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INVESTIGATING THE ANTECEDENTS OF ENTERPRISE CONTENT MANAGEMENT SYSTEM (ECMS) BENEFITS

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Abstract

Enterprise Content Management System (ECMS) was introduced to help organizations manage their contents. In current business environment, possessing large chunks of unstructured contents prevents organizations from achieving benefits from the use of an Information System (IS). Although beneficial, the voices from academics and practitioners seem contradicting with ECMS vendors; particularly relating to benefits achievement. Therefore, the purpose of this study is to investigate the antecedents driving the achievement of ECMS benefits. Grounded on the literature of ECMS and Enterprise Resource Planning (ERP), several antecedents are identified. These antecedents are categorized into three categories; technological, organizational, and environmental. Subsequently, potential research gaps were identified and future works are outlined.

Keywords: content management, enterprise content management, enterprise content management system, benefits realization, antecedents.

1.0 INTRODUCTION

Enterprise Content Management System (ECMS) is the integration of strategies, tools (technologies), processes, contents, and people for managing all types of organization digital information asset in various forms (structured, semi-structured, and unstructured) throughout its entire lifecycle (create, manage, store, publish, retrieve, utilize, preserve and dispose). Having spanned a period of 25 years, the study on ECMS has received less focus due to difficulties to set solid research foundation (Arshad, Bosua, & Milton, 2010; Rickenberg, Neumann, Hohler, & Breitner, 2012).

ECMS is becoming important because of several reasons. Firstly, organizations are facing a crucial phenomenon known as 'content chaos' that leads to the inability to find relevant content within enterprise repository (Long, 2015; Mancini, 2014). Secondly, organizations are facing a problem of managing large volumes of unstructured contents in an excess of 71 Exabytes of data in 2015 (Nadkarni & Yezhkova, 2014). Possessing unstructured data reduces organizations' capability to achieve greater benefits from the implementation of information system (IS).

Although investment into ECMS technologies have shown an upward trends from 2009 to 2014, a survey conducted by the Association for Information and Image Management (AIIM) showed that only 16 percent from 586 respondents have completed enterprise-wide implementation of ECMS technologies (Miles, 2010). Based on market analysis of more than 20 years, the failure rate of ECMS implementation was at a staggering value of 50 percent and only half of the remaining 50 percent actually provided value to organizations (Severson, 2014). This is supported by the claims that there are lack of evidences that ECMS contributed to the improvement of business process and organizational efficiency (Andersen, 2007; McGovern, 2004; Salamntu & Seymour, 2014).

Acknowledging the failure of organizations to achieve benefits from the use of ECMS (Andersen, 2007; Arshad, Bosua, & Milton, 2012; Munkvold, Päivärinta, Hodne, & Stangeland, 2006; Salamntu & Seymour, 2014), several researchers suggest that studying the antecedents that drive these benefits may explain why certain benefits may or may not occur (Davenport, Harris, & Cantrell, 2004; Gattiker & Goodhue, 2005). Some organizations reported great success with the implementation of IS, while others reported failures in achieving any benefits from the use of IS. The difference in the outcome shows that there is a need to identify the antecedents that lead into the achievement of benefits. Therefore, the focal issue addressed in this paper is what are the antecedents of ECMS benefits.

The outcomes of the analytical review of the paper are as follows. Firstly, the antecedents that drive benefits from the perspectives of ECMS and Enterprise System (ES) were identified. Secondly, these antecedents were categorized into three perspectives: technological, organizational, and environmental. Thirdly, the potential research gaps for future study were identified.

In the following section, a brief literature review of research concerning the antecedents that drive benefits was discussed. Next, the antecedents of benefits based on literature of ECMS and ERP were identified and clasified into three categories; technological, organizational, and environmental. Then, a research model was proposed for further exploration of the topic. Finally, the paper was concluded with a few number of study limitations was outlined.

