LJMS
2016, 10

Labuan e-Journal of Muamalat and Society

THE INFLUENCE OF BUSINESS CONTINUITY MANAGEMENT FACTORS ON ORGANIZATIONAL PERFORMANCE: IT CAPABILITY AS MODERATING FACTOR

Zahari Abu Bakar[1]*, Noorulsadiqin Azbiya Yaacob[1], Zulkifli Mohamed Udin[1]

[1]College of Business, Universiti Utara Malaysia, 06010 Sintok, Kedah Darul Aman, Malaysia

ABSTRACT

This paper reviews the role played by a Business Continuity Management factors in enhancing the organizational performance of selected Malaysian organizations which is moderated by IT capability. The constructs of this paper are based on a comprehensive review of recent literature on BCM, organizational performance and IT capability. A detailed discussion revealed the importance of effective BCM implementation in ensuring an organization's survivability and competitiveness. In the Malaysian context, the nation is becoming more reliant on information technology to spearhead its national agenda to be in the digital era. Hence, the demand to protect the continuity of critical business services in the event of an unforeseen disaster or disruption has become more critical than ever. This paper also highlights the challenges encountered by the BCM professionals in developing and maintaining the BCM infrastructure and activities which necesitate the support from the senior management. In summary, this paper discusses the importance of BCM toward organizational performance improvement moderated by IT capability, as well as reviews the latest literature from the perspectives of sustainability and risk management.

Keywords: Business Continuity Management, organizational performance, IT capability

* Corresponding author: Zahari Abu Bakar, College of Business, Universiti Utara Malaysia. E-mail: zzzahari@gmail.com

Introduction

At present, the global business atmosphere and conditions are becoming more turbulent and sometime unpredictable. Such situation, as well as the fast technology advancements and social dynamics affect almost everyone including all organizations around the planet (Mitroff, 2004; Pollard & Hotho, 2006). Hence, organizations desiring to stay competitive and successful must be well protected, through heightened resiliency so that it could remain profitably in the event of any fatal business disruption. According to Wong (2009), organizations that incorporate Business Continuity Management (BCM) in their strategic management could gain a distinctive competency over their competitors in terms of operational resiliency which includes the speedy recovery of critical business functions at predefined period of time while minimizing the adverse impacts to their value and reputation.

The natural and man-made disaster incidents such as the great Indian Ocean earthquake and tsunami in 2004 and September 11 2001 tragedy had reformed the global perspective in managing business risk that triggered a major boost on the adoption of BCM (Alonso & Boucher, 2001; Gallagher, 2003). Sheffi and Rice (2005) also highlighted that, in recent years, there have been many crises causing substantial financial loss and, under the worst circumstances, even a loss of market shares and effect customer loyalty. This argument is further supported by Hendricks and Singhal (2005) who estimate that the stock prices decreased by nearly 10 percent when supply chain interruptions are publically announced and about 40 percent in the longer term.

Hence, the demand to protect the continuity of critical business services in the event of an unforeseen disruption has become more critical than ever. Any critical operational failure may cause a degradation of service quality and even a monetary loss if the duration or degree of business interruption is extensive (Yiu & Tse, 1995). According to the Gartner Group report in 2004, it was revealed that the average cost of service downtime worldwide was at USD 42,000 per hour (Vancoppenolle, 2007). A recent survey conducted by KPMG (2014) reported that the cost of downtime for the past twelve months is estimated to be over USD 100,000 for 36 percent of the organization, with almost 12 percent reporting losses at over USD 1 million while over 28 percent indicated that they 'do not know' the total cost of the downtime. However, the downtime costs will vary significantly depending on the industries, size of business and the nature of disaster. Beside the direct monetary lost, the downtime may also affect corporate reputation, branding, customer loyalty, regulatory compliance and employee productivity. According to Lada, Suki and Sidin (2014), one of the main objective of any business is to gain and maintain customer loyalty towards their brand or services. Based on these facts, it is undeniable that an effective BCM plays a very crucial role in ensuring an organization's survivability and remain competitive.

Problem Statement

There are challenges faced by the BCM professionals in developing and maintaining the BCM infrastructure and activities. With all the expenditure associated with the preparation of essential BCM infrastructures and resources such as planning and consulting, setting up the hot-site data center and operation center and acquisition of additional hardware and software, it is crucial to present a solid business case in order to gain top management's buy in (Petroni, 1999). Peterson (2009) argued that one of the reasons many organizations fail to implement effective BCM is due to lack of financial

support as great prudence in expenditures is exercised by many senior management and the board of directors. This may be due to there is no direct financial benefit or return of investment is seen from the BCM implementation. In order to successfully secure the funding, IT professionals should work together with the business owners to estimate the potential loss due to service downtime, identify the likelihood of risks, define the optimum recovery objectives and choose the most cost effective solution and technology (Belaouras, 2009). Another challenge is deploying BCM in organizations which cut across several business units or implementing it on a corporate enterprise wide basis (Belaouras, 2009). These situations emphasize the importance of senior management support and directive to mandate the priority of BCM initiatives across all organization members.

