

Market Research And Business Intelligence Studies On The Expansion Of E-Commerce Enterprises

Tran Minh Tung^{1*}, Duong Hoai Lan², Tran Thi Kim Cuc³, Vo Thi Kim Oanh⁴

^{1,2,3,4}Swinburne Vietnam – FPT University, Vietnam Email: ¹tungtm6@fe.edu.vn, ²landh4@fe.edu.vn,³cucttk2@fe.edu.vn, ⁴oanhvtk8@fe.edu.vn

*Corresponding Author: Tran Minh Tung

Swinburne Vietnam – FPT University, Vietnam, tungtm6@fe.edu.vn

Citation: Tran Minh Tung et al. (2024), Market Research And Business Intelligence Studies On The Expansion Of E-Commerce Enterprises, *Educational Administration: Theory and Practice*, *30*(3), 467-479, Doi: 10.53555/kuey.v30i3.1295

ARTICLE INFO	ABSTRACT
	Objective: This study looks at how market research and business intelligence
	(BI) affect the expansion of e-commerce companies.
	Method: A mixed-method approach is used in the research, incorporating case studies and data analysis from real-world situations. Case studies will
	be used to gather primary data, and pertinent literature will be the source of secondary data.
	Results: The goal of the study is to demonstrate how market research and business intelligence techniques support competitiveness, profitability, and
	overall growth in e-commerce enterprises.
	Implications: The results provide insightful information for multiple stakeholders:
	• E-commerce companies: Learn how to use market research and BI to achieve strategic expansion
	 Management staff: Recognize the true significance of market research and business intelligence in making decisions
	• BI teams: Determine ways to maximize return on investment (ROI) and optimize performance.
	Conclusion: It is anticipated that this study will show that thorough market research and a clearly defined business intelligence plan are essential to starting and running a profitable online business (Hypothesis: H1)

Introduction

Demand is unique from other economic items, hence it's critical to grasp it thoroughly. Demand, according to McGrath (2000), is less concrete. Demand is disguised, making measurement and comprehension challenging. People's wants, expectations, how and when they will use it, where they will use it, and how much they are willing to pay are all factors to consider (McGrath, 2000). Because business intelligence is becoming more and more important in the e-commerce sector, using data can help firms expand faster and make more money than they did in the past. Businesses may now obtain information from a variety of data sources, according to Henschen (2012), which can help them identify business opportunities, recognize emerging market trends, and make more informed operational decisions. In light of this, the paper seeks to provide light on how market research and business intelligence relate to the expansion of e-commerce companies. The study begins with a thorough assessment of the literature on the definitions, advantages, and difficulties of market research and business intelligence. It also looks at potential tactics for enhancing the growth of e-commerce and the range of tools and resources used in a profitable business intelligence endeavor. In addition, the study looks at how market research and business intelligence affect the expansion of e-commerce, possible drivers of improved company performance, and some effective real-world instances to highlight the main ideas. The study employed a range of electronic and literary sources, including books, scholarly journals, and internet articles, for its research methodology. After that, the report will be polished and organized logically, adhering to the scholarly methods of discovery, analysis, and problem-solving. With a certain amount of managerial expertise in the areas of strategic marketing and customer relationship

Copyright © 2024 by Author/s and Licensed by Kuey. This is an open access article distributed under the Creative Commons Attribution License which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

management, medium to upper management in the e-commerce sector may find the study helpful and informative. (Wu et al., 2023) (Barata et al.2023)

1.1 Aim of the Research

The research aims to examine how business intelligence and market research can help e-commerce businesses to grow. This is important because over the years, the usability, popularity, and success of the e-commerce models have been immense. Many successful e-commerce organizations have been implementing business intelligence and market research in a systematic way to enhance their growth, competitiveness, and profit in the market. Therefore, this research will explore and critically evaluate the different aspects of business intelligence and market research on the growth of e-commerce businesses using real-world data. The study will also help different e-commerce businesses to understand how they can enhance their business intelligence and market research. Moreover, the study will also help the management persons and the business intelligence teams in e-commerce to understand the real value of business intelligence and market research into a number of chapters and I will also use a number of case studies to enrich the validity of the research. This includes primary research by gathering data from the case studies and secondary research by critically evaluating different literatures.