2.0 BACKGROUND/LITERATURE REVIEW

Some organizations are very successful in their implementation process, while others failed. Each organization that implements new technology (i.e. ECMS) is drawn by the benefits of the systems, but there are some companies reporting great success while some other reported that it does not bring anything to the organization. Therefore, Gattiker and Goodhue (2005) suggest that recognizing the antecedents that drive those benefits in implementing Enterprise System (ES) can help organizations to understand why certain benefits may or may not occur. Moreover, studying the pathway of benefits achievement can help organization to predict potential benefits, thus they could focus their effort into maximizing their potential benefits. An analysis of the literature showed that the post-implementation stage had been largely neglected in the context of ES implementation (Zhu, Li, Wang, & Chen, 2010), therefore it is not a major surprise why organization failed to recognize the benefits of ECMS. Previous studies have shown that most benefits actually occur at least a year after the implementation and some companies must also be prepared to face a performance dip as they are getting used with the new systems (Shang & Seddon, 2002). Hence, it is apparent that the actual benefits of implementation can only be seen during the post-implementation stage (Hong & Kim, 2002; Shang & Seddon, 2002; Zhu et al., 2010).

From the perspective of ECMS, Grahlmann, Helms, Hilhorst, Brinkkemper, and van Amerongen (2012) introduced a potential impact of implementing ECMS that predict benefits from ECMS, ERP, Enterprise System (ES), and general IS literature. The authors suggest that: (1) ECMS benefits were influenced by ECMS functionalities and ECMS supported business process, (2) ECMS can change the nature of ECMS supported business process and (3) ECMS process must align with the nature of organization business process. Similarly, Allotey and Ojeabulu (2011) suggest that organization may gain benefits through proper management of ECMS architecture (i.e. document management, web content management, document imaging, etc.).

From the perspective of Enterprise Resource Planning (ERP), several researchers have conducted the research on benefits (Davenport et al., 2004; Gattiker & Goodhue, 2005; Hong & Kim, 2002; Seddon, Calvert, & Yang, 2010; Zhu et al., 2010). For example, Gattiker and Goodhue (2005) suggested that studying the pathway of benefits-driver and benefits achievement can help to explain whether information system does or does not help organization achieve their objectives. Davenport et al. (2004) which conducted an investigation on how organizations were dealing with business process change, suggested that integration, optimize, and informate positively influence benefit realization. On the other hand, Seddon et al. (2010) proposed a model called Organizational Benefits from Enterprise System (OBES) consisting of short-term and long-term model. The authors suggestted that once a system has gone live, two factors that drive organization benefits are functional fit and overcoming organization inertia (OOI).

At first glance, it seems that many studies have addressed the issues surrounding the antecedents that drive benefits, however, critical analysis of ECMS and ERP literature have shown that there is an inadequacy that should be addressed. Previous studies did not mention the relationship between these antecedents and benefits achievement. Therefore, there is an in-adequacy of knowledge on the relationship between the antecedents and the ECMS benefits that organizations can achieve by focusing on that antecedent. Previous researches (Allotey & Ojeabulu, 2011; Davenport et al., 2004; Gattiker & Goodhue, 2005; Grahlmann et al., 2012; Hong & Kim, 2002; Nordheim & Paivarinta, 2006; Seddon et al., 2010; Zhu et al., 2010) did not mention what antecedent lead to what kind of benefits achievement. Previous studies generalized benefits into single construct, such as potential impacts of implementing ECMS (Grahlmann et al., 2012), post-implementation success of ERP (Zhu et al., 2010), benefits realized (Davenport et al., 2004), and business benefits from ERP systems (Staehr, Shanks, & Seddon, 2012). Each of the studies generally mentioned the benefits that organization can gain through the use of IS but did not explicitly draw a relationship between the antecedents and specific benefit achievement.

3.0 CATEGORIZING BENEFIT DRIVERS

Benefit drivers are the factors that drive achievement of value and leverage one of organizations' most underutilized asset, which is information (Davenport et al., 2004). Organizations that implement new technology (i.e. ECMS) are motivated by the expected benefits of the systems, but there are some organizations who reported a great success while some others reported that it does not bring anything.