In order to address the above challenges, understanding the potential benefits of BCM on the organizational performance is important to give a proper merit to the BCM efforts and draw attention and subsequently, obtaining full support from the senior management. Sawalha (2013) suggests that understanding the effects of BCM on organizational performance is significant since BCM is one of the primary driving factors for enhancing an organization's ability to withstand its resiliency, as well as survival under extreme internal and external pressures. The previous studies which focused on the strategic role of BCM argued that BCM could become a source of competitive advantage for organizations but these studies did not deliberated comprehensively on how BCM can contribute to organizational performance specifically (Herbane, Elliott, & Swartz, 2004). The available literature presents several studies that deliberate risk management in relation to the organizational performance. These studies have concluded that understanding the likelihood and impact of potential disaster events can enhance organizational performance (Alesi, 2008; Herbane et al., 2004; Herbane, 2010; Selden & Perks, 2007). On the same ground, Sawalha (2013) belief that, similar to risk management which is considered the roots of BCM, BCM could also play an important role that may contribute to the optimization of organizational performance. In addition, Sawalha (2013) also highlighted that the role of BCM in enhancing organizational performance has rarely been deliberated or even addressed in the existing studies.

Notably, the major theoretical gaps in the present literature observed in this research lies in the insufficient studies which have investigated and established the relationships between BCM factors and organizational performance. Hence, the goal of this study is to extend the limited literature on the relationship that exists between BCM factors and organizational performance. As for the organizational performance dimensions, this study will consider multiple performance measurements which include financial and non-financial indicators. As IT is seen as one of the main driver of BCM, this study will also investigate the influence of IT capability on the relationship between BCM factors and organizational performance.

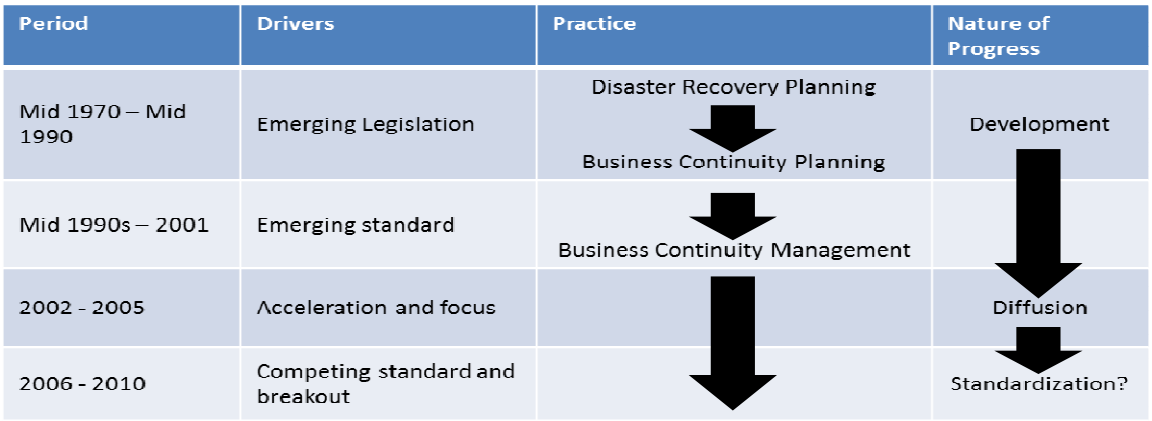
Literature Review

The evolution of BCM

BCM has its roots from Disaster Recovery Planning (DRP) practices that emerged during the 1950s and 1960s where companies began to store backup media copies of their critical information, paper or electronic at alternate sites (Randeree, Mahal, & Narwani, 2012). DRP originated from the desire of banks in United States to better protect their

corporate data centers from disastrous events. During that time, the goal of DRP was to protect the computer systems rather than providing organizational wide or business side protection. Next, in 1990s, there was a major paradigm shift from traditional DRP to Business Continuity Planning (BCP) (Herbane, 2010). The BCP scope was much broader than DRP and it was prepared for incidents that might affect critical business services in an organization. Since then, the scope of BCP was expanded to enhance the value to the organization as a whole and broaden out its focus to include the stakeholders (Elliott, Swartz, & Herbane, 2010a). This expansion of focus shaped the BCM approach which includes enterprise wide and external factors. The below Figure 1.0 illustrate the evolution of BCM's period, drivers, practices and nature of progress (Herbane, 2010).