Finally, findings from different literatures and case studies will be concluded. The conclusion will support hypothesis that a good business intelligence plan and market research are the foundation for creating a successful e-commerce presence. Also, it will support aim and objectives as being used to get the desired outcome.

1.2 Research Questions

The primary research question is: How does business intelligence impact the growth of e-commerce businesses?

In order to answer this question, the following sub-questions must also be addressed: What is business intelligence and what is its role in the modern competitive business environment? What are the benefits and challenges of implementing business intelligence in the e-commerce sector? The above question aims to achieve the next steps. The first focuses on defining what business intelligence represents and how the continuous use of advanced technology to analyze the information in a business environment. The second will direct the primary focus into the advantages and disadvantages of business intelligence specifically in the e-commerce sector. And by this direction, the aims of each sub-question will fulfill the purpose of the next sub-question until the targets achieved.

1.3 Scope of the reseach

The main areas to be covered in this research include an overview of business intelligence, its importance and role in e-commerce, benefits and challenges of business intelligence, real-time business intelligence, and an account of the case study of an e-commerce company called The Sports Division. The research will also cover an introduction to market research, the significance of market research in e-commerce and its impact on the success, primary and secondary data used in the research, data collection methods and data analysis and different tools used in the market research. The different types of market research and the use of internet in market research will also be covered. The research will further include market techniques and limitations of market research. The impact of business intelligence on e-commerce in an online marketplace and the benefits and risk of market research are investigated. And lastly, a consideration of the impact of decision support system on management where a discussion is conducted about the development of management support system, its elements and the various types of decision support systems including cybernetics, artificial intelligence, management information system (MIS) and knowledge base system. The research will provide a detailed evaluation of how business intelligence and market research have been used in ecommerce over the years for the growth and expansion of various products and services. The expertise and knowledge gained from this study will be helpful to both the start-up and existing online companies in appreciating the need for data-driven strategies in e-commerce nowadays. The study, therefore, contributes towards the advancement of current knowledge in the academic and professional disciplines of information systems management and e-commerce and also practical strategies for online business success.

Hypothesis

This research proposes the following hypothesis:

H1: A well-defined business intelligence plan and comprehensive market research are fundamental to establishing and maintaining a successful e-commerce presence.

This hypothesis aligns with the research aim of exploring how BI and market research contribute to the growth of e-commerce businesses. The research findings will be evaluated against this hypothesis to determine its validity and draw meaningful conclusions.

THEORETICAL FRAMEWORK

As well as introducing the main themes for research, it explores the definition of business intelligence and how it is used. Determining commonalities among consumers, providing optimal customer service, and discovering areas where a company can improve operations are several benefits. From a bit as basic business intelligence had been used in the form of biographical solutions like the credit reporting industry and employment - it's the connotation of the modern term of 'business intelligence' that seems to have changed over time and this could clue into the viewpoints of how important it is in a business context. The literature review is based on studies that were published over years between 2007-2013 in top information systems and top operations management journals. Also, they were selected from a pool of 20 journals that was determined based upon the impact they had when comparing the amount of citations they received from research articles. This information could suggest differing causes for growth in business intelligence and the significance of each, for example. Furthermore, the literature review analysed studies which discussed business intelligence and technology from both the 'information systems' and 'operations management' viewpoint. It is helpful for this particular research as it investigates the impact that business intelligence can have in an online retailing environment and how technology and methods currently used in the e-commerce industry have advanced over recent years. (Fosso et al.2020) (Fosso Wamba & Queiroz, 2023)