Grounded on the literature of ECMS and ERP, this study identifies list of benefit drivers (antecedents) that lead into achievement of benefits. A systematic literature review (SLR) was adopted. A total of 139 articles related to ECMS and ERP were reviewed; papers were classified and coded into themes. Subsequently, this

study identifies three themes and classifies the drivers (antecedents) into these three categories; technological, organizational, and environmental. The following table shows the list of benefit drivers:

Table 1 Categories of Benefit Drivers

Category	Driver	Selected Literature
Technological	Implementation quality	Zhu et al. (2010)
	Efficient and effective use of IS	Staehr et al. (2012)
	Integration	Gattiker and Goodhue (2005), Davenport et al. (2004), Seddon et al. (2010)
	Functionalities of IS	Grahlmann et al. (2012), Allotey and Ojeabulu (2011)
Organizational	Functional Fit	Hong and Kim (2002), Seddon et al. (2010), Wiltzius, Simons, Seidel, and vom Brocke (2014)
	Overcoming organization inertia	Seddon et al. (2010)
	Organizational readiness	Zhu et al. (2010), Hong and Kim (2002), Wiltzius et al. (2014)
	Informate	Davenport et al. (2004), Seddon et al. (2010)
	Optimize	Davenport et al. (2004), Hong and Kim (2002), Seddon et al. (2010), Staehr et al. (2012)
Environmental	Corporate culture	Wiltzius et al. (2014)

4.0 FINDINGS SUMMARY

In overall, 10 benefit drivers were identified from the literature. These drivers are categorized into three categories; technological, organizational, and environmental:

4.1 Technological

Technological aspect relates to the internal and external technologies that are relevant to the organization (Tornatzky, Fleischer, & K. Chakrabarti, 1990). Organization implements information system due to functionalities provided by such system, such as improvement of business process using best practices. Four drivers are identified under this category:

4.1.1 Implementation quality

Implementation of ERP should be well managed within planned budget and time while at the same time maintaining the consistency of ERP functionality throughout its lifecycle (Zhu et al., 2010). It also enables integration of separate business process, information sharing between departments and improvement of task using industry best practices. Moreover, a sound system configuration and project enables to reduce the probability of re-implementation due to implementation failure, thus leading into higher cost-reduction.

4.1.2 Efficient and effective use of IS

Encourage users to make more efficient use of IS such as assisting decision-making, understanding data quality and preventing manual workarounds (Staehr et al., 2012). Efficient and effective use of systems enable productivity improvement and task efficiency. Lack of basic IT skills may influence achievement of

operational benefits. Users must be aware on the importance of data quality and preventing manual workaround while using the information system.

4.1.3 Integration

Unifying and harmonizing their ES, data and processes with an organization's unique environment, and using the systems to better connect organizational units and processes, as well as customers and suppliers (Davenport et al., 2004). Integration enables integration of data and business processes to achieve higher visibility and accuracy of information system (Seddon et al., 2010). Accessing a single application reduces employees' workload and helps to improve decision-making process. Moreover it helps to speed up communication and reduce operating cost (Davenport et al., 2004).

4.1.4 Functionalities of IS

Combination of separate systems such as document management, record management, web content management and workflow management offered wide range of functionalities to organization (Allotey & Ojeabulu, 2011; Grahlmann et al., 2012). ECMS functionalities support day-to-day business process (operational) such as data entry, invoice management, etc. Furthermore, adopting ECMS also contributes to greater cost reduction and better return-on-investment (Rickenberg et al., 2012).

4.2 Organizational

Organizational aspect refers to the issues surrounding organizational perspective in implementing information system. This includes organization resources, size, department characteristic, structure and human resources (Tornatzky et al., 1990). Five drivers are identified under this category:

4.2.1 Functional fit

Functional fit is the extent to which functional capabilities of organization matched organization needs, so that they can work effectively and efficiently (Seddon et al., 2010). Organization invests in information system for their functionality. Greater functional fit leads to greater operational benefits such as integration, task efficiency, and customization. To improve the achievement of operational benefits, employees must be motivated to learn and use the information system.

