



## **Effects Of Disaster Management Strategies for Mobile Telephone Service Providers In Kenya To Attain Business Continuity Management Best Practices**

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### **Abstract**

Disaster recovery is associated with broader issues concerning environmental management and long – term sustainability of an organization. It is possible to plan for disaster recovery because it can be foreseen and predicted. The paper is about establishing disasters management strategies for mobile telephone service providers in Kenya which comprises strategies along Recovery systems processes, employee’s safety, organization policies and infrastructure stability. Descriptive research design was used in this research. The population of study consisted of fifty-nine heads of departments taken from the five mobile telephone service providers in Kenya namely; Safaricom Ltd, Airtel Ltd, Equitel services, Communication Authority of Kenya and Telkom Kenya. To sample the population of the study a census approach was used. The mobile telephone service providers gave the primary data. A semi-structured questionnaire for collecting data was used. The questionnaire was pilot tested to establish its reliability and validity. The reliability of the data collection instrument was established through the Cronbach Alpha Coefficient reliability test. Content and construct validity were tested through factor analysis. Data analysis was undertaken using descriptive statistics; mean, standard deviation, frequency distribution and percentages, Multiple linear regressions was used to test the hypothesis, inferential statistics; Regression analysis model of fitness ( $R^2$ ), F-statistics, and associated P-value, regression coefficient were generated for business continuity management best practice to measure the effects of the independent variables. Attainment of BCM Best Practices was established using Gartner Six Level Model.

Keywords: Recovery systems processes, employees safety, organization policies, infrastructure stability

### **1.0 Introduction**

Disaster recovery is the ability for an organization to recover successfully from disruptions in the shortest time possible. Disasters can take place due to power failure, system crash, or natural calamities. The organization should be able to recover the most critical data, networks, software applications and services. Successful recovery would make the organization to get back to business and remain competitive. The ability by a business to recover may be the difference between success and failure (Bernstein, 2011).

When a disaster strikes there is no entity that has immunity to chaos and havoc (Von Solms, 2007). Many researchers have discussed the effect and severity of disasters. They have also outlined the consequences of disasters whenever they strike and emphasised the need for



corporations to be prepared (Arend, 2009; Lee and Ross, 2005; Davis, 2014; Hood, 2005). There are several empirical studies (Vijayaraman and Ramakrishna, 2004; Iyer and Bandyopadhyay, 2010; Botha and Von Solms, 2007) and practitioner reports (Moore, 2005; Lethbridge, 2007; Bielski, 2013) which indicate that corporations would lose their competitive edge, profits, corporate image, productivity and market share if contingency measures are not taken and implemented to shield them from disasters. According to Richardson (2009) and Moore & Lakha (2005), issues on risks and disasters are not new; they are as old as the early civilization. Organizations therefore should be proactive to manage any disaster.

## **2.0 Literature Review**

In an empirical study by Karim (2011) on ‘Business disaster preparedness, it was concluded that strategic management has a significant role to play in disaster recovery plans.

There are many types of disasters for example earthquakes, terrorist attack and malfunctioning of software because of computer virus (Slater, 2015). According to a research by Loannidus (2012), disasters have increased because of emerging technologies. He also affirms that organizations suffer less when they are suitably prepared for a disaster. Bernstein (2011) confirms that the most effective way to handle disasters is depend on the strategies for preparedness. The strategies prevent disasters from happening at the onset. According to Loannidus (2012), a majority of the organizations in Africa are not fully prepared for disasters although they could be having disaster management programmes. He further says the disaster management programmes of such organizations have processes not adhered to, and therefore are unable to prevent disasters when they occur. Getting back into business after a disruption requires disaster recovery plans. Burnett (2008) posits that, more than 50% of the largest profit making organizations in USA had no disaster plans by 2008 while a third of German companies had disaster plans and crisis management teams (Schwarz and Pforr, 2010).

