

BUSINESS INTELLIGENCE STRATEGIES IN BUILDING A MODEL THAT INTEGRATES INTELLIGENCE MANAGEMENT, CRISIS MANAGEMENT AND DISASTER

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ABSTRACT

The field of business intelligence and crisis management has now become important issues that the organization must address. The objectives of the research are to define the concepts of business intelligence in crisis management and review and the importance of business intelligence in building important and effective decisions to know the changes of the internal and external environment to find the most important data to reach important and effective decisions. Today we are suffering from a great catastrophe, which is the Coronavirus, which has caused many institutions to fail or significant losses that cannot be overlooked. This paper examines the importance of business intelligence in pre-planning long-term strategies in building a model that integrates intelligence management, crisis management and disaster.

Keywords: *Covid-19, Business Intelligence, Risk Management, Crisis Model*

1. INTRODUCTION

Risk Management is a manner of assessing and valuing risks and developing strategies for managing them. These strategies contain transferring risks to another entity, avoiding them, minimizing their negative effects, accepting some or all of their consequences, and preparing plans to deal with the risks that must occur. It can also be defined as an administrative activity that aims to control risks and reduce them to acceptable levels. More exactly, it is the process of recognizing, measuring, controlling and reducing risks facing a company, organization or project.

Risk According to the definition of (ISO / IEC Guide 73) [1], it is a link between the probability of an event and its effects. The old-style risk management emphasizes on the risks arising from material or legal reasons. Regardless of the type of risk management, all major companies as well as groups and smaller companies have a dedicated risk management team. In the case of ideal risk management, prioritization is followed, so that risks with high losses and a high probability of occurrence are addressed first while risks with fewer losses and less probability of occurrence are addressed later.

In practice, this process may be very difficult, and the balance between high-risk risks and low

losses versus low-risk risks and high losses may be poorly managed. Intangible risk management defines a new type of risk, which is a 100% probability of occurrence but is ignored by the organization due to the lack of recognition capacity [2]. For example, knowledge risks that occur when applying incomplete knowledge. As well as the risks of relationships and occur when there is ineffective cooperation. All of these risks directly reduce workers' productivity in knowledge and reduce the effectiveness of spending, profit, service, quality, reputation, and quality of earnings. Risk management to looks at difficulties in assigning and distributing resources, and this illustrates the idea of opportunity cost, as some of the assets paid on risk management could have been used for more profitable activities.

Once again, the ideal risk management process reduces spending while minimizing negative risk outcomes. Risk management must be integrated with enterprise culture and with effective policy and programs for senior management. Risk management strategies must translate into practical and tactical goals and define responsibilities throughout the organization for each manager and employee responsible for risk management as part of his job description [3].

Business intelligence is constantly evolving according to business and technology needs, so

every year we define current trends to keep users up to date with innovations. Realize that business intelligence and machine learning will continue to grow, and companies can incorporate ideas from business intelligence into a broader surveying strategy. As companies strive to be more data-dependent, efforts to share data and collaborate will increase. Data visualization will be more important to work together across teams and departments [4].

The study relied on the analytical descriptive approach because it suits the nature of the study, its goals and questions. Data sources are derived from two sources and they are: sources are represented by the study literatures which rely on the scientific references and previous researches and studies that discuss the study subject, and the articles that are published in magazines and periodicals.

2. COVID19 IS AGITATE BUSINESS AND CONSUMER PERFORMANCE

Both the public and private spheres are widespread, to slow the feast of disease and contain Covid19 infection. While the full economic consequences of this black swan are still unclear, we know that the effects of the virus - and the stringent measures being taken to contain it - are already causing change Across industries. Here are the three most important ways in which analysts from business and market experts believe this epidemic will affect communications, technology, digital media, payments, trade, banking, and healthcare [5].

Apart from the damages incurred by each country separately, we find that international economic institutions and agencies have agreed on initial losses that will be caused by the decline in growth rates and global demand mainly due to an expected and logical decline in the rate of Chinese growth, the main focus of the disease, especially since the Chinese giant alone owns Over 20% of global trade in intermediate products.