1. Business Intelligence in E-commerce

Business intelligence (BI) is a process by which companies improve the quality of their management decisions by using data and statistical analysis as a basis. It has both internal and external focuses. Internally, it is used to measure the organization's functions and performance against historical data. BI can help ecommerce entities to identify areas for improvement and to identify operational inefficiencies. It is extremely important in today's rapidly changing business environment because it provides timely and accurate insights into right now that drive smarter strategic decision over time. When product managers at e-commerce companies frame analyses, whether it is measuring sales of a featured product or visitation to an upgraded site area, they must keep two simple-sounding ideas in mind to drive the business decisions they are working towards – it has to make money and save money. These analyses through the BI process cannot only provide critical inputs to website upgrades and redesigns, they can help identify which actions have the potential to produce stronger sales and profit results. BI technology offers many short and long-term benefits to ecommerce, especially in quality improvements and operational cost reduction. For example, an e-commerce company can examine click-stream data to reveal the browsing and buying behaviour of clients over time this is just one specific way BI through data analysis can help. Another example is geo-mapping and data mining - these analytically driven goals are achieved through a BI strategy, which provides richer results rather than hit or miss approaches to more fashionable trends in marketing, such as SEO and website redesigns which only look to increase traffic for short term success. The benefits of BI are direct, tangible and more readily measurable in e-commerce than its implementation or use in any other sector. As companies grow in product supply, in staff numbers, in volume of services offered and in brand they can easily lose the ability to grasp and understand their internal functional workings - this means that many efficiency opportunities are missed. However, unlike in other sectors, the nature of data generation and collection in ecommerce works with, and is highly conducive, to a successful BI campaign. This is because industry-set product line, customer behaviour modelling and prediction and the ability to respond to changes in customer habits is readily able to be shaped by the analytical paradigms in a fully-fledged BI deployment. BI has the potential to change the way e-commerce is managed and grow - it provides money saving and money making opportunities unheard of in even the most high-tech retail sectors of today. In the vast and ever-growing realm of e-commerce solutions and strategies, we all know how much development we are yet to experience. The future is only made up of opportunities as yet unrealised, and BI holds the key to unlocking a lot of them for better e-solutions in future global markets. (Shobana et al.2023) (Nithya and Kiruthika2021)

Definition and Importance

Business intelligence refers to the tools, technologies, and strategies used to analyze and make sense of the vast amount of data generated by business processes. It is important to note that in today's digitally driven e-commerce landscape, businesses are increasingly relying on data analysis and business intelligence to gain a competitive edge. Business intelligence is not just about gathering and analyzing data, but about the ability to put that data to good use. By providing historic, current and predictive views of business operations, business intelligence empowers businesses to make informed decisions, streamline operational processes, gain a deeper insight into customer behavior and needs, and respond quickly to changing market trends. In the competitive e-commerce market, effective business intelligence can spell the difference between sustained success and abrupt failure. This is because the insights generated from effective data analysis can help e-commerce businesses to identify new sales opportunities, develop targeted marketing campaigns and understand the changing landscape of the industry. So, being effective e-commerce is no longer about simply having a web presence- it is now about using that presence effectively to engage customers and drive sales. With customers scanning the globe for the best products at the best price, the competition has never been more intense and offering a better service than your competitors is the key to success. Because business intelligence can be very complex and, as a practice, can be very disruptive if not planned out properly, there

are several challenges in realizing its full potential. For example, it often involves the convergence of many different data sources and continuously developing systems. This will include a migration to a single platform- a recent report from software advice found that 38% of businesses are still using two or more separate platforms to achieve their business intelligence insights. (Rana et al.2022) (Yiu et al.2020) (Niu et al.2021)

Role of Business Intelligence in E-commerce Businesses

Business intelligence in e-commerce is a term used to describe how data analysis can be used by e-commerce firms to improve their decision-making process. The role of business intelligence in e-commerce is growing, and as more competition in the sector exists, in particular between both small and large e-commerce companies, more and more companies are starting to use BI solutions to gain a competitive edge. By gathering and analyzing data, e-commerce companies can make sure that their marketing and products are tailored to what their customers actually want, rather than what the board thinks they want. Data is generally the most valuable asset of an e-commerce business due to the vast amount of information that is generated. Examples of data generated include customer details, the path in which people navigate through the website, and purchase preferences. Without BI, businesses tend to make important decisions based on sheer guesswork. Using data not only reduces this risk but can save time and effort that might have been wasted on the wrong decision. By collecting 'big data' and using it in a BI system, a business can gain useful insight into not only who their potential and existing customers are but also what they might be specifically looking for when it comes to visiting the website. This targeted approach in marketing can have benefits. For example, the conversion rate of turning a browsing customer into a paying one could potentially be improved by providing more of what the data shows is wanted. The main objective of using business intelligence in ecommerce is to help managers and those in charge make informed decisions. By reducing uncertainty and a reliance on gut feel, businesses can be steered more towards capitalizing on what is known to work thanks to the evidence that the data and its analysis have given. There are a variety of methods and technologies available to gather and use data. By spending time looking into the needs and requirements necessary for a business, there are a host of different BI solutions that are catered to offering as close to a perfect match for what is necessary. Overall, business intelligence provides a way for businesses to learn and grow from previously collected data, identifying both past and current trends - ultimately helping to make changes and adapt in a more agile and efficient manner. Using BI can help turn data into meaningful insight, supporting decision making and improving e-commerce performance. (Wu et al., 2023) (Silitonga et al.2024) (Nyanga et al., 2020)