Smith (2007) argues that, researchers have not given emphasis to disaster recovery. The focus has been on protection, prevention and mitigation. There is therefore need to undertake studies that mainly focus on disaster recovery. Broom, (2006) asserts that disaster preparedness assessment should be according to the communication plans in place, organizational policies, disaster management and disaster budgets available. There is also need to focus on employee safety and physical assets. The reputation of an organization is highly improved through disaster preparedness because it ensures disaster recovery. Businesses can benefit from best practice offered by Business Continuity Institute (BCI). The institute assists businesses to maintain their reputation by providing training programs and consultancy services (BCI, 2013).

Disaster management and recovery may affect different sectors in different ways within a society. Disaster recovery is associated with broader issues concerning environmental management and long – term sustainability of an organization. It is possible to plan for disaster recovery because it can be foreseen and predicted. This means that organizations can put in place disaster recovery strategies to protect the entire organization’s employees and assets such buildings and machinery. Recovery from disaster consists of four sequential stages namely; emergency, restoration and replacement, reconstruction and commemorative periods. The four stages, fast track the period of developmental reconstruction of the organization (National Research Council, 2006). Labadie (2008) in his paper “Auditing of Post Disaster Recovery and



Reconstruction Activities” sought to explore the application of auditing and quality assurance principles and practices to disaster planning and implementation of post disaster recovery and reconstruction. The recovery and reconstruction efforts can help to mitigate possible future disasters effects by making organizations more sustainable and enhances survival. Organizations’ Certification is in order after strategies in disaster recovery are place. Consequently, private companies that attempt to obtain the certification must make progressive changes to account for the needs of their unique environments (Clas, 2008).

In an empirical study by Karim (2011) on ‘Business disaster preparedness, it was concluded that strategic management has a significant effect on employees and Information life cycle management when preparing BCP strategies. In a Bench Marking Survey on Disaster Recovery (DR) Preparedness, presented in Global Annual conference (2014) found out that 60% of those interviewed indicated that they did not have a fully documented DR plan. Another 40% said they had a DR plan, which was not useful when responding to disaster recovery scenarios. Thirty - three per cent of all organizations who took part in the survey stated that they test their DR once or twice a year and 25% of the respondents never test their DR plans. This means that organizations should put more emphasis on Disaster recovery plans.

Sawalha (2011) in his empirical study “Business Continuity Management and Strategic Planning: the Case of Jordan”, concluded that damage to company reputation is predictable and hence the need for principled leadership in organizations to establish disaster recovery plans. A later study by Khan and Zsidin (2012) noted that it is important to have disaster recovery plans in order to respond quickly and decisively where the organization’s reputation is at risk and for the safety of employees. Jilcha&Kitaw (2016) explains that when employees’ safety focus is on work place and health, there should be both rules of effective resource utilization and safe work place environment. Safe work places are profitable whether measured in company bottom line, its market share or its broader consumer reputation or its ability to attract and retain workers, managers or investors. Mobile telephone service providers would therefore greatly benefit from having disaster recovery plans that focus on the safety of workers.

According to Yen & Chou (2000), one of the benefits of a Disaster Recovery Plan (DRP) is to eliminate any confusion or errors when dealing with disasters. It assists in quick recovery and provides other alternatives during the disaster. In addition, it reduces reliance on certain key individuals, ensures the safety of data, company personnel and enhances organized business recovery.

H<sub>03</sub>: There is no statistically significant relationship between disaster recovery strategies and Business Continuity Management best practices.

This research was both quantitative and qualitative and used descriptive research design. Bryman& Bell (2007) argues that using both qualitative and quantitative research allows triangulation to be applied. They therefore agree that it is important to combine both quantitative and qualitative studies. Qualitative and quantitative research also assists the researcher to be specific and accurate in the interpretation of data. It also gives the researcher the ability to interpret some phenomena and complex perceptions obtained from qualitative data (Bryman& Bell, 2007). Descriptive research design was used in this study to describe the application of BCM best practice in mobile telephone service providers in Kenya. The variables of interest



were; emergency response strategies, crisis management strategies, disaster recovery strategies and business continuity planning strategies.

