

Business Continuity Management for Data Outage Disruptor: A Study on a Private Hospital in Negeri Sembilan

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Abstract: *The healthcare sector is a sector that faces many threats disrupting its critical services. Hence, the development of a solid plan for service continuity is crucial for the healthcare industry. The goal of this study is to analyse the internal and external business environment of healthcare institutions and determine threats that they are most vulnerable to. Based on the disruptors, thus study developed a Business Continuity Plan (BCP). This is a case study focusing on a private hospital in Negeri Sembilan. The respondents consist of 27 managerial level staffs from different departments. Data was collected using questionnaires. The collected data was on operational services critical operations, internal and external services dependencies. Business Impact Assessment (BIA) is used to assess strategies and solutions based on the supplied disruptors. Results of the BIA are used for the development of Business Continuity Plan for the private hospital.*

Keywords: business continuity plan, business impact analysis, healthcare BCM, BIA, BCP

1. Introduction

Healthcare is a critical and complicated industry. Hence vulnerable to a variety of risks and disruptions if they are not adequately managed. The continuity of healthcare service is crucial regardless of any situation, requiring effective and efficient implementation of business continuity plan (BCP). BCP must be well implemented in order for the healthcare sector to provide continuity of care and continue the healthcare business at the shortest recovery phase possible before the operation is halted.

A major weakness of the healthcare industry in Malaysia is that the business continuity management was not clearly stated in most of the organization's written policy. This was supported by N. Marlyana et. al., (2018) stating the insufficient hospital's preparedness to respond in crisis. It is believed that to a certain extent the preparedness attributes of hospitals towards disaster resilience are insufficient, and the results could serve as indicators for the public hospital's stakeholders in Malaysia to improve its preparedness and enhance its resilience.

2. Problem Statement

Government health facilities across Malaysia are facing challenges in their operations, with frequent power and water outages, among other infrastructure issues. Code Blue Galen Centre in June and November 2019 conducted a survey in June to November 2019. The number of

respondents were 337. The respondents were found from government hospitals and clinics Doctors' Only Bulletin Boards, a group consists of Malaysian doctors. According to the survey more than half of respondents (51.3%) reported power outages at their medical facility at least once a year and 10% reporting power outages every month. Four out of ten respondents (41.2%) reported their government medical facility's water supply was disrupted at least once a year and 10% citing monthly water cutbacks.

This study argues the non-availability of Business Continuity Plan (BCP) for healthcare industry in ensuring business continuity during any disruption's event. Hence, the objective of this study is to identify major service disruption in a hospital. Consequently, developed a BCP for a disruption.

This study has a substantial impact on the healthcare industry's preparedness for facing vulnerabilities or threats that can disrupt their services. As disruption of services have an impact on the entire healthcare operation as well as the level of care provided for patient's care. In addition, the BCP developed in this study can be proposed as a benchmark for BCM engagement and development in Malaysian healthcare industry.

3. Materials and Methodology

This section discusses the approach to develop BCP for a healthcare organization. This study was conducted at a private hospital in Negeri Sembilan. The respondents were head of services and unit managers from 27 operational departments. The disruptor was data outage.

The followings outline the steps to develop BCP for the healthcare organisation. In order for a healthcare organization to develop a Business Continuity Plan;

Step 1. The organisation will need to identify their major disruptors.

Step 2. Analysed the impact of the major disruptors to business services and functions. The analysis will determine priority disruptors.

Step 3. Develop BCP for the priority disruptors.

The activities of identifying and prioritising the major disruptors are called Business Impact Analysis (BIA). BIA is a risk assessment tool. The purpose of BIA is to determine the impact of disruptors to critical business services. The output of BIA is priority ranking of disruptors. BCP is developed for the priority disruptors.

Data was collected using BIA questionnaire. The questionnaire was distributed to all Head of Services and Unit Managers during the 2-days internal BIA workshop. All respondents were given comprehensive awareness and understanding of BIA through an online workshop program prior to the 2-days BIA workshop. In addition, the respondents are managerial level staffs, indicating high level of knowledge in hospital services and operations, and the importance of ensuring services continuity in the event of service disruption.

