

# Analysis on Business Analytics in Risk Management

Yulun Ding<sup>1,\*</sup>

<sup>1</sup> Penn State University – Smeal Business School, Business Building, University Park, PA, 16802

\*Corresponding author. Email: Ybd5056@psu.edu

## ABSTRACT

Data and business analytics have become very powerful and important tools in present business environments. Organizations have become very dependent on data produced in the market to carry out their operations in very competitive markets successfully. The most predominant use of these data sets has included boosting processes and ensuring that they are cost-efficient, improving changes and designing strategies, and monitoring and improving financial performance. However, the use of business analytics is not limited to businesses that will boost growth. Business analysis is also used to identify threats faced by businesses and provide solutions. To examine how business analysis can be used in business practices to improve strategic outcomes, this paper examines the use of business analysis to manage risk in an enterprise and identifies the advantages of using business analysis in managing risk and its characteristics. This paper will further explore the concepts provided by the literature on this subject, draw the conclusion that the use of business analytics provides an informed approach including continuous assessment, which is a central element in mitigating seen and unseen risks.

**Keywords:** capital efficiency, big data, data ingestion tools, web scrappers, visualization platforms

## 1. INTRODUCTION

In the current business environment, data and business analysis have become potent and essential tools. In order to successfully conduct business in a very competitive marketplace, organizations have become very dependent on the data generated in the marketplace. As modern markets experience new challenges and competitive landscapes change dramatically, businesses have begun employing analytics to identify trends and predictive functions to forecast futures and prescriptive work to determine outcomes with the best yields. However, these functions have not been limited to operations that will enable growth. Business analytics have also been employed to identify threats that businesses face and provide solutions to address them. Data analytics has therefore found great use in the risk management of modern businesses. With the constantly shifting complexity and frequency of changes in markets and technology, exploiting the superior benefits of an effective risk management tool has become crucial. Businesses now need systems that can quickly identify threats and provide a basis upon which numerous risk assessment decisions can be made to avoid unnecessary disruptions or losses. The use of business analytics in risk management strategies has become necessary to the

modern enterprise because it allows companies to have a complete insight of all risks accurately and gives them a basis upon which they can adopt informed decisions that allow the business to avert any potential threats to its operations. This paper investigates the use of business analytics to manage risks in an enterprise, identifies the advantages of using business analytics in managing risks and elaborates its characteristics such as accuracy, cost effectiveness, and a broad view of both internal and external business elements. It explores the concepts about analytics to investigate how business analytics can be adopted in business practices to improve strategic outcomes.

## 2. LITERATURE REVIEW

### 2.1. Function of Business Analytics

The literature identifies many instances that managers should use business analytics in the management of risks. Chehbi-Gamoura *et al.* argue that business analytics makes sense in risk management as they are competent in reducing or preventing repetitive losses [2]. The most prevalent common source of losses is drawn from claims. Suppose that an accident were to happen at the workplace. In that case, the management must evaluate that incidence and identify the source to

prevent it from occurring in the future again. Suppose that it fails to identify the source of the risk. In this case, it might occur in the future and cause liabilities to the organization's operations. Klatt *et al.* note that analytics allows an organization to identify trends and risk indicators that could become serious issues and formulate strategies that would stop them before they cost the organization money or unnecessary resources [6]. The risk assessment tools can also recognize if a specific area has higher claims occurrences and conduct an assessment to see what is wrong in that area. The analytical tools will also prevent an enterprise losing money from where they could prevent.

Literature has also identified risk management as part of the functions derived from the broader roles allocated to data analytics. Kim *et al.* note that roles such as reporting, performance monitoring, forecasting, and decision making are all central in assessing risks [5]. Well-formulated analytics enables the organization to create reports on relevant factors in the organization and industry. These reports are useful in diagnosing the issues that are identified in the organization and provide indications on how they can be fixed. Good reporting provides data that is actionable and one that can anyone can understand. Laursen & Thorlund agree that good reporting provides business support and the mitigation strategy central to risk mitigation strategies [7]. Monitoring of performance is another feature of analytics that allows the management of an organization to comprehend the scale of its operations and activities fully. Managers will recognize red flags or indications that specific divisions or departments are at risk. These indications will provide a basis upon which issues in those departments will be subjected to change. Araz *et al.* indicate that forecasting and decision making is the primary role of business analytics [1]. These roles largely form the risk management strategies. Without analytics, risk managers would not know what went wrong or what to do when similar red flags are identified in the organization's operations.