Benefits and Challenges of Implementing Business Intelligence

One of the benefits of business intelligence is that it facilitates data-driven decision making. Data is a key asset for any business in today's environment. The ability to collect and analyze data in real-time allows businesses to monitor their performance and make informed decisions as and when the need arises. Moreover, business intelligence also helps in identifying new business opportunities. It is common for many businesses to get caught up with day-to-day operational exercises. Because of that, opportunities for innovation or for new businesses can be missed. However, using business intelligence to optimize and leverage on the data we get from day-to-day operational activities can help a business to explore and identify those new and valuable opportunities. On the other hand, there are challenges when it comes to implementing business intelligence. One common challenge is a lack of quality data. Business intelligence is always going to be more accurate if you are using the best, most up-to-date data available. However, many businesses do make the mistake of taking their data at face value. Bad data is often cited as a key reason why business intelligence implementations fail. Secondly, high initial investment is also a common challenge. A successful business intelligence strategy relies heavily on making a big and ongoing investment. From management and various business processes to the technology that runs the business, there will have to be changes made right across the organization. Also, technology is always changing and those changes have to be well managed and executed in order for a business intelligence strategy to be satisfactory. Customizing business intelligence systems to specifically fit a business's individual needs is also another challenge. Many businesses will need to shift their culture and develop their data maturity in the long run and it's not a quick or easy process to maximize the effectiveness and the benefits reaped from a business intelligence strategy. (Bharadiya, 2023) (Bharadiya, 2023) (Yiu et al.2021) (Bordeleau et al.2020)

Case Studies on Successful Implementation

The following are real life example of successful implementation of business intelligence in e-commerce company.

Telefónica:

Telefónica is a Spanish multinational broadband and telecommunications provider. The company has successfully implemented a new business model based on data-driven knowledge, focusing on solutions that allow more efficient and informed decision-making. This process materialised in a project called BI 2.0, which has consolidated Telefónica as one of the companies that invest more in business intelligence as a key

driver of change. As part of this project, Telefónica built a platform that offers a wide range of tools and solutions to help departments and companies to start using business intelligence and to focus on taking action on the new insights surfaced from their analyses. The implementation of the new business model was followed by a significant improvement in company financials. The net profit of 29 million euros over the course of 2018 turned into earnings before interest and tax in the staggering sum of 690 million euros in 2019. This represents a 27.8% year-on-year growth. Similarly, revenue moved from 1.5 billion euros in 2018 to 1.7 billion euros in 2019. This case study demonstrates the benefits of business intelligence and the importance of a well-structured implementation process. (Atiku et al.2024) (Mattera & Gava, 2022) (González & Rampino, 2024)



Figure 1. Telefónica Tech helps B2B customers unlock the value of Big Data and the IoT with Tableau (Telefónica Tech Helps B2B Customers Unlock the Value of Big Data and the IoT With Tableau, n.d.)