Figure 1: The evolution of BCM



BCM Factors

Critical success factor is defined as few performance measures of which, if they are accomplished satisfactorily, they will assure successful competitive performance for the organization. Rockart (1979) asserted that they are the things that must go right and for that reason, special attention must be given to these factors.

Based on literature, there are various critical success factors of BCM and for the purpose of this study, the critical success factors are also referred as factors. The following Table 1.0 summarizes the previous studies on BCM factors by Järveläinen (2013), Chow and Ha (2009), Hoong (2011), Chow (2000), Herbane et al. (2004) and Karim (2011).

Table 1: Past Studies on BCM Factors

No	Authors	BCM Factors
1	Järveläinen (2013)	Management support, organizational alertness and preparedness, embeddedness of continuity practices and external requirements
2	Chow & Ha (2009)	Documentations, steering committee, testing, policy and goals, training, maintenance and staff involvement, minimum IT processing requirements, senior management commitment, prioritization of IS critical functions and backup system.
3	Hoong (2011)	Planning (project management, maintenance), technology (IT availability, technology competency, infrastructure advantage), organization (business continuity benefits, top management

		commitment, organization readiness), environment (regulatory requirement, SLA, business environment) and individual (staff competency, roles & responsibility, stakeholder relationship).
4	Chow (2000)	Management support, adequate financial support, appropriate backup site, off-site storage of backup media and training.
5	Herbane et al. (2004)	Speed of recovery (organization alertness and preparedness), configuration resilience, obligation (regulation and legislation) and embeddedness of BCM process.
6	Karim (2011)	Strategic management, risk analysis, resources, training and awareness, documentation, information and life cycle management.

Based on the above, this study will focus on examining the selected BCM critical success factors adapted from previous studies. The selected BCM factors will be used as the independent variables in this study, which include 1) management support, 2) external requirements, 3) organization preparedness, and 4) embeddedness of continuity practices. These four factors are selected as their definitions and scopes able to represent all of the critical success factors from the past studies. Furthermore, these factors are important elements to ensure the successful implementation of BCM in an organization. The details of each factors is discussed in the following sections.

Management Support

The senior management commitment in ensuring business functions and services operating at an acceptable condition under crisis situation and managing an organization's risk exposure to service disruptions are crucial elements of the overall corporate strategy (Laurent, 2007). Several researchers posited that it is essential that business continuity program to be initiated, sponsored and authorized by senior management from the preliminary phase of its implementation (Arend, 1994; Chow, 2000; Yen, Chou, & Hawkins, 2000). In the context of BCM, it is a long term commitment that necessitates a substantial financial investment by an organization (Cerullo & McDuffie, 1994; Chow, 2000). Hence, only strong engagement by the senior management can warrant the on-going provision of monetary support and other critical resources for developing and maintaining a BCM program. Botha and Solms (2004) postulate that senior management is the sole corporate entity who can grant substantial amount of financial capital, other resources and time to undertake BCM life cycle activities (Cerullo & Cerullo, 2004). Thus, it is important that the senior management should thoroughly understand and authorize all BCM related activities prior to providing their ultimate concurrence (Rosenthal & Sheniuk, 1993).

Payne (1999) argued that lack of senior management commitment will ultimately results in poor executions, lack of corporate wide involvement and at the end, program failures. In a similar manner, a lack of senior management understanding also hinders the effectiveness of a BCM program implementation (Pitt & Goyal, 2004). Rohde and Haskett (1990) also posited that staff will normally undertake the BCM initiatives seriously if it is apparent that the management team has given a full commitment and support to the program. Without the sponsorship and visionary leadership from the management, most initiatives will not be effective and lesser chance for innovation and mobilization of potencies for organizational transformation (Attaran, 2003).

External Requirement

In today's competitive environments, BCM is no longer an optional task in large public and private sector organizations. The value preservation within an organization is increasingly become a matter of concern of external interested parties such as the legislators and regulators who consequently oblige organizations under their purview to comply with business continuity provisions. The regulatory requirements enforced by the government authorities and sometime even by the customers will motivate the management to further enhance the service continuity of their information technology and systems (Herbane et al., 2004).