Based on [6], the Great Depression stimulated anti-waste behavior, which in turn contributed to determining consumer patterns for decades, and the Asian financial crisis contributed to saving the region to the largest group of foreign currencies in the world, and the global financial crisis has fueled anger towards advanced democratic governments that have been reluctant to compensate The workers, who received little wages in the last

decade, but now, it has become a public health emergency affecting the global economy.

Within only weeks, the general public in the affected areas used to wear masks and store the necessary things, cancel social and commercial gatherings, and cancel travel and work plans from home, so that countries with relatively few cases of infection take many of these precautions.

The Bloomberg News Agency said that the effects of these customs will continue for a long time even after the quarantine level has been reduced, and it will greatly affect the demand. Concerning supply, international manufacturers are forced to rethink where their goods are bought and produced, which accelerates the transformation after it. The trade war between the United States and China exposed the dangers of relying on a single source of components Karen Harris, managing director of the Macro Trends Group in New York, said that workers are likely to stick once effective policies are put in place to work from home, and Bloomberg reports that universities that have suffered from the travel ban will diversify their foreign student base and that Schools will need to be better prepared to continue education online when any virus or epidemic causes it to be closed [7].

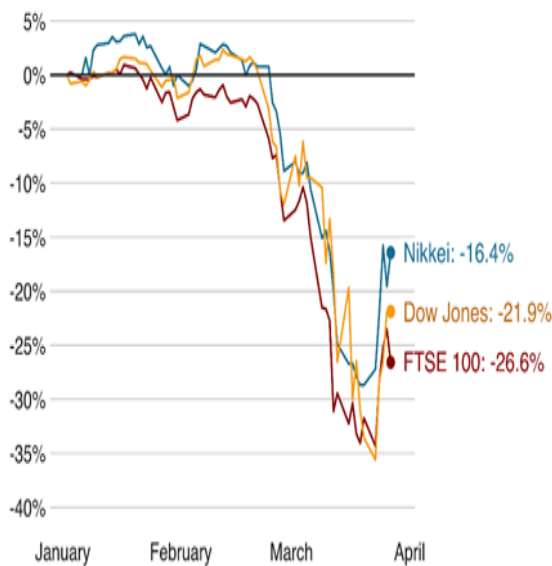
At the same time, the tourism sector is affected more severely, as flights, cruises, hotels and the network of companies feeding on the sector suffer in light of the spread of this global epidemic.

Many economic agencies and their research centers have suggested that global economic growth will freeze by the end of this year if the Coronavirus continues to transmit at the same speed to most countries of the world. Where experts predicted Bloomberg Agency that this year will be the worst since the global recession that peaked in 2009, and that global output will lose about 2.7 trillion dollars by the end of 2020, on the assumption that the global economy will recover by the last quarter of the same year, and the situation will be worse in If that hypothesis is not fulfilled [8].

Although international finance corporation economists acknowledge that "the range of possible outcomes is large and dependent on the spread of the virus and the resulting economic consequences, all of which are hazy and high at this point," they

expect economic growth in the United States to drop to 1.3%, down from 2 % of what it was in the past, and for China to slightly less than 4%, down from 5.9% in the past, which pushes global growth to record its lowest levels since the global financial crisis, including only 1%, which is much less than the growth of 2.6% In 2019.

The FTSE (Financial Times and Stock Exchange), Dow Jones Industrial Average and the Nikkei have all seen vast falls since the occurrence began on 31 December [9].



Source: Bloomberg, 27 March 2020, 13:00 GMT



Figure 1: The Impact Of Coronavirus On Stock Markets Since The Start Of The Outbreak

3. DISSIMILAR VIEWPOINTS TOOLS AND EQUIPMENT

The past several decades have also seen tremendous advances in soft computing including Genetic algorithms for solving optimization problems in machine learning it has been used in various real-life applications such as data centers, electronic circuit design, code-breaking, image processing, artificial creativity, fuzzy logic, neural networks, evolutionary computations, optimization methods such as linear programming, nonlinear programming, game theory, and multi-parameter decision analysis. Optimization methods have been widely applied in industry in many areas of forecasting, performance evaluation, automated control, and job approximation. This section

provides a survey of the main areas, along with associated technologies.

4. EARLY WARNING SYSTEMS

Several research has addressed the importance of early warning systems, results revealed that price at the main markets could be great indicator for predicting future price crises.