Nine vulnerable threats were given in the BIA form. The threats are fire, power, water, network/data, flood, supply, structural, key personnel, and license. The respondents rated the threats using a scale of 1-10.

4. Results and Discussions

Data collected from the BIA questionnaire produced the followings findings, knowledge on hospital’s departments functions, dependencies, continuation requirements, their available contingencies plans, record of previous failures, list of strategies and solutions for different crisis, and the major vulnerable threats.

Table 1 shows the 27 operational services responses towards the most vulnerable threats in the respective services. From the table, the values representing the total number divided by total services responses for each vulnerable threat. The smallest number is the higher threat priority.

Table 1: Vulnerable Threats for 27 Operational Services

	Fire	Power	Water	Network/ Data	Flood	Supply	Structural	Key Personnel	License
Points	1.50	2.19	1.64	1.88	2.67	2.25	2.67	2.00	2.67

Based on the BIA assessment, the ranking of the disruptors is:

- i. Fire
- ii. Water Supply Disruption
- iii. Data/Network Outage
- iv. Key Personnel
- v. Power Outage.

Hence, BCP needs to be developed for the top five disruptors. For this study, the BCP is for the Data/Network Outage disruptor. The BCP contents are presented in Figure 1.




<i>Disruptor:</i>	FACILITIES RESPONSE DURING DATA SYSTEM OUTAGE		
<i>Disruption Level:</i>	Level 1 	Level 2 	Level 3 
Roles, Responsibilities, Accountability and Authority for BCP Team			
<i>Senior Leadership Team</i>	Chief Executive Officer	<ul style="list-style-type: none"> Overall accountable for decisions made during the activation of BCP and throughout the disaster including activation and stand-down orders. Authorized to provide emergency budget not exceeding the limit of authority (LOA) as approved by the Management during the disaster Communicate the activation of the BCP to the predefined stakeholders. Official spokesperson representing the Hospital for press conferences 	
<i>BCP Team Leader</i>	Head of Information Technology	<ul style="list-style-type: none"> Coordinating the implementation of BCP until the stand-down procedures. 	
<i>Logistics Team</i>	HOS Purchasing	<ul style="list-style-type: none"> In charge of the procurement process Identify and arrange with the existing or backup vendor to support activities for contingency and demobilization planning 	
<i>Finance and Administrative Team</i>	Accountant	<ul style="list-style-type: none"> Provide financial and accounting data Track and process financial expenses Report compiler for all data & revenue related 	
	Risk Officer	<ul style="list-style-type: none"> BCP Secretary to compile and update all the documents pertaining to BCP Ensure the implementation of the incident reporting process Loss compiler for a general claim 	

Figure 1: Business Continuity Plan for Data Outage in a Hospital

<i>Planning Team</i>	Operation Manager	<ul style="list-style-type: none"> • Authorized as alternate BCP Team Leader • Collecting and analyzing the information during the disaster and the activation of BCP • Monitoring and updating on documentation such as licensure requirement, regulatory compliance and financial accounting issues • Determine and plan for specific or new strategies and tactics to meet operational objectives • Determine and tracking any resources required throughout the BCP activation • Outline emergency budget required as per strategy and tactics chosen
	Finance Manager	
	Chief Nursing Officer	