Herbane et al. (2004) also argued that, while such external drivers have uplifted the importance of BCM to a greater level within the corporate governance agenda, they have also challenged the organizations to assess whether their actions should be merely to conform with the minimum requirements as outlined by the regulators or to take on a more strategic approach i.e. to exceed the minimum requirements with the intention of enhancing their BCM capabilities further. In some countries, health care and financial sectors are obliged to make sure that service continuity in their information system operations are in accordance to regulatory guidelines (Elliott, Swartz, & Herbane, 2010b). To certain extent, business-to-business customers who are highly dependent on their suppliers sometime demand for assurances on matters such as compliance with business continuity guidelines and audit reports before proceeding on the engagement of long-term strategic relationships (Choudhuri, Maguire, & Ojiako, 2009; Woodman, 2008).

Organization Preparedness

When an unexpected event occurs, an organization only has a little chance to respond and recover with no room for mistake. For that reason, getting an organization to be more prepared and capable of resuming its normal business functions following a disaster incident is deemed to be one of the primary goals of the senior management (Hurley-Hanson, 2006; Mostafa, Sheaff, Morris, & Ingham, 2004). Business resiliency is very much depending on the capability of an organization to avoid and swiftly recover from an untoward event. Herbane et al. (2004) posited that an organization which is able to quickly identify potential risks and subsequently escalate it to the crisis management team is said to be superior in organizational alertness.

Organization preparedness is refers to familiarity with various recovery approaches and avoidance of risks, such as maintaining a business continuity plans, establishing crisis management teams and developing key personnel redundancy (Hägerfors, Samuelsson, & Lindström, 2010; Ruighaver, Ahmad, & Hadgkiss, 2012). The business continuity plans should be regularly updated, tested and improvised, even after occurrence of major incidents (Gibb & Buchanan, 2006). Herbane et al. (2004) added that the swiftness of recovery is the surface exposure of a more profound capability in the form of organizational preparedness which includes readiness of alternative sites, well executed recovery plans and redundancy of critical resources. Organization preparedness is also enhanced if critical business functions or systems can be restored efficiently by one or several persons (Conlon & Smith, 2010).

Embeddedness of Continuity Practice

Herbane et al. (2004) asserted that when an organization is well prepared, practices are incorporated into existing processes, staffs as well as senior management are highly committed, continuity practices are said to be embedded in the organization. This embeddedness will contribute to positive business impacts in which the organization will become more robust, capable to minimize the potential risk of incidents and recover more speedily as compared to its rivals. In order to inculcate the embeddedness of BCM process, organization can employ a combination of ways to communicate its relevancy which includes awareness raising activities, training and constant communication personalized to meet the needs of various target groups. These actions also indicate the extent to which BCM is a one-off activity or it is embedded and on-going within the organization. The embeddedness of BCM practices enables the effective implementation of information system continuity management and it requires constancy with clear organizational structure (Elliott et al., 2010). One approach of embedding BCM in an organization is to adopt international standards or frameworks that systematically integrate it into the current critical processes (Järveläinen, 2013). Among the commonly adopted BCM standards are ISO 22301, ISO 27001, BS 25999, NFPA 1600, NIST SP 800 and PASS.

Organizational Performance and BCM

The current literature presents a number of studies that deliberate risk management and its relation to organizational performance. According to Sawalha (2013), these studies have indicated that by understanding the impact and likelihood of potential incidents, it could enhance the organizational performance. In this context, risk management is exercised by organization to minimize the adverse impacts of internal and external risks that may affect its activities and performance. Risk management also supports organizations in responding to uncontrollable market conditions to sustain consistent profitability, which eventually leads to optimized organizational performance (Jafari, Chadegani, & Biglari, 2011; Saleem, 2011).

Understanding the effects of BCM on organizational performance is crucial because BCM is one of the key driving forces to strengthen firm's ability to withstand risks and survive under extreme organizational and environmental pressures. According to Sawalha (2013), the role of BCM in enhancing organizational performance has rarely been investigated or even discussed in the existing literature. He belief that, similar to the objective of risk management, BCM can also contribute significantly to the optimization of organization performance.