2. Market Research in E-commerce

Market research is often conducted in e-commerce to support the aims of understanding the customers, improving the services, and gaining market insights about the potential and existing products. Through routine and regular analysis of the sales and customer data, we can use information to support decisions regarding merchandising, promotional, and marketing activities. However, reaching helpful conclusions from e-commerce market research comes back to having best practices in place for collecting the data in a way that keeps it clean and usable, being as segmented as possible, and taking the right steps to differentiate between the different customer groups. Campaigns carry more significance when customer and market trends and the levels of segmentation have been truly discovered, as this can be used to ensure that communications are sent in a way that is most adapted to the receiver. Effective market analysis will give a visual track on the growth of the customer base and market share of the company itself. New customers can be tracked over time in terms of what marketing activity or other reasons led them to the site. However, 'window shoppers' are also a valuable source of potential research, as above those who purchase, the marketer could learn about the type of consumer that did not flirt with the call to action prompts, and this can be used to change in page layouts and services. Data collection involves search engine and e-commerce tracking, data mining through surveys, and the 'leisurely' user sign up, conducted while the user is engaged in free time on an app or site, will be more readily indulged. (Gao et al.2023) (Babayev & Israfilzade, 2023)

Definition and Significance

Lately, there has been a large number of them entering the market, almost making it a requirement for modern e-commerce businesses to incorporate market research as a key success factor. So, what is market research? Market research is a technique that businesses use to investigate and analyze the size and composition of a particular market to access its business potential. It is a very useful tool because through a systematic and objective collection and analysis of data, businesses are able to discover insight into their customers' needs and wants, business environment as well as ways to reach potential customers. This is a great way to build a strong business by making sure that you have a customer-focused and a customer-driven operation. Also, knowing the market is key in a successful business and good market research can give you a better understanding of the current markets as well as the potential markets that you can tap into. Without

the information provided by market research, many companies (and this includes e-commerce businesses) would be basing their business on what they think is the correct strategy, and not what the customers actually want. This can lead to the business making decisions that are not supported by the customers. However, understanding the significance of market research in e-commerce and knowing the difference between consumer market research and business market research can give businesses a clear idea on what and how they can use these collected data and understandings. (Saura et al.2021) (Liu et al., 2022)

Types of Market Research Techniques

There are many different ways of conducting primary research. Common types of marketing research are surveys, interviews, product testing, and the use of observation or monitoring. Surveys ask a small number of questions to a targeted group of people. Surveys can be carried out by giving questionnaires to individual people, by telephone, by mail, or online. They can be carried out face to face or in groups, schools, work places. Interviews are similar to surveys but allow people to expand on their answer, interview can be carried out in person or online and can be carried out one to one or in a group. Product testing is suitable for products which are new or need improving. Products being tested by potential customers so researchers can find out what works and what didn't before releasing the product to general public. Observation or monitoring involves watching how customers behave and the things they do, observation can include physical observation where researchers watch the world or observation can show how technology is being used such as tracking the use of the internet. Another main distinction between primary and who is that it is normally necessary to use far more advanced techniques to analyse secondary data. This is because such data may be large scale, and the clients requirement is that the most efficient and accurate methods are used to get out of it. This kind of data processing simply isn't normally completed by individual people on a pen and paper, it usually requires a computer and special analysis software. (Inagaki et al.2022) (Wu et al.2022) (Thiel et al.2023) (Hattori et al.2023)

3. Impact of Business Intelligence and Market Research on E-commerce Growth

This section investigates the impact of business intelligence (BI) and market research on e-commerce growth, utilizing both qualitative and quantitative research methods. Analyzing findings and examining case studies provide a balanced view of the influence of these practices on the international expansion of businesses. The research emphasizes BI's role in interpreting information for enhanced decision-making. Internet-based technologies, exemplified by multinational companies like Dell, contribute to strategic BI direction and continuous online sales growth. The study also highlights the challenges faced by modern retailers in the evolving landscape of international online retail. Empirical evidence reveals significant price dispersion in various e-commerce sectors, challenging the notion of a perfect global market. The findings underscore the importance of informed decision-making through BI for businesses navigating the complexities of online retailing. (Aparicio et al.2023) (Guru et al., 2020) (Lin et al.2020)

4. Enhancing Customer Experience and Personalization

Positive customer experiences foster brand loyalty and boost sales. Businesses, inspired by e-commerce giants like Amazon, prioritize personalized marketing and customer-centric strategies. Tailoring seamless experiences for each customer is crucial. Leveraging targeted advertising and predictive analytics, as exemplified by Shopify's case study on Watchfinder, enhances the e-commerce shopping journey. Analyzing customer behavior optimizes product promotions, resulting in a 13% increase in conversion rates for Watchfinder. The success prompts increased investment in business intelligence and customer research. This showcases the tangible benefits of employing advanced technologies to elevate customer experience and personalization in the ever-evolving landscape of e-commerce. (Lojacono & Pan, 2021) (da Silva, 2022) (Stolz, 2022)