In this research the population of study was the heads of departments of the registered mobile telephone service providers under the Communication Authority of Kenya (CA) by June 2015 namely; Safaricom Ltd has 12 departments, Airtel Ltd 11, Equitel 15 departments, Orange Telkom 10 departments. The 11 departmental heads of Communication Authority of Kenya being the regulator of the sector were also studied, making a population size of 59 departmental heads. All the departmental heads at the headquarters of these firms constituted the population of study. This is because according to Foster & Dye, (2005) BCM best practices is the responsibility of senior managers. Ashford (2008) also agrees that senior managers are the people who have the power to integrate BCM best practices into their organizations. Sawalha (2011) studied BCM in Jordan firms at managerial level. Management has the responsibility for BCM best Practice and takes a leadership role in the implementation of BCM best practices.

The mobile telephone service providers were also selected for study because they contributed 5.6 % to the GDP and a further 1.9% from non- tangibles in 2015 (Deloitte LLP, 2015) and this is projected to increase in subsequent years. According to the Economic Survey of Kenya 2016, internet service providers increased by 24.9% and internet users increased by 35.9% by 2015. The annual investment in telephone service providers was 36.2 billion and internet 3.3 billion in 2015. These statistics show a high growing sector. Table 3.1 summarises the population of study.

### **3.0 Model**

The inferential statistics used in this study was multiple linear Regression. The relationship between independent variable namely; ,disaster recovery strategies, and the dependent variable which was Business Continuity Management best practices, was measured by the Multiple Linear Regression. Multiple Linear regression was used because it is a parametric regression analysis in which the predictors do not take a predetermined form but are constructed according to information derived from the data collected. Multiple Linear regression model was also used to determine the overall fit (variance explained) of the model and the relative contribution of the predictor to the total variance explained (Pallant, 2007).

#### **Disaster Recovery strategies**

$$y_3 = f (\beta_3 + m_1+m_2+m_3+ m_4 + \epsilon)$$

Where

- $y_3$  = Disaster Recovery strategies
- $\beta_3$  = Constant variable
- $m_1$  = Recovery Systems Processes
- $m_2$  = Employees Safety.
- $m_3$  = Organizational Policies
- $m_4$ = Infrastructure Stability
- $\epsilon$  = Error term.

### **4.0 Results and Findings**

#### **4.1 Comparison of Effectiveness of Disaster Recovery Strategies**



The research sought to establish the effectiveness of disaster recovery plans in place to respond to various disasters as they occur; such plans include recovery system processes, employee’s safety, infrastructure stability and organizational policies. The findings were rated on a scale of 1-5 Where, 1 = highly ineffective 2= not effective 3 = neither nor ineffective 4 = effective, 5 = very effective.

**Table 4.1 Comparison of Effectiveness of Disaster Recovery Strategies**

Comparisons of Disaster Recovery Parameters					
Firms	Recovery system processes	Employees Safety	Infrastructure Stability	Organization Policies	Aggregate Mean
Safaricom	4.20	4.80	4.00	3.8	4.20
Airtel	3.88	4.85	3.84	3.84	4.10
Equitel	4.00	3.85	4.00	3.5	3.80
Telkom	3.50	4.20	2.84	3.8	3.60
CA	3.80	4.40	3.50	3.8	3.88
Mean	3.87	4.42	3.64	3.75	3.92

The research found that, organizations have different levels of effectiveness in responding to disaster recovery. Safaricom was found to have the highest score on the effectiveness of disaster recovery system at Mean (SD) =4.20 (0.34) followed by Airtel at a mean(SD) = 4.10 (1.11), This is closely followed by CA with a Mean (SD) =3.88 (0.34), Equitel with a Mean (SD) = 3.80(0.6) and Telkom with a Mean (SD) = 3.60 (1.00)

In terms of the level of effectiveness of disaster recovery strategies for employee safety all, the firms that participated in the study found them effective. Airtel had the highest score at a Mean (SD) = 4.85(1.00), followed by Safaricom with a Mean (SD) = 4.80(0.6), while CA had a Mean (SD) = 4.40(1.3), Telkom at a Mean (SD) = 4.20(1.3). Equitel was lowest at a Mean (SD) = 3.85(1.80). This means that the Mobile Telephone service providers had put in place measures to safe guard the employees.