4.2.2 Overcoming Organization Inertia (OOI)

This is the extent to which organization community have been motivated to learn, use and accept the new system (Seddon et al., 2010). Overcoming organization inertia leads to greater achievement of task efficiency.

4.2.3 Organization Readiness

A sound and thorough preparation involving top leader involvement and organization fit ensures implementation success (Zhu et al., 2010). Organization must make necessary preparation for the assimilation of the new system. It can be accomplished through proper management of organization resources and matching the new system with the organization's unique characteristics.

4.2.4 Informate

Leverage value from organization content. Information is analyzed and used to transform business process and work (Davenport et al., 2004). The use of information system such as ECMS enables managers to access adequate information in making accurate decision (Alalwan, Thomas, & Weistroffer, 2014). Moreover, improved access to information helps organizations to make better decisions.

4.2.5 Optimize

Utilize best practices to standardize most of business processes and shape it to meet organization strategic needs (Davenport et al., 2004). Business process optimization allows access to more quality information that can be used to help decision makers make better decisions and improve competitive advantage.

4.3 Environmental

Environmental aspect refers to size and industry structure, markets, organization competitor and regulatory environment (Tornatzky et al., 1990). These external factors affect the assimilation of new technology and at the same time the achievement of benefits. Corporate culture is the driver identified within the category:

4.3.1 Corporate culture

Established ECM-friendly culture is such as willingness to share and trust (Wiltzius et al., 2014). Ensuring implementation success and achieving expected benefits require a thorough preparation of corporate culture. Implementation of new information system involves high level of uncertainty and requires new knowledge, which organization may or may not possess. Thus, consultant and trading partners may provide additional knowledge and expertise to help organization to go through the implementation process (Zhu et al., 2010).

5.0 DISCUSSIONS

Previous studies have shown that there are inadequacies in the relationship between benefit drivers (antecedents) and benefits achievement. Until today, no researchers have studied what kind of benefits can be gained while focusing on each individual driver. Addressing this concern helps organization to understand why certain benefit do or do not occur. Moreover, it also contributes knowledge on how organization can focus their effort towards certain benefits achievement. From previous study, it is suggested that the benefits framework of Shang and Seddon (2002) can be used to categorize benefits into specific category and identify the relationship between certain benefit driver and benefits achievement.

On the other hand, previous study also did not draw any relationship between individual benefit drivers as suggested by Seddon et al. (2010). Studying the relationship between these individual construct may help to explain why benefits may or may not occur (Gattiker & Goodhue, 2005; Grahlmann et al., 2012; Seddon et al., 2010). It also helps organization to further improve their resources allocation and planning.

6.0 CONCLUSION

In this paper, antecedents that lead to the achievement of benefits from the literature of ECMS and ERP were identified. These antecedents were identified as the 'benefit driver'. The drivers are the implementation of quality, efficient and effective use of IS, integration, functionalities of IS, functional fit, overcoming organization inertia, organization readiness, informate, optimize, and corporate culture. Then, the benefit drivers were categorized into three categories; technological, organizational, and environmental. Finally, each benefit driver was elaborated and the paper was concluded by outlining potential future study.

This study is not without limitations. First, even though it has been claimed that sufficient benefit drivers have been included, it is still possible that some were missing or excluded from the study. However, it is believed that the proposed drivers are sufficient and comprehensive enough compared to previous studies. Second, due to lack of studies from the perspective of ECMS, this study will be grounded on the literature of ECMS and ES.

This study will be expanded by investigating the relationship between benefit drivers and benefits achievement. Previous studies have shown that researchers did not draw any relationship between individual benefit driver and specific benefits achievement (Allotey & Ojeabulu, 2011; Davenport et al., 2004; Gattiker & Goodhue, 2005; Grahlmann et al., 2012; Hong & Kim, 2002; Seddon et al., 2010; Shang & Seddon, 2002; Staehr et al., 2012; Zhu et al., 2010). Therefore, investigating this relationship will contribute new knowledge and understanding on ECMS benefits.

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