An Investigation of the Potential Benefits and Challenges of Business Intelligence Adoption in the Retail Sector in Gweru, Zimbabwe

Carlington Rufaro Zamba, Gilbert Mahlangu, Maxmillan Giyane, Taurai George Rebanowako
Midlands State University, Gweru, Zimbabwe
zambacr@staff.msu.ac.zw, mahlangu.gilbert2017@gmail.com, giyanem@staff.msu.ac.zw, rebanowakot@staff.msu.ac.zw

DOI: 10.20470/jsi.v9i2.331

Abstract*: The research explores the business intelligence tools that are being utilised by retailers in Gweru in a bid to find the extent of business intelligence (BI) adoption in this sector through comparison with other business intelligence models and frameworks. It further finds the benefits and challenges of adopting business intelligence in the retail sector. The information was collected using questionnaires, interviews and observations. The research findings revealed that there is no integration of data sources used by the current BI tools in the retail sector. Most of the external and internal data sources for business intelligence are being underutilized and there is no adoption of Enterprise Resource Planning (ERP) systems. The research recommends the following to the retail sector organisations in Gweru: adoption of ERP systems, adequate budgets for infrastructure and networking equipment, training of staff, and integration of data sources for BI systems and adoption of integrated BI tools amongst others to circumvent most of the challenges of BI adoption in the retail sector of Gweru.*

Keywords: Business Intelligence, Business Intelligence Adoption, Benefits of Business Intelligence, challenges of Business Intelligence, Retail Sector

1. Introduction

Retail is one of the most diverse sector in the vertical industry arena (Reinartz, Dellaert, Krafft, Kumar, & Varadarajan, 2011). Retailers collect increasing amounts of data from their operational and external systems which include POS systems, Financial Systems and E-commerce initiatives. The retail sector is waterlogged in greatest of variety of information from enterprise and legacy systems. The information is required to facilitate store floor management, forecast sales, design marketing campaigns and competitive pricing models, manage inventory and eventually meet customer expectations (Gujrati, 2016). But, the gathering and analysis of business information is not as simple as it may appear. Many retail businesses have too much information while they do not know what is important from that information (Olszak, 2013). Traditional database systems are not capable to meet user demand for intelligent analysis of data and forecasts. Changing this situation of inadequate collection of data, poor knowledge, supporting enhanced business decision making and helping enterprises boost their profits and relative market share has now become the concern for business and information technology sectors (EYGM, Ke, & Peng, 2014). Thus, this has necessitated the need for retail organisations to look at Business Intelligence (BI) seriously and to consider its use as part of the overall strategy for success.

The concept of BI represents a wide area of applications and technologies for collecting, storing, analysing and providing access to information for improving businesses process modeling quality (Ranjan, 2009). It has emerged at the requisite time when the volumes of data have increased such that traditional reporting cannot cope any further with the demand of the business. BI plays a central role in producing up-to-date information for operational, tactical and strategic decision-making (Al-Kassab, Thiesse, & Buckel, 2013). It is used for analysis and creation of different reports of customers, supply chain, finance and human resources (Ahmed, 2012). While there is no generally accepted notion regarding BI, Turban, Sharda, Delen and King (2011) describes BI as the process of transforming raw data into meaningful information to enable more efficient business insight and decision making. Thus, it can be seen from this definition that the general goal of using BI is to provide better visibility into the day-to-day business operations.

BI increases the understanding of projections for a firm such as future market directions, trends, technologies, actions of competitors and implications of such (Negash, 2004). In the current dynamic business environment, organisations that use informed decisions are the ones that are always ahead of the rest while those that do not make use of BI are more likely to come up with ill-informed decisions that may be catastrophic for the firm (Olexová, 2014). To avoid this catastrophic scenario, organisations need the relevant tools to transform its raw data into meaningful information to enable more efficient business insight and profits in the end. This shows the importance of BI in the retail sector as in any other industrial sector. However, despite the increasing interest and importance of the retail sector and BI, there is limited research on use of BI in retailers of developing countries and Zimbabwe inclusive.