A few of present literature which focus on the strategic role of BCM, posited that BCM can provide organizations with sources of competitive advantage, but these studies have not deliberated comprehensively on how BCM could influence the organizational performance specifically (Alesi, 2008; Herbane et al., 2004; Herbane, 2010; Selden & Perks, 2007). Additionally, Sawalha (2013) postulates that the relationship between BCM and organizational performance was found to be mainly underexplored by the researchers. He claims that his research is the first that examines the influence of BCM on the various elements of organizational performance, subsequently highlighting the value add and significance of BCM strategically. In his study on the Jordanian banking sector involving 11 out of 17 banks, one of the most important roles of BCM is to provide customers with uninterruptible and secured banking services at all time. The finding is consistent with the result of a study by Supinah, Anis and Amin (2008) which discovered

that stability and service assurance are the essential factors impacting Internet banking adoption. Similarly, a study by Suki, Atrianedi and Suki (2009) also revealed that service reliability is a crucial factor for consumer when using SMS banking. Hence, the capability to provide stable and reliable services lays the foundations for preserving a positive corporate reputation, enhances the competitive advantage against the competitors, increase profitability, and subsequently improves the overall organizational performance. The qualitative study also reveals that BCM has a significant role in improving profitability. Based on the interviews, 100 percent of respondents asserted that BCM implementation ensure banking operations and critical business functions are preserved uninterrupted before, during and after an unexpected incident, hence making sure that banking transactions are carried out continuously by the customers (Sawalha, 2013). Besides the financial performance, his study also discovered that BCM also have positive effect on several non-financial performance indicators such as effectiveness, efficiency, quality, innovation, productivity and quality of work life.

IT Capability

The concept of IT capability was introduced by Ross, Mathis and Dale (1996). They asserted that the success of organizations cannot be guaranteed by IT alone, but by organizations' IT capability to employ IT to support dynamic business opportunities. In other words, organizations cannot only rely on acquiring IT infrastructure as a necessary condition to sustain the competitive advantage, but they must also acquire and nurture internal capabilities to effectively manage the infrastructure (Jacks, Palvia, Schilhavy, & Wang, 2011). IT capability is defined as a firm's ability to acquire, deploy, and leverage its IT related resources in combination with other resources in order to achieve, gain and maintain competitive advantage and business objectives through IT implementation.

During its early days, DRP which is a component of BCM, focused predominantly on the continuous operability and recovery of computing systems to counteract against man-made or natural disasters. Since then, BCM was viewed as an IT issue and the activities was led by an IT function, normally IT managers (Gibb & Buchanan, 2006; Pitt & Goyal, 2004; Solms & Botha, 2004). In this study, the author will investigate the technological capability in another perspective via investigating the role of IT capability as a moderator of the relationship between BCM and organizational performance. Tippins and Sohi (2003) suggested the conception of IT competency, in this study refers as IT capability, consisting of three main components namely IT knowledge, IT operations and IT objects.

IT Knowledge

IT knowledge concerns the extent to which an organization possesses a body of technical knowledge about objects, such as computer-based systems (Tippins & Sohi, 2003). In relation to BCM, IT knowledge may comprise of the development of risk assessment profile, business impact analysis, business continuity policies and procedures, awareness program and training.

IT Operations

IT operations are conceptualized as the extent to which an organization utilizes IT to manage market and customer information (Tippins & Sohi, 2003). From the perspective of BCM, IT operations comprise of preventive, repressive and corrective action plans where it covers both the prevention of interruptions and minimizing the impact to

business in the event of crisis situation. IT operations will ensure uninterrupted and continuous service availability to enhance customer satisfaction, rather than solely focusing on technology matters.