In terms of the effectiveness in infrastructure stability, the findings indicated that there were significant differences in the level of effectiveness across all the firms. Safaricom and Equitel had the highest level of infrastructure stability at a Mean(SD) = 4.00(0.32) each. Airtel had a Mean(SD)= 3.84 (0.34), Communication Authority of Kenya Mean (SD) = 3.50(1.00) and Telkom had the lowest score Mean (SD) = 2.84(0.5). Infrastructure is very important in mobile Telephone service providers it is the backbone of this type of business and therefore the findings show that the firms are in the right trend.

Finally concerning how Organizations are prepared for disaster recovery in terms of organization policies, Airtel was the most prepared with the highest Mean (SD) = 3.84(0.84) followed by Safaricom, Telkom and Communications Authority of Kenya with mean of Mean (SD) = 3.80(0.8) each and Equitel had the lowest Mean (SD) = 3.50(1). Broom, (2006) asserts that disaster preparedness should be assessed according to the communication plans in place,



organizational policies, disaster management and disaster budgets available. There is also need to focus on employee safety and physical assets. An empirical study by Vizard (2008) established that disaster recovery plans in USA firms included IT recovery systems, a recovery strategy that comprises of physical assets such as buildings and infrastructure and this is in agreement with our study.

Loannidus (2012) observed that a majority of the organizations in Africa are not fully prepared for disasters although they could be having disaster management programmes. He further says that the disaster management programmes of such organizations have processes, which are not followed and are therefore unable to prevent disasters when they occur. Getting back into business after a disruption requires disaster recovery plans. Burnett (2008) posits that, more than 50% of the largest profit making organizations in USA had no disaster plans by 2008 while a third of German companies had disaster plans and crisis management teams (Schwarz and Pforr, 2010). Figure 4.2 : Model Summary and ANOVA

**Fig 4.2 : Model Summary and ANOVA**

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	F	sig
1	.260 <sup>c</sup>	.232	.067	.640	8.8	.08

The results show that disaster management strategies were weak and only partially correlated with BCM Best practices,  $r^2 = .232$ ,  $p = .08 > .05$  and so null hypothesis was accepted that there is no relationship between disaster management strategies and BCM best practices. This means that the alternative hypothesis was not accepted, which implies that there is weak relationship between disaster recovery strategies and BCM Best practices.

## 5.0 CONCLUSION

The relationship between disaster recovery strategies in the attainment of BCM Best Practice, the findings revealed that employees’ safety was first with an aggregate mean of 4.42 while the second was recovery systems processes at an aggregate mean of 3.87 followed by organizational policies at a mean of 3.75 and last was infrastructure stability at a mean of 3.64. Therefore, employee safety and recovery systems processes were highly effective practices in disaster recovery. However, the other two are also important and their scores were fair. Organization policies are important and the score revealed the same. Infrastructure is important because it is the backbone of any business and this research revealed that too.

The findings amongst the firms, Safaricom Ltd had a Mean (SD) = 4.20(0.5) while Airtel had a Mean (SD) = 4.10(6), while Equitel scored a mean (SD) = 3.8 (4) and Telkom had a mean (SD) = 3.6(1). This means that the two firms had the highest disaster recovery strategies compared to the other two firms.

The regression findings established that disaster management strategies were weak and only partially correlated with BCM Best practices,  $r^2 = .232$ ,  $p = .08 > .05$  therefore null hypothesis was accepted - there is no relationship between disaster recovery management strategies and BCM best practices. This means that the alternative hypothesis was therefore rejected, which concludes that there is a weak relationship between disaster recovery strategies and BCM Best



practices. Disaster recovery strategies in the attainment of BCM best practice were at level two when bench marked with Gartner 6 Model. This concludes that such strategies are still at nascent level only witnessed at departmental or business unit level. The firms under study have not yet established disaster recovery strategies in BCM Best Practices .

The regression findings established that there was no significant relationship between disaster recoveries in the attainment of BCM Best Practice. Therefore, the firms in the sector need to put more efforts in disaster recovery strategies for the attainment BCM Best Practices.

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