Given the significant contribution of the retail sector to the economy of each and every country, if retailers fail to adopt BI to enhance their decision making, the retailers will find it difficult to compete effectively and have the potential to undermine economic stability in developing countries. This research is more focused on the BI adoption trends, benefits and in the Retail Sector of Zimbabwe.

2. Importance of Business Intelligence

BI increases understanding about capabilities available to the firm, for example, future market directions, trends, technologies, state of the art, actions of competitors and implications of such actions and regulatory environment in which the firm competes (MicroStrategy Incorporated, 2011). In past years, organisations used to be profit oriented through the sale of goods or services and were not much concerned about their business data besides the financial aspect. Technology used then was not amenable to the new intelligence strategies of today. Information Technology (IT) has offered businesses phenomenal ways to capture and store lots of data. Business data and information has become the soil that grows BI (Green, 2007). Leveraging information is a key success factor for companies and over the last two decades BI has evolved to become a fundamental cornerstone of enterprise decision support (Lloyd, 2011).

According to Fries (Gendron, 2014), BI does not only contribute to the strategic level of an organisation, but also to the tactical and even operational levels. He went on to conclude that reporting and OLAP tools are very much contributing to the big picture of the organization's performance. There is growing need to understand the business more in order to compete in the fast changing market place. Knowledge is the key, something that companies are aware of and are now implementing BI solutions in order to gain knowledge rather than make assumptions (Dobbs, Stone & Abbott, 2002). A qualitative research carried out in UK by Abbot in 2000, showed that marketers felt that more information helped them to do a better job but it had to be accurate and timely as bad data hindered campaigns because it caused loss of morale. Dobbs et al (2002) argue businesses are now in a position to take full advantage of the technological breakthroughs via organizational information systems through their warehouses and large array of BI tools.

2.1 Business intelligence in the Retail Sector

Retailing involves reselling of goods or services to the end-user, and general stores and kiosks are the initial forms of retailing points where only the nearby community usually shops their daily necessities. The retail industry is one of the industries with the largest number of businesses and employees in the world (Ahmed, 2012). The emergence and tremendous growth of economies has unleashed powerful forces that are reshaping the retail industry at an unprecedented rate. The trend from customer relationship management to branding to supply chain management are impacted by the revolution and retailers are struggling to strike the balance between maintaining operational excellence and implementing necessary changes (IBM Global Services Report, 2010).

Managers and researchers have been working to develop Information Systems that provide BI, with BI being both a process and a product (Ranjan, 2009). The process is comprised of the methods employed to develop useful information or intelligence that helps the particular organizations survive in the global economy. The product is the information that allows organizations to predict the behavior of their competitors, suppliers, customers, technologies, acquisitions, markets, products and services and the business environment with a degree of certainty. According to Bittner (2012), analysis of historical data and forecasting of the future is an unconditional requirement for retailers. In order to get real insight and valuable actions, the retailer needs fast and unfettered access to customer, product and vendor information. The economy in the IT environment has enabled the retailer to gain high

quality information through the use of BI tools like data warehousing, data mining, and OLAP (Rao and Swarup, 2001).

Rao et al (2001) argues that customer intelligence is the key driving force behind adoption of BI solutions by retailers. He further states that the state of the art BI analysis of data from sources such as Point of Sale transactions and social media gives unprecedented access to the customers' mind. BI provides improved business management and operational processes such as planning and controlling. BI further helps the retailer keep a vigilant eye on business activities by estimating the long and short-term demands, notifications of low inventory and monitoring factors that influence customer loyalty (Chee, 2009). According to Tapscott (2008), simple and relevant BI tools can empower employees to make effective decisions with increased speed and agility. He further argues that smart retailers that integrate real-time decision making with mission critical business processes can keep up with the innovation-driven world of the 21st century. Retailers are at the leading edge of the business intelligence wave and all those that execute well derive significant advantages from their efforts (Tapscott, 2008).