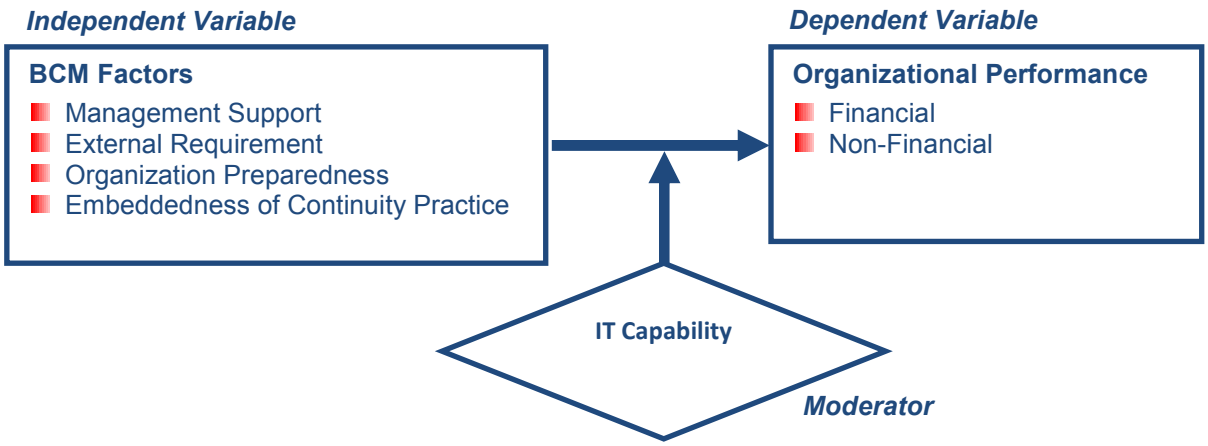
IT Object

IT objects represents computer-based hardware, software, and supporting personnel (Tippins & Sohi, 2003). For purpose this research, the conceptualization of IT objects represents IT based hardware, software and network components as well as supporting human resources. In view of BCM, IT objects comprise of the BCM infrastructure such as backup system, redundancy in communication network, data replication strategy, off-site data center and operation center facilities.

Conceptual Framework and Hypotheses

Based on the above discussions, this study attempts to fill the gaps by providing empirical evidence on the relationships that exist between BCM factors and organizational performance. Additionally, this research will also investigate the effects of IT capability as a moderator on the relationship between the two main constructs. Figure 2.0 below depicts the conceptual framework which represents the three main variables of this study.

Figure 2: Conceptual Framework



The relationship between BCM factors, IT capability and organizational performance is based on the Resource Based View (RBV) theory that proposes the performance of an organization is influenced by internal resources. An organization achieves better performance than its competitors by effectively utilizes its internal resources. IT capability is a dynamic capability and it will eventually affect the organizational performance. However, in order to foster distinctive capabilities, the resources must be rare, valuable, non-imitable, non-transferable and non-substitutable (Barney, 1991).

The relationship between BCM factors and organizational performance is also explained by the crisis management theory that highlighted the importance of organization

readiness in responding to unexpected crisis events that may hinder or impede normal business operations, thus threatening the achievement of organizational objectives (Pearson & Clair, 1998). Jafari et al. (2011) postulates that when a company is capable to avoid the adverse impacts of external risks and respond to the environmental changes, it will be less vulnerable to financial consequences of market disparity. In other words, when an organization manages its risks effectively, it will successfully adapt to changes in market conditions and profit variation will be minimized.

The high level hypotheses statements are as follows:

H1: The BCM factors significantly related to the organizational performance.
H2: The IT capability significantly related to the organizational performance.
H3: IT capability significantly moderates the relationship between the BCM factors and the organizational performance.

Conclusion

Organizations from both the private and public sectors have to be more prepared to counter any undesirable crisis and ensure that the interruptions to their business operations are kept at a very minimal possible. Any critical operational failure may cause a degradation of service quality and even a monetary loss if the duration or degree of business interruption is extensive (Yiu & Tse, 1995).

This study aimed to further establish the importance of BCM as a strategic management tool which must be employed by organizations to minimize the operational risk and its impact to critical business functions. The study will provide the empirical evidence on the relationship that exist between the BCM factors and organizational performance in various sectors in Malaysia with the moderating effect of IT capability. The researchers hope that the outcome of this research will assist the managers, business and IT professionals to justify further investment and effort in improving the BCM knowledge, processes and infrastructure. In addition, this study could provide better understanding to the decision makers on the significant role of BCM in relation to the organizational performance and encourage their participation at the strategic level.

REFERENCES

Alesi, P. (2008). Building enterprise-wide resilience by integrating business continuity capability into day-to-day business culture and technology. *Journal of Business Continuity & Emergency Planning*, *2*, 214–220.

Alonso, F., & Boucher, J. (2001). Business Continuity Plans for Disaster Response. *CPA Journal*, *71*(11).

Arend, M. (1994). Time to dust off your contingency plan. *ABA Banking Journal*, *86*(2), 56.

Attaran, M. (2003). Information technology and business-process redesign. *Business Process Management Journal*, *9*(4), 440–458. doi:10.1108/14637150310484508

Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, *17*(1), 99–120.

Belaouras, S. (2009). State of Business Continuity Preparedness. *Disaster Recovery*

Journal, *22*(1). Retrieved from http://www.drj.com/index.php?option=com_content&task=view&id=2206&Itemid=676

Botha, J., & Solms, R. Von. (2004). A cyclic approach to business continuity planning. *Information Management & Computer Security*, *12*(4), 328–337. doi:10.1108/09685220410553541

Cerullo, M. J., & Cerullo, V. (2004). Business Continuity Planning : A Comprehensive Approach. *Information Systems Management*, *21*(3), 70–78.