Another advantage that has been identified in the literature is accuracy. According to Laursen & Thorlund, business analytics is useful in risk management compared to other models because they are accurate [7]. Accurate instruments give the decision maker a reliable platform to pursue decisions whose impacts can be anticipated. Big data allows organizations to enjoy more detailed forecasts while minimizing the errors associated with it significantly. As was the case in the past, manually gathering data has been eliminated, creating a more robust ability for enterprises to make better decisions. Chehbi-Gamoura *et al.* mention that businesses are more likely today to know the risks arising from operational and strategic approaches today than they could do in the past [2]. Therefore, the adoption of management approaches is

more informed and grounded in knowledge in modern enterprises.

Business analytics has also reduced the cost of operations significantly. Naseer *et al.* recognize this as one of the most important considerations that inform its adoption compared to the traditional methods used in the past [8]. Risk management in the past involved recruiting market analysts and carrying out extensive market research to identify the likely scenarios that could impact a business in the future. These methods were often costly, inaccurate, and did not provide real time actionable data. The inability of fully and efficiently identifying risks contributed to high costs for the business. According to Naseer *et al.*, many businesses depended on benchmarking and standardization to limit risks that had been generally identified in the market. The costs for these pursuits were significantly higher than what modern businesses incur today [8]. Klatt *et al.* argue that the concept of cost should also be seen in identifying business opportunities [6]. Business analytics also helps enterprises identify weaknesses in the margins and allows them to make changes in their prices to cut costs where needed to increase revenues.

According to Laursen & Thorlund, one of the most significant features of business analytics vital for risk management is its use in improving capital efficiency [7]. When a business identifies areas of risk in the business operation, an organization can dispose of those filled with risks and gain important capital for the growth of areas where the risks are minimal. This position is supported by Araz *et al.*, who argue that capital efficiency has many benefits for the organization [1]. One such advantage of capital efficiency is the scalability of products, the growth and expansion of teams, and an increase in the delivery process of product engineering. Protecting profit and the prudent distribution of capital will substantially impact the outcomes of the organization. Cumulatively, these advantages form the basis upon which modern enterprises should pursue business analytics. Capital efficiency is important in how the organization will allocate the resources required to conduct some of its operations and meet the gaps in its strategic approaches.

## **2.2. Advantages of Business Analytics**

There are many benefits associated with business analytics that justify its adoption in risk management. Chehbi-Gamoura *et al.*, identified the speed and efficiency of identifying trends and potential risks as some of the most significant advantages of business analytics in risk management [2]. Whichever industry the tools are applied in sporting future threats and finding ways to minimize risks is an important part of business operations. Big data is a useful component of the analytical processes that aids organizations in

identifying and assess both internal and external threats. According to Naseer *et al.*, time is an essential element when dealing with risks in an organization [8]. When a lot of time is taken, the business may be affected by the risk. Business analytics reduces the time by providing actionable information to identify and adopt mitigation measures to handle those risks.

**3. THE USE OF BUSINESS ANALYTICS IN RISK MANAGEMENT**

There are several ways through which business analytics provide the means to assess the risks that a business could potentially face. The management of these risks is a process that can be operationalized into clear phases [4]. The first phase involves the identification of risks. Risks that organizations face may originate from internal processes and controls or the external environments. Internal risks could arise due to inadequate processers and controls, poor allocation of resources, and lack of funding, among many other reasons. External environments that can impact a business or maybe the source of risks include the macroeconomic shifts, the political environment, climatic changes, cultural changes, technological changes, and market perceptions. These risks prevent a business from attaining its goals and objectives. The emergence of big data in the global business environment has enabled businesses to incorporate internal and external data points within their operations to be able to identify risks that could be disruptive quickly [3]. Some relevant tools include data ingestion tools, web scrappers, and visualization platforms that all function to accommodate the new need to identify risks.

The next step in risk management is the assessment of risks and prioritization. The assessment and prioritization of risks are vital as it ensures that the business emphasizes crucial management areas [2]. The comprehension of the risk landscape must be extended to the readily available data and linked with strategic risks all the way to the operational and functional levels. The data must be synced with the risk profile and other associated indicators to effectively profile the risk and understand the likelihood of its occurrence and its impact on the organization. It has become important analytical tools are constructed to detect risks and completely evaluate their financial impact or any other effect they might have on businesses. Modern analytical tools are created to balance the financial impacts of these recurrent risks against the investment adopted to mitigate them as a way of risk management [4]. The analytical tools included in this instance include data models, ingestion tools, and visualization platforms.

Another phase or function of business analytics in risk management is responding to risks and providing or informing of the mitigation approaches that should be adopted. An excellent response to risks must assess

several available options to the business and decide on the best approach to be followed. The tools must consider the impacts of the selected options before settling on a suitable one in each case [9]. Business analytics is required to track and assess the effectiveness of the response and introduce course correction in cases where that is necessary. When adopted, several risk modeling tools in the market can simulate the “what if” scenarios based on the past occurrences of risks and the predictions of what could occur in the future. The integration of other data elements may be required to assist in the optimal response strategy. As the data is used and the policies or strategies of risk management are deployed, the implementation is also tracked and the effectiveness of the mitigation plans evaluated. These tools will notify the implementation owners if everything is on track and shows where they might need to refocus on [4]. Some relevant technologies applicable in this scenario include AI/ML models, scenario models, analytical tools, and visualization tools.