A. Krstevska, used in macroeconomic models, with details of Macedonia's economy [21].

Lo Duca and Peltonen [22] have developed a framework for forecasting periods of financial instability. The consequences of the papers study exposed that the issues of local and global macro-financial weakness have a positive impact in predicting financial crises.

An early warning system is a systematic process of assessing and computing risks early to take preventive steps to reduce their impact on the financial system.

A combination of different methods to determine some time before the occurrence of risks that may cause losses. In the banking sector, early warning systems are used to pre-detect potential failures.

Despite previous and ongoing research on emergency crises to contain them and reduce damage from previous studies and research. The new COVID-19 crisis has caused not only a double whammy on worldwide but also raid on the very hypothesis that underlies our societies, economies, and political systems: that we operate in a mostly predictable environment. Consumers, investors, workers and policy makers tend to act as if the world is calculable and the near future can be predicted with sufficient accuracy. As a result, uncertainty shocks can lead to sharp declines in overall economic activity.

5. RISK-BASED CLASSIFICATION

Risks can have four characteristics: uncertainty, dynamics, interconnection, and sophistication. The first two characteristics have been widely recognized in temporal models of areas of behavioral decision-making and behavioral economics [10]; the latest two good characteristics of finance majors are studied

Probability of risk applies the theory of different probabilities and distributions to typical risks. This approach can be traced back to the year 1700, leading to models of events Bernoulli, Poisson, Gauss, Pareto General Distribution, and

distributions of the maximum general value of the model.

Aris [11] emphasized the importance of establishing a systematic risk management process for each decision phase of a construction project. Effective project risk management is possible by knowing the various barriers in risk management and the strategies to overcome them [12]. Failure to recognize and remove obstacles to risk management affects risk management activities and leads to a failure of the project. There are many implications of abandoned ventures, including financial costs, negative coverage, loss of consumer interest, and loss of competitive advantage.

6. DIFFERENT PERSPECTIVES AND TOOLS

The past several decades have also seen tremendous progress in computational intelligence containing neural networks, fuzzy logic, evolutionary computing and optimization approaches for example game theory, linear programming, nonlinear programming, and multi-criteria decision analysis. Enhancement approaches have been widely practiced in the industry in many areas of performance evaluation, forecasting, automatic control and job approximation.

7. RISKS AND UNCERTAINTIES

This is critical for managing natural risks, not only in judging strategies to increase elasticity but also in reporting risks that lead to a successful reduction [13]. Natural threats, such as the ecosystems in which they happen, are full of several non-linear interactions: so our thoughtful of their nature and our capability to forecast their behavior is limited [13]. Therefore, it is necessary to obtain and publish the most precise information, where likely, in aspect on the face of the risk community, in order to inform flood and environment risk managers where the main vulnerabilities (“pressure points”) are at their highest level, directing emergency planners where risks may arise, and help establish policies to take advantage of and target limited resources.

With an increased understanding of disaster trends and impacts, it is possible to plan prevention, mitigation and better preparedness measures to reduce the impacts of disasters on societies. The disaster loss database creation process specifically seeks to serve this purpose. It is to inform decision-

makers and the public alike, and to focus on the importance of investing in disaster risk reduction to reduce losses and protect development investments through sound planning and resilient development strategies [3].

Despite the devastation caused by Storm Sandy and other recent natural disasters, small companies are not receiving the message. A new poll found that 70% do not expect to face a similar disaster and that nearly half of them have no plan to ensure business continuity [14] such as the following Natural disaster:

- a) Major earthquakes
- b) Hurricanes, hurricanes and hurricanes
- c) Massive flooding
- d) Damage caused by abnormal weather phenomena, such as windstorms, flood damage, droughts, and water shortages
- e) Local rainstorms
- f) Tsunami

We can add the Corona virus disaster: "The development of a crisis preparedness plan is one of the greatest significant strategic decisions a business owner will make. However, SMEs are likely to rely on minimal disaster planning, in the hope that they will never have to use it.

We consider this start defines the need for robust models that study from relatively few examples and quickly adapt to changes in decision making. Despite many strategies, short and long term, and despite many previous natural or industrial disasters, and others, the institutions did not think, even in the long term, by taking these or other phenomena into account. We see all the plans were in the short to far from them and all were far from business intelligence.