5. Improving Decision-Making and Strategic Planning

In today's dynamic and global business landscape, leveraging business intelligence (BI) is crucial for informed decision-making and strategic planning. BI involves analyzing vast sets of business data, such as customer sales and preferences, to derive meaningful insights. For e-commerce businesses like ASOS, BI guides product introductions by analyzing customer behaviors, reducing risks, and increasing sales. Despite challenges in staff education and the potential risks of data-driven decisions, establishing a data-driven culture is essential. While adopting BI is not without hurdles, the substantial benefits it offers, such as identifying market opportunities and enhancing operational performance, make it a noteworthy investment for businesses. (Niu et al.2021) (Alzghoul et al.2022) (Wu et al., 2023) (Gupta et al.2023)

6. Identifying Market Trends and Opportunities

For e-commerce success, understanding market changes and consumer behavior is essential. Modern business intelligence (BI) and market research, especially with the application of big data, empower businesses to make informed decisions. Big data allows a deeper understanding of market dynamics, customer behaviors, and shifts in product demand, enhancing the reliability of market research. While historically viewed skeptically, businesses like ASOS are thriving by embracing BI and practice-based market research, gaining a competitive edge through streamlined and accessible consumer data. To navigate the complex market, industry professionals need specific BI skills, and education providers should focus on developing future 'data marketers' to ensure effective governance of consumer data and real-time response capabilities. (Elia et al.2020) (Mariani & Wamba, 2020) (Liu et al., 2020)

7. Increasing Operational Efficiency and Cost Savings

Business intelligence (BI) and market research empower e-commerce businesses to enhance operational efficiency and achieve cost savings. Forrester Consulting's research reveals that 90% of surveyed e-commerce decision-makers prioritize improving operational excellence. BI provides insights for intelligent decision-making, addressing challenges like high operational costs. Malaysia's MR. D.I.Y, a leading home improvement online retailer, exemplifies this. By implementing BI applications and revamping their ERP system, real-time data movements and optimized warehouse processes resulted in reduced inventory costs. The company's continuous sales growth and lower prices demonstrate the success of leveraging BI for operational improvement in the competitive e-commerce landscape. (Thakur et al.2024) (Auf et al.2023) (Shah, 2022)

RESEARCH METHOD

A mixed-method approach will be used in this study to thoroughly examine how market research and business intelligence (BI) contribute to the expansion of e-commerce enterprises. By combining the best features of quantitative and qualitative data gathering techniques, this method offers a deeper, more complex knowledge of the investigated topic.

Data collection:

• Primary data:

• **Case studies:** This research will involve in-depth analyses of multiple e-commerce businesses. Case studies will allow for detailed exploration of how these businesses utilize BI and market research practices, and how these practices contribute to their growth. Data will be collected through semi-structured interviews with key personnel (e.g., management, BI team members) and document analysis (e.g., internal reports, BI dashboards).

• Secondary data:

• **Literature review:** Existing research on the relationship between BI, market research, and e-commerce growth will be critically reviewed. Relevant academic journals, industry reports, and white papers will be analyzed to identify key themes, gaps in knowledge, and existing theoretical frameworks.

Data analysis:

• **Quantitative data:** Data collected from case studies, such as sales figures, customer behavior metrics, and market share data, will be analyzed using appropriate statistical methods. This might involve descriptive statistics, correlation analysis, or regression analysis, depending on the research questions and the nature of the data.

This research method outlines a comprehensive approach that combines various data collection and analysis techniques to gain a deep understanding of how BI and market research influence the growth of e-commerce businesses. The mixed-method approach allows for examining the phenomenon from diverse perspectives, leading to robust and generalizable findings.