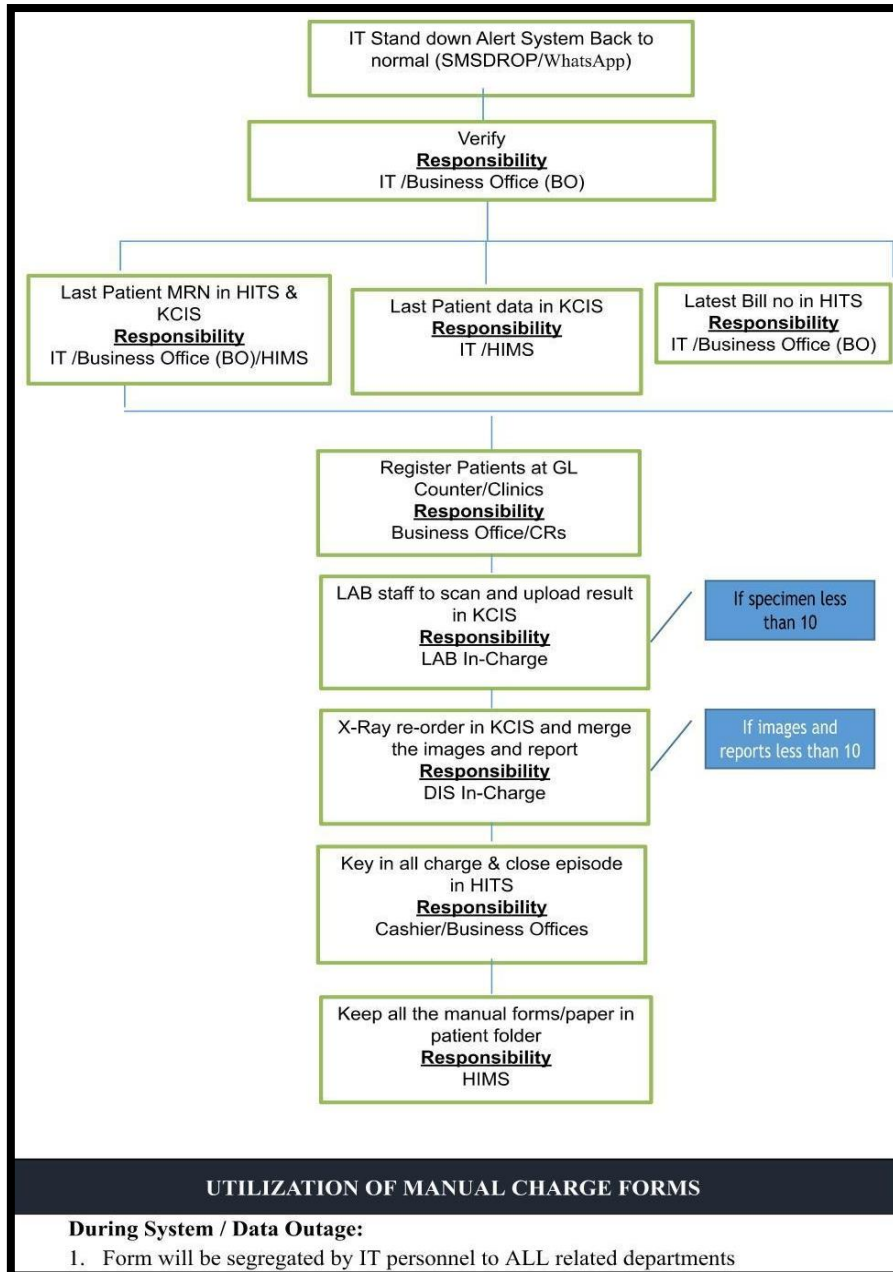


Figure 1: (cont.) Business Continuity Plan for Data Outage in a Hospital

This study developed BCP for full and partial network outage. The BCP can be used by clinical and non-clinical services, financial measurement, communication plan, and may involves agreement with external agencies to continue operating during the crisis.

This BCP activation criteria were either, more than 15 minutes system or data outage at the critical business functions/ services (high severity) at any moment of business operations or multiple services (regardless the severity level) experience system or data disruption for more than 15 minutes.

5. Conclusion

This study identified and developed a comprehensive Business Continuity Plan (BCP) for data or network outage disruptors in hospitals. Every healthcare organization is different in terms of their services and operations. Nevertheless, the BCP can be adapted or used as benchmark by other healthcare organizations.

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