Cerullo, M. J., & McDuffie, R. S. (1994). Planning for disaster. *CPA Journal*, *64*(6), 34. Retrieved from http://eserv.uum.edu.my/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=9410052296&site=ehost-live&scope=site

Choudhuri, B., Maguire, S., & Ojiako, U. (2009). Revisiting learning outcomes from market led ICT outsourcing. *Business Process Management Journal*, *15*(4), 569–587. doi:10.1108/14637150910975543

Chow, W. S. (2000). Success factors for IS disaster recovery planning in Hong Kong. *Information Management & Computer Security*, *8*(2), 80–87. doi:10.1108/09685220010321326

Chow, W. S., & Ha, W. O. (2009). Determinants of the critical success factor of disaster recovery planning for information systems. *Information Management & Computer Security*, *17*(3), 248–275. doi:10.1108/09685220910978103

Conlon, R., & Smith, R. V. (2010). The role of the board and the CEO in ensuring business continuity. *Financial Executive*, *26*(9), 52–55.

Elliott, D., Swartz, E., & Herbane, B. (2010a). *Business Continuity Management – A crisis management approach* (2nd ed.). London: Routledge.

Elliott, D., Swartz, E., & Herbane, B. (2010b). *Business continuity management: a crisis management approach* (2nd ed.). New York, USA: Routledge.

Gallagher, M. (2003). *Business Continuity Management: How to Protect your Company from Danger* (1st ed.). London: Financial Times and Prentice Hall.

Gibb, F., & Buchanan, S. (2006). A framework for business continuity management. *International Journal of Information Management*, *26*(2), 128–141. Retrieved from http://www.sciencedirect.com/science/article/B6VB4-4JN2P51-1/2/57980f789e3c81f88a500981a33a3b45

Hägerfors, A., Samuelsson, S., & Lindström, J. (2010). Business continuity planning methodology. *Disaster Prevention and Management*, *19*(2), 243–255. doi:10.1108/09653561011038039

Hendricks, K. B., & Singhal, V. R. (2005). Association Between Supply Chain Glitches and Operating Performance. *Management Science*, *51*(5), 695–711. doi:10.1287/mnsc.1040.0353

Herbane, B. (2010). The evolution of business continuity management: A historical review of practices and drivers. *Business History*, *52*(6), 978–1002. doi:10.1080/00076791.2010.511185

Herbane, B., Elliott, D., & Swartz, E. M. (2004). Business Continuity Management: time for a strategic role? *Long Range Planning*, *37*(5), 435–457. doi:10.1016/j.lrp.2004.07.011

Hoong, L. L. (2011). Factors Influencing the Success of the Disaster Recovery Planning Process : A Conceptual Paper. In *Research and Innovation in Information Systems (ICRIIS), 2011 International Conference*.

Hurley-Hanson, A. E. (2006). Organizational responses and adaptations after 9-11. *Management Research News*, *29*(8), 480–494. doi:10.1108/01409170610692806

Jacks, T., Palvia, P., Schilhavy, R., & Wang, L. (2011). A framework for the impact of IT on organizational performance. *Business Process Management Journal*, *17*(5), 846–870. doi:10.1108/14637151111166213

Jafari, M., Chadegani, A., & Biglari, V. (2011). Effective risk management and company's performance: investment in innovations and intellectual capital using behavioural and practical approach. *International Research Journal of Finance and Economics*, *3*(15), 780–786. doi:10.5897/JEIF11.123

Järveläinen, J. (2013). IT incidents and business impacts: Validating a framework for continuity management in information systems. *International Journal of Information Management*, *33*(3), 583–590. doi:10.1016/j.ijinfomgt.2013.03.001

Karim, A. J. (2011). Business Disaster Preparedness: An Empirical Study for measuring the Factors of Business Continuity to face Business Disaster. *International Journal of Business & Social Science*, *2*(18), 183–192. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=66726542&site=ehost-live

KPMG. (2014). *The 2013-2014 Continuity Insights and KPMG LLP Global Business Continuity Management (BCM) Program Benchmarking Study*.

Lada, S., Suki, N. M., & Sidin, S. M. (2014). The Roles of Brand Experience in Forming Loyalty Intention. *Labuan E-Journal of Muamalat and Society*, *8*, 39–49.

Laurent, W. (2007). Business Continuity Dashboards. *DM Review*, *17*(6), 30.

Mitroff, I. I. (2004). Think like a sociopath, act like a saint. *Journal of Business Strategy*, *25*(5), 42–53. doi:10.1108/02756660410558933

Mostafa, M. M., Sheaff, R., Morris, M., & Ingham, V. (2004). Strategic preparation for crisis management in hospitals: empirical evidence from Egypt. *Disaster Prevention and Management*, *13*(5), 399–408. doi:10.1108/09653560410568525

Payne, C. F. (1999). Contingency plan exercises. *Disaster Prevention and Management Volume*, *8*(2), 111–117.