As suggested by Ahmed (2012), retail management technologies like Self Checkout POS, RFID and Cloud Computing for helping the retailers by providing a real time integrated and collaborative information system that provides them with strong business intelligence systems that keep vigilant eyes on business performance. Deloitte Consulting (2009) argue that in retail, business intelligence is moving from being a support system to a "mission critical" application. Retailers are looking beyond reporting capabilities to applications for synthesizing information from a wide variety of systems and analyzing performance of sales, margin, supplier delivery times, effectiveness of promotions and allowing them to effectively react to business insights (Deloitte Consulting, 2009).

3. Trends of BI Penetration in Zimbabwe's Retail Sector

The focus of the BI event has been a practical example from the retail sector as well as best practice scenarios on big data. Understanding BI trends is essential for retailers because predictive analytics and big data will remain or become omnipresent in this sector. Business intelligence norms are evolving across the retail industry, and leading retailers are prioritising analytics initiatives as a result. According to an article by iGlobal Zimbabwe, there are some modern IT companies such as Integral Edge BI and Propel Business Solutions that are designing, developing and implementing software solutions that help retail businesses to streamline their operations. More organisations in the retail sector are calling for the necessity of business intelligence (BI) reporting. It has become a regularly concept in the discussions of many business circles. The BI tools are used for various purposes such as carrying out their analysis, reporting and decision making processes as well. The most common BI tools used in the clothing and grocery retail sector in Zimbabwe are BRM POS system, Adept, Storeline and an internal system called March4. This goes on to show that BI has penetrated into the country. However, there is limited research on the adoption of BI in the context of the Retail Sector within developing countries such as Zimbabwe. Furthermore, there is a gap in understanding its benefits to the retail sector. According to a maturity model by Shweta & Abhirup (2011), BI in the retail sector of Gweru is still in the late 1990s. This is because most of the BI tools have not yet been adopted in the current BI systems being used by retailers in Gweru.

3.1 Benefits of BI in Zimbabwe's Retail Sector

The benefits associated with BI adoption in the retail sector include accurate decision making, efficient service delivery and competitive advantage. Decisions are made faster when using the relevant BI tools as information is made readily available at any time. Most of the POS systems in the retail sector have brought convenience to the customers as they use scanners and bar code readers that enable the till operators to serve customers quickly and bring about efficiency and competitive advantage to most of the supermarkets and stores. This agrees with Kenton (2005) who identified improvement in competitive responsiveness as one of the main drivers for BI. Abbot (2000) also argues that BI gives customers excellent products and services just like the efficient service delivery benefit identified in this particular research.

Furthermore, the retailers that use BI benefit by forecasting future trends and have effective resource sharing as well according to the results from the study. An organisation is able to see its future whilst in the present and make prior decisions that enable it to be always ahead of competition at all times. Resource sharing is made possible through the use of networked computers in different organizations.

Through the use of some of these BI tools, it is possible to view slow moving stocks or nearly expiring stock in one branch for instance despite geographical location and distance apart. This enables decisions to be made quickly to move the goods from that particular branch to another where the goods can be sold out in no time. Thus, the benefits can be summarised as follows:

- Employees have the ability to valuable business reports quickly, as information is the driving force of decision making.
- Improved sharing of inter-departmental knowledge.
- Financial viability of the company is improved, as it is easier to manage cost ownership.
- There's a greater understanding of the value of the business and the capabilities thereof, and thus what can be improved or expanded.

4. Challenges Faced by the Retail Sector in Zimbabwe in the Use of BI

Despite the vast potential benefits and positive contribution of BI to the Zimbabwean economy, retailers have faced variety of constraints that have hampered them from fully adopting to the more current technological developments in terms of state of the art integrated BI tools. Some of the challenges include expensive to implement and maintain, networking, lack of skilled personnel and information security concerns. Most systems used in the retail sector frequently go offline causing delays in data aggregation. In addition, the IT support staff in retail industry lack necessary skills on the application of BI tools. Furthermore, BI tools are very expensive to acquire and maintain and also come with security concerns. Moreover, the data sources used in the retail sector are not integrated to form a complete BI system.

