuring the extent of technical correctness of the system. The model considers system quality to be the main dimension that represents the desirable characteristics of IS (DeLone & McLean, 1992).

- Information Quality - In the context of m-government, information quality refers to the quality of information related to government activities based on several measures, such as accuracy, timeliness, relevance, precision, and completeness. Information quality is primarily concerned with issues relating to relevance, timeliness, and the accuracy of the information generated by an information system (Delone & McLean, 2003, Wang & Lin, 2012).

- Service Quality - The service quality of mobile government service is an important factor in measuring citizen’s satisfaction. Service quality is one of the major constituents of m-government that has a direct impact on its service quality (Olatokun & Ojo, 2016).

- Citizen’s Use or Usefulness - In the context of the evaluation of the success of m-government, the term “citizen’s use” or “usefulness” refers to the positive experience of citizens in using m-government service. Citizen’s positive experiences affect “usefulness” and “citizen’s satisfaction” of m-government service.

- Citizen’s Satisfaction - In the context of the present study, the term “citizen” is used instead of “user” as the former is related to m-government, with citizens performing the transactions.

- Citizen’s Trust - In the context of the mobile government, confidence plays a very important role in the use of a mobile government portal, the lack of which may prompt citizens to use the traditional means of communication with the government. Hence, the citizen’s trust is one of the key indicators of the success of mobile government services (Özer, Argan, & Argan, 2013).
• Perceived m-Government Service Quality: Perceived m-government service quality in the present study is considered as the overall quality of m-government services.

• Perceived Effectiveness of m-Government Services: For the evaluation of the success of m-government services, “perceived effectiveness” is conceptualized as a measure of assessing the success of m-government services. In the present study, DeLone and McLean’s (2003) model is used to measure the IS success by using “Net Benefits” as the principal variable.

Thus, to ensure the successful implementation of government services, it is important to first identify the critical success factors as seen from the government's point of view and then to take into account such factors when delivering such services, which is, admittedly, extremely challenging. In this regard, an initial picture of factors that significantly contribute to the success of m-government agencies can serve as a basic guide to propose a more comprehensive, appropriate model to measure the successful implementation of government services from a governmental perspective (Azeez & Lakulu, 2019). Based on a critical review of the current literature, several factors have been identified to be highly critical based on the ratings of their importance in measuring the success of m-government services as follows. The security factor was deemed the most important factor followed by the technical factor, with both attaining the percentage points of 73% and 46%, respectively. At distant third was the cost factor, registering a percentage point of 40%. Factors relating to acceptance, access, privacy, and infrastructure were rated less critical, with each attaining a percentage point of 20%.

In addition, several studies have been carried out to examine other success factors of the implementation of the mobile government, revealing that the percentage-point rating of regulatory, standard, and organizational factors was 27%. Tailing closely were the factors relating to social, awareness, strategy, and IT literacy, which stood at 20%. In contrast, the factors relating to education, leadership, legal issues, partnerships, transparency, trust, user need, and learning were lowly rated, which only managed to garner a percentage point of 13%. Likewise, the remaining factors relating to centralization, involvement, M-G framework, portals, quality, soft skills, and usability were rated extremely lowly, only attaining a percentage point of 7% (Azeez & Lakulu, 2019).

More revealingly, other research findings have indicated that several independent variables, such as IT infrastructure, security, trust and privacy, IT skills, the challenges in organizational coordination, and the knowledge of operating standards, protocols, and operating frameworks, play an important role in the smooth transition from e-government to m-government (Alharmoodi, Lakulu, 2020). Furthermore, emerging evidence has underscored the importance of monitoring as one of the success factors of software development, the failure of which can lead to a myriad of problems, such as poor quality software, inflated budget, and the non-fulfillment of user requirements (Ahmad, Ubaidullah, Lakulu, 2014).

4. Conclusion

To contain the Covid-19 pandemic, virtually all nations across the globe have enforced partial and full lockdowns, forcing citizens to remain at home. Consequently, many workers have no other alternatives but to continue working from home. Staying focused and productive in the new, unfamiliar working environments are highly challenging, entailing workers to be highly steadfast, disciplined, and resourceful. To help workers remain connected, they can use a wide spectrum of communication technologies, such as Zoom, Google Meet, Google Drive, and WhatsApp, to continue working from home with the same efficacy. In particular, governmental agencies, including universities, must continue to offer uninterrupted services to users. To help realize the efficient delivery of services, such agencies have to rely on their management information systems to deal with users’ needs. However, such systems must have features that can help organizations to manage information or data not only efficiently but also securely. In short, the management information systems put in place must be flexibly robust to operate in any conditions, such as those arising from the Covid-19 pandemic.

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