Pearson, C. M., & Clair, J. A. (1998). Reframing Crisis Management. *The Academy of Management Review*, *23*(1), 59–76. doi:10.2307/259099

Peterson, C. A. (2009). Business continuity management & guidelines. *2009 Information Security Curriculum Development Conference on - InfoSecCD '09*, 114. doi:10.1145/1940976.1940999

Petroni, A. (1999). Managing information systems' contingencies in banks: a case study. *Disaster Prevention and Management*, *8*(2), 101–110.

doi:10.1108/09653569910266139

Pitt, M., & Goyal, S. (2004). Business continuity planning as a facilities management tool. *Facilities*, *22*(3/4), 87–99. doi:10.1108/02632770410527824

Pollard, D., & Hotho, S. (2006). Crises, scenarios and the strategic management process. *Management Decision*, *44*(6), 721–736. doi:10.1108/00251740610673297

Randeree, K., Mahal, A., & Narwani, A. (2012). A business continuity management maturity model for the UAE banking sector. *Business Process Management Journal*, *18*(3), 472–492. doi:10.1108/14637151211232650

Rockart, J. F. (1979). Chief executives define their own data needs. *Harvard Business Review*, *57*(2), 81–93. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10297607

Rohde, R., & Haskett, J. (1990). Disaster Recovery Planning For Academic Computing Centers. *Communications of the ACM*, *33*(6), 652–657.

Rosenthal, P. H., & Sheniuk, G. (1993). Business Resumption Planning: Exercising the Disaster Management team. *Journal of Systems Management*, *44*(6), 12–16.

Ross, J. W., Mathis, C., & Dale, B. (1996). Develop Long-Term Competitiveness through IT Assets. *Sloan Management Review*, *38*(1), 31–42.

Ruighaver, A. B., Ahmad, A., & Hadgkiss, J. (2012). Incident response teams – Challenges in supporting the organisational security function. *Computers & Security*, *31*(5), 643–652. doi:10.1016/j.cose.2012.04.001

Saleem, S. (2011). Do effective risk management affect organizational performance. *European Journal of Business and Management*, *3*(3), 258–268.

Sawalha, I. H. S. (2013). Organisational performance and business continuity management: a theoretical perspective and a case study. *Journal of Business Continuity & Emergency Planning*, *6*(4), 360–73. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/23835428

Selden, S., & Perks, S. (2007). How a structured BIA aligned business continuity management with Gallaher ' s strategic objectives. *Journal of Business Continuity & Emergency Planning*, *1*(4), 348–355.

Sheffi, Y., & Rice, J. B. (2005). A Supply Chain View of the Resilient Enterprise A Supply Chain View of the Resilient Enterprise. *MIT Sloan Management Review*, *47*(1).

Solms, R. Von, & Botha, J. (2004). A cyclic approach to business continuity planning. *Information Management & Computer Security*. doi:10.1108/09685220410553541

Suki, N. M., Atrianedi, & Suki, N. M. (2009). Syariah Banking: Consumers' Expectation and Perception Towards SMS Banking. *Labuan E-Journal of Muamalat and Society*, *3*, 41–48.

Supinah, R., Anis, Z., & Amin, H. (2008). Banking Channels Adoption in Malaysia: An Analysis. *Labuan E-Journal of Muamalat and Society*, *2*, 17–26.

Tippins, M. J., & Sohi, R. S. (2003). IT Competency and Firm Performance: Is Organizational Learning a Missing Link? *Strategic Management Journal*, *761*(March), 745–761.

Vancoppenolle, G. (2007). *The Definitive Handbook of Business Continuity*

Management Second Edition. (A. Hiles, Ed.). England: John Wiley & Sons Ltd.

Wong, W. N. Z. (2009). The strategic skills of business continuity managers: putting business continuity management into corporate long-term planning. *Journal of Business Continuity & Emergency Planning*, *4*, 62–68.

Woodman, P. (2008). Business Continuity Management 2008. London: Chartered Management Institute.

Yen, D. C., Chou, D. C., & Hawkins, S. M. (2000). Disaster recovery planning: a strategy for data security. *Information Management & Computer Security*. doi:10.1108/09685220010353150

Yiu, K., & Tse, Y. Y. (1995). A Model for Disaster Recovery Planning. *IS Audit & Control Journal*, *5*, 45–51.