5. Conclusion

Using BI tools in the retail industry is the key to revealing relevant insights, increasing profitability, and improving brand awareness. The right BI analytics can help uncover new markets, identify areas for future development, track the responses to marketing strategies, and much more. However, regardless of the fair adoption of BI tools in the retail sector, not all the data sources needed for input in the BI system are being utilized. The data sources are not integrated to form a complete BI system. The retail sector of Zimbabwe has a potential of earning more revenue and adding immensely to the GDP of the country from proper implementation of relevant integrated BI tools. Implementation of these technologies will enhance customer experience. In light of the dynamic technological environment that the retail organizations operate, management in the retail sector should view these IT initiatives as a major component that will drive market share rather than just supporting business. In the research it was found that BI and analytics plays a crucial role and the use of integrated BI tools makes decision making easier and faster.

6. Recommendations

In light of the findings of the study, the researcher makes the following recommendations to the retail sector in Gweru and Zimbabwe in general.

6.1 Adequate budget for infrastructural and networking equipment

There is need for management in retail organisations to allocate sufficient budgets for IT projects. The budget will enable acquisition of latest equipment such as scanners and barcode readers on POS ends which reduce customer service time in queues and improve service delivery in some of the retailers. The retail organisations need to be equipped with state of the art computers used for installing different applications used by BI tools. The networking equipment and bandwidth used by the retailers needs upgrading to improve efficiency and reduce staff and customer complaints for network hiccups which cause staff and customer dissatisfaction.

6.2 Training of staff

Success of effective implementation of BI in the retail sector depends more on management and the staff itself. Management needs to be educated or informed on the importance of BI on their

organisations and then facilitate for staff training in the use of these technologies. Most of the BI tools are user friendly and do not need IT background but just basic training on how to use them.

6.3 Adoption of ERP systems

The research found that the retail organisations investigated were not using ERP systems. These are an important data source for any BI system. An ERP system is integrated business management software that provides real-time view of business processes using a common database in the organization. It keeps track of business resources such as production capacity, raw materials and even cash; business commitments such as purchase orders and payroll. The information provided by an ERP system shows its relevance to any BI system in any organization.

6.4 Effective use of BI system data sources

There is minimal use of data from other sources which include CRM systems, market research, supply chain management and organizational website. It is therefore recommended that the retail organisations make use of these data sources as they are of great significance to the success of any BI project. The retailers are more sales oriented and are forgetting the key to their success, which are the customer and the supplier. Input from the customer and the supplier is of vital importance to any business organisation survive. Information from the customer and supplier is extracted through the data sources that the retailers are not utilising for information processing. This reduces the effectiveness of their information system and BI system of the organisation.

6.5 Adoption of recommended BI tools

For the use of integrated BI tools, it is recommended that retailers adopt available modern BI tools for the retail sector such as SAP BusinessObjects, IBM Cognos Series 10, QlikView and WebFOCUS BI. These BI tools provide more powerful query and reporting, analytics, dashboarding and data integration solutions for any organization. Some of the BI tools such as QlikView are from South Africa which is a neighboring country and makes support for these tools much easier. Some of these modern BI tools can be used on mobile devices which bring convenience to the users and managers can perform their analysis even on the go.

6.6 Security of BI data and information

The pervasive use of BI for decision making creates security risks for retail organizations. The centralized architecture of many BI tools means that a lot of sensitive data or information is populated in one repository and accessed by many people. Security breaches therefore need to be safeguarded against. It is therefore recommended that stringent access controls be put in place to prevent unauthorised access to BI data.

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JEL Classification: L81, M15