The final phase and role of business analytics in risk management are monitoring and reporting. Monitoring risks is vital in the current dynamic environment [3]. Identifying risk indicators for unique types of risk is crucial in measuring trends and movements of data parameters linked to risks. Business analytics provides means through which lag and lead indicators are identified by assessing relevant data useful in defining parameters that indicate whether the conditions ahead are safe or riskier ahead. Risk analytics are therefore central tools in business analytics. A company will deploy an excellent risk management tool to automate alerts and reminders linked to the data platforms. The linkage enables timely actions to be undertaken by a business. The second part that is also crucial is reporting. Relevant and timely reporting may be attained by embedding the whole risk management lifecycle on the technology platform [2]. Some business enables their platforms to generate scheduled and on-demand reports. These reports provide data that is fed for each layer in the risk management protocols. The diagram below shows the process of risk management using business analytics.



**Figure 1** Risk Management Process [10]

### **3.1. Useful Business Analytics Types in Risk Management**

There are several types of business analytics that risk managers can use. The first type is descriptive analysis. A descriptive analysis creates metadata that explains what has happened behind the scenes and how the figures someone is analyzing are created. The descriptive analysis also involves understanding the history of the business, the costs, revenues and identifying what changes these variables have shown over time. It provides a basis for what changes could be adopted as time goes by. In addition, a comparative analysis gives an analysis based on relating data to other figures in the business [3]. This analysis is important because isolated data on its own may not provide a complete picture that is needed to comprehend the risks that an organization is facing fully. Comparative analysis answers the question of how changes in one parameter cause changes in another and is therefore useful in identifying causal and effects relationships. Another important analysis is the trend analysis. A trend analysis is often considered the most important type of data for risk managers. It allows them to identify what lead to the occurrence of a particular situation. If it negatively impacts the organization, future mitigation approaches will be adopted. Trend analysis can also enable risk managers to find a link between what appear as unrelated incidents to prevent a claim or deterioration. Risk management allows businesses to implement mitigation strategies and institute better work cultures. The final analysis is the visual analysis. Visual analysis is not the regular type of analysis as its morphological structure is slightly different from other analyses [4]. It entails visualizing other data kinds. The analysis is a very valuable process as it ensures that data are presented in a way that can be easily understood by the people who intend to use them. The types of analysis used are based on the aims of the risk management study.

### **3.2 Operational Considerations in Risk Management**

The management of risks through business analytics should be guided by management philosophies that guide other strategic approaches. The first step in risk management should include building a library of potential risks [6]. Building such a library will require risk assessments to identify weaknesses in the organization. The management can then create a heat map that will rank the risks that an organization is likely to face. The second step after identifying key risk indicators (KRI) is the review and test those data sources. It is at this point that spot testing within individual systems to validate the choice of risk indicators. The data should be connected into a single platform and then have scheduled analytics that tests

and continuously validate controls. The manager can dig deeper and find out deficiencies in the data. Finally, a report should be created (reports can be created at any time) and continuous assessment initiated. Business analytics is considered modern technology [7]. Therefore, it needs to be continuously improved as the technology considers developments in the market and those that occurred in the technological spheres.

## **4. CONCLUSION**

The use of business analytics in risk management strategies has become necessary to the modern enterprise because it allows businesses to have a complete insight of all risks accurately and gives them a basis upon which they can adopt informed decisions that allow the business to avert any potential threats to its operations. There are several ways through which business analytics provide the means to assess the risks that a business could potentially face. The management of these risks is a process that can be operationalized into clear phases. These phases include identifying risks, assessing risks and prioritization, responding to risks, and providing or informing of the mitigation approaches that should be adopted. An excellent response to risks must assess several available options to the business and decide on the best approach to be followed. The tools must consider the impacts of the selected options before settling on a suitable one in each case. Business analytics is required to track and assess the effectiveness of the response and introduce course correction in cases where that is necessary. Monitoring risks is vital in the current dynamic environment. Identifying risk indicators for unique types of risk is crucial in measuring trends and movements of data parameters linked to risks. Business analytics provide means through which lag and lead indicators are identified by assessing relevant data useful in defining parameters that indicate whether the conditions ahead are safe or riskier ahead. A company should deploy excellent risk management to automate alerts and reminders linked to the data platforms. The linkage enables timely actions to be undertaken by a business. The second part that is also crucial is reporting. Relevant and timely reporting may be attained by embedding the whole risk management lifecycle on the technology platform.

## **AUTHORS' CONTRIBUTIONS**

This paper is independently completed by Yulun Ding.

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