This resulted in an imbalance in the system in the face of disasters of all kinds, and business has fallen into a stand in front of these challenges. The outbreak of Covid19 became rapid in destroying many aspects of business in a very short time, and this is what is mentioned in the introduction to this research [15].

7.1 The winner and loser of the Covid-19 outbreak

Some sectors have found themselves by chance and without strategic planning to take advantage of the outbreak of this disease that these companies thrive strongly and allow them to grow.

While on the other side, we see many different sectors of great companies that have become the biggest losers, and the management of these institutions will need energy and a great effort to get them out of this crisis, and even if they succeeded in overcoming the crisis, many of them would be seriously affected.

Even the emergency plans that some institutions take to overcome some disasters only fail to take measures to protect their employees and companies from overcoming the ordeal of the spread of corona disease before disasters occur, such as the Coronavirus.

8. RISK ANALYSIS APPROACHES

The perception of risk is not only related to the perceived risks as described earlier, but with all aspects of individual and group risk perceptions. Risk perceptions are affected by a wide range of factors, including voluntary risk, the expectation of control, severity of consequences, justice in the scattering of risks and benefits, and the perceived benefit itself. It seems that no appropriate work has been done on categorizing these factors [16].

Risk assessment can be divided into risk identification, incorporation of risk identification, risk assessment and risk assessment, which is an explicit social risk assessment. However, risk identification implies social provisions that are implicit, for example in the value of a live account. Valuable judgments are also used in relation to the necessary assumptions implied by the technical estimate.

Risk assessment methods include direct statistical estimates, modelling procedures using historical and empirical data, and risk comparisons. The risk assessment applies selected criteria to the project before making a decision. These criteria may be a quantity, a quality, or, more possible, a mixture of the two. Examples of methods include risk comparisons, the cost-effectiveness of risk reduction, cost-benefit analysis, and joint systems.

Acceptable risk is an emotional term used to represent a level that a community believes to be "good enough". However, a more detailed analysis indicates that risks are unacceptable, but options are acceptable. We are talking about acceptable risks. The methods used to determine acceptable risks are similar to the methods for assessing risks.

Risk-preference approaches are used to try to measure perceived risk, which can be used as an estimate of acceptable risks for risk comparisons. The described preference method uses behaviour statistics to give basic preferences. This approach assumes that current and prior acceptable levels of safety apply to the future. The expressive preference method obtains information directly from individuals. It is assumed that people fully understand the implications of the questions and that they will act consistently and rationally. Risk management used as an alternative term: phrase. More specifically, it is concerned with studying policy options through assessment to making decisions. Problems arise when politicians and decision-makers are out of the technical process involved in risk assessment [17].

9. DISASTER MANAGEMENT CYCLE

The traditional approach to disaster management was to consider it as a series of consecutive or continuum chains. This can be represented as a course.

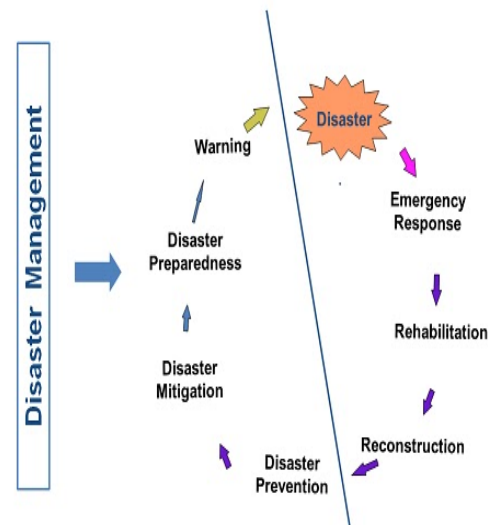


Figure 2: Enterprise Risk Intelligence Maturity

A close examination of the word "institution" reveals that it includes every aspect of the organization, rather than just a strategic focus on senior management reports or the board of directors. Other terms that use the word "Enterprise" usually assume the assumption that they represent only the greatest inherent risks, major loss events, or gross breaches of compliance

that are summarized at a high level and conceptually [18].

10. BUSINESS INTELLIGENCE ADVANTAGE FOR SMALL AND MEDIUM-SIZED ENTERPRISES (SME)

The risk that competition will become faster or be swallowed up by a larger company is irrelevant is a cause of concern for every small and medium-sized enterprise. To stay ahead of the competition, CEOs need to make quick decisions. It is clear that the implementation of biological information in these circumstances is critical. Business intelligence system with reporting, dashboards and self-service data exploration allows for a better understanding of the business along with better visibility and insights of data. It helps transfer data from sales, finance, marketing, and manufacturing into some meaningful information. This information can then be fed to various job managers.

Therefore, they make informed decisions. Business intelligence provides quick insights for small businesses on what works and what does not. It helps to anticipate the impact on the business in the near future and the long term. Any negative impact can be expected earlier; this will be of great benefit especially in the case of a small company's like.

Their ability to withstand losses is low. BI gives one copy of the data point and fact from top to bottom. Therefore, the company's team does not need to constantly worry about the decision-making capabilities of its managers. However, the strategy for surveying small enterprises must be phased. The maturity of the system and operations in SMEs is usually low, so small businesses should avoid the Big Bang approach [19]. Implementation in phases will also help keep the budget under control and ensure companies move from one stage to another only after success.

Small businesses must take a "crawl, walk, and run" approach to implementing business intelligence. Initially, SMEs should only apply business intelligence for simple operating reports and summary dashboards. Once the first stage succeeds, SMEs can then move to operational dashboards, custom query and some more sophisticated analyzes. In this way, the implementation will be more successful and the mistakes of the previous stage can be corrected in the next stage.

11. ENSURING SUCCESSFUL BUSINESS INTELLIGENCE IMPLEMENTATION

As a first step, senior management and information technology must agree that implementing surveying requires careful efforts and thought. They need to clarify the scope of the project carefully and they should not try to absorb everything in the first stage. Senior management in particular should not think that the limited scope in the first stage is a waste of money.

The next important factor in choosing the solution through information technology. Small businesses should be very careful while choosing a tool. In this case, information technology should not only take into account the cost and schedules for the first stage but also take into account future needs. Consideration should be given to cost, time, features, minimum, and availability of skilled resources in the market.

Ensure that the solution can work on the latest technologies like cloud, virtualization, mobile, social media, etc. Moreover, the licensing criteria must be carefully reviewed. Most of the business intelligence products have a very complex licensing policy, they have different criteria like connector licenses, multi-application access, and virtualization. Ignoring these facts may become a bottleneck in the future for business intelligence expansion in the organization. Another important factor is choosing an implementation partner. The partner must be experienced and must have skilled resources. Its reputation in the market must be excellent as it is the only entity that will fully develop the business intelligence strategy.

In short, implementing small business information in small businesses is essential. A thoughtful and implementable BI implementation can provide a competitive advantage to small businesses. Crises take more time to surprise us differently. A coronavirus or COVID-19 crisis is an example of a slow-build disaster [20]. The companies see the possibility of disturbance, which makes them more dangerous in the face of the effects of the type of event, and this is the result of the strategy in standing up to sudden events and not collapsing the situation in such a way that it loses all the infrastructure and the difficulty of returning to what it was previously. This is evidence of the failure of short and long plans because they are

dependent on other controls, neglecting the principle of contingency plans, and preparing adequate studies to cover this lack of strategies. Accordingly, he proposed a model for crises such as the current crisis of Covid-19.

11.1 Crisis Strategies Model

In general, risk can be defined as something very large, sometimes in the future, or uncertainty about the outcome whether it is a positive opportunity or a negative threat. The primary goal of the company's management is to create value for shareholders. The main function of risk management is to ensure the organization continues to create value in an uncertain environment. Risk management should support better decision making through a worthy thoughtful of the risks and their possible impact, Figure 3.



Figure 3: The Crisis Strategies Model

Risk management is a periodic process that begins with identifying risk factors, assessing and measuring risks, and deciding whether to use financial instruments to do something about risks (for example, avoiding, accepting or hedging, etc.), monitoring and controls. Risk management means managing the business by taking an acceptable level of risk and preventing a huge loss for companies even if negative events occur in the future.

It is noticeable that there are many models in dealing with crisis management and strategies for dealing with long strategies, each one working on

separation from the other, and these models can succeed in a short term and in certain cases in defining strategies without helmets or standing up, treatment plans in the expectations and surprises that future institutions may face. We consider it a blind spot, as it is now the case in the calamity and disaster of Covid-19.

Therefore, after careful study and investigation in linking the models' strategic plan process and crisis management project management in building a strong and solid strategy to stand up to overcoming misfortunes and unaccounted disasters as is the case now, or we may face a similar and unexpected disaster.

There is a high level of Business Intelligence in the business Companies. This indicates to the interest of these organizations in Business Intelligence tools, especially in regard to the analytical processing of data that rely on a safe and integrated data system around the work environment and the field it works in. There is also a high level of crises management in the business Companies, and that comes from the realization of these organizations to the importance of controlling the crises they could face and how it can limit their competence and performance efficiency through using a group of tools to overcome, contain, or minimize the damages of these crises as much as possible.

The study recommends paying attention to implementing Business Intelligence tools in countering the crises which business organizations could face. Provide highly qualified human resources to establish precautionary plans for the anticipated crises in the business organizations and Develop and implement modern policies and procedures in the field of crises management, as well as establishing standardized, comprehensive and well-planned programs on all job levels with the goal of progressing with competency in the dealing with crises.

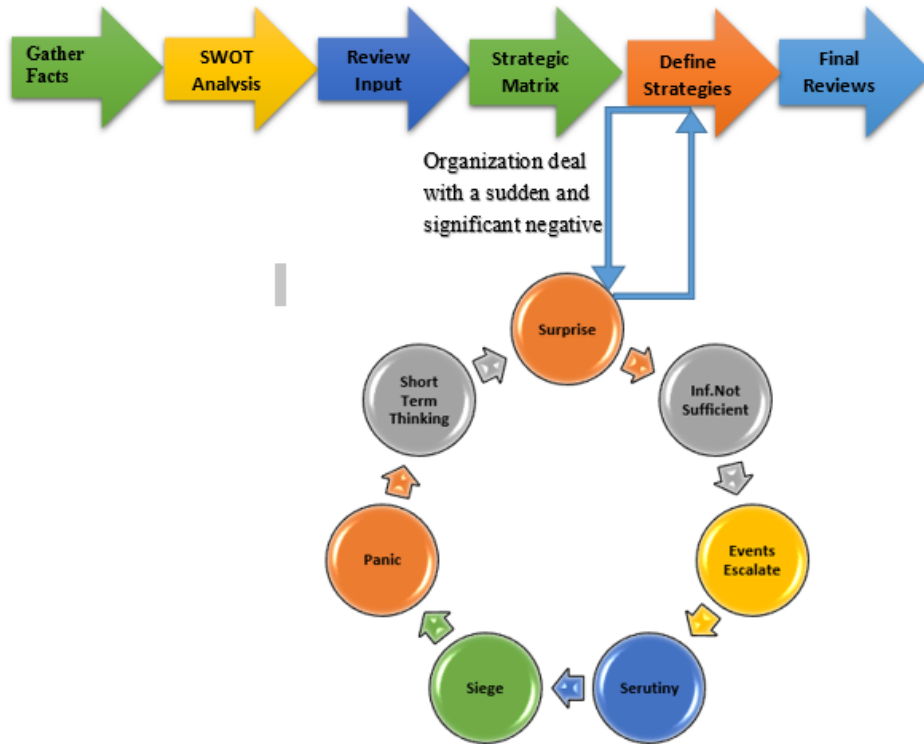


Figure 4: Strategic Plan Process Model deal with a crisis event

12. CONCLUSION

Crisis planning can reduce its impact and even create a competitive advantage with trying to anticipate all negative events that may occur in the organization and then planning related crisis strategies can be frustrating or confusing. Business intelligence models have been applied in risk management contexts worldwide. They have proven effective for over half a century.

The present research aimed at investigating the perceptions and attitudes of Business Intelligence capability in an approach to solving the crisis event. Risk is the one thing that everyone wants to avoid in life, or at least manage and the risks in life are factors that must be dealt with. Creating strategic models that work in strategy plans, and assessing performance can reduce the disaster crisis and increase the likelihood that their organizations will survive and possibly take advantage of times of crisis.

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