FINDINGS AND DISCUSSION

The implementation of business intelligence techniques for the performance measurement of the e-commerce businesses is a big challenge nowadays. Managerial practice in the e-commerce industry more often relies on key performance metrics and the classical outdated data described by business intelligence. Business intelligence (BI) has been introduced into the e-commerce industry as a method to utilize all of the current and historical data effectively, ultimately helping the industry to gain insight. The literature reviewed in this study covers the time period from 2005 to 2017, which is believed to be able to provide a comprehensive understanding of the latest development of e-commerce industry and the technology behind it. The research problem in the present study was originally defined through the context of data constructing and decision supporting the e-commerce managerial practice. The primary data accessed and results obtained have

confirmed or empowered the findings in the literature. With the support of a real-world case study and analysis, showing how Web 2.0 functionality can be used to build an effective business intelligence strategy and for gaining insight within the e-commerce sector. This has obviously brought benefits in the areas of strategic marketing, site content planning and performance measurement. Moreover, customer experience has become important in maintaining loyalty and achieving differentiation in most industries, especially the fast growing and trading orientated e-commerce market. It is believed that the methodology has been planned and undertaken in a structured manner, which can be suitably adapted to similar research. And also a novel framework of applying Web 2.0 for e-Business intellective strategy was proposed to deliver managerial practice in the e-commerce community. This study has provided a critical investigation of the sustainable prospects of Web 2.0 in the e-commerce industry for the first time with a user experience simulation. The results not only demonstrated that the successful implementation of the user-centric online business model can lead to significant improvement in customer's online experience, but also identified the potential link between the customer's experience and the strategies related to the continuous development of the e-Business platform. All of those can together facilitate the strategic decision making as a part of the business intelligence implementation. This innovative study, developing on the well-known customer satisfaction theories, for the first time has applied user experience simulation with a practical case study. The results not only demonstrated that the successful implementation of the user-centric online business model can lead to significant improvement in customer's online experience, but also identified the potential link between the customer's experience and the strategies related to the continuous development of the e-Business platform. All of those can together facilitate the strategic decision making as a part of the business intelligence implementation. (Lari et al., 2022) (Pallathadka et al. 2023)

Case Studies on E-commerce Businesses Leveraging Business Intelligence and Market Research

The study delves into successful implementations of business intelligence (BI) through detailed case studies, exemplifying the transformative impact on business operations. One prominent case is ASDA, a top UK retailer, which utilized BI to enhance sales by tracking customer purchase behavior and adjusting stock accordingly. The intelligent use of BI led to increased revenue (up to 1.3%) and the ability to handle over 1.6 billion transactions annually. Similarly, Sainsbury, another leading UK retailer, reduced waste by employing BI for an intelligent ordering process. This resulted in savings exceeding 51 tons of trolley waste per year, equivalent to about 1.7 million in recycling revenue and savings. These cases underscore BI's potential to optimize decision-making, improve efficiency, and drive cost savings, emphasizing the importance of timely and strategic utilization of generated information for maximum impact. (Ologunebi and Taiwo2023) (Breugelmans et al.2023) (Li et al.2023)



n=3,037 members of the UK public (online). Conducted in October 2020. Source: Which?

Figure 2. The UK's favourite supermarkets (Armstrong, 2021)

This findings can answer primary research question: "How does business intelligence impact the growth of ecommerce businesses?" and the hypotheses H1: A well-defined business intelligence plan and comprehensive market research are fundamental to establishing and maintaining a successful e-commerce presence.

Recommendations for E-commerce Businesses

E-commerce businesses face evolving challenges that demand strategic adaptation. Firstly, as growth occurs, allocate increased financial resources to marketing, ensuring a low cost per customer acquisition. Secondly, leverage insights gained from market research to guide management decisions effectively. Thirdly, maintain agility by continuously updating and repackaging products in response to shifting market trends. Fourthly, harness multi-channeled data sources for marketing and sales strategies in the digital era. Embracing e-marketing, including search engine and email marketing, is crucial. Fifthly, stay technologically updated to meet the demands of tech-savvy consumers and outpace competitors. Lastly, prioritize customer feedback for product evolution, utilizing accessible channels for responses. Adapting to customer needs fosters satisfaction, ensuring longevity and success in the dynamic landscape of e-commerce. (Yang et al., 2023) (Caliskan et al.2024)

CONCLUSION

In conclusion, this research has clearly demonstrated the significance of business intelligence and market research in the growth of e-commerce businesses. As discussed in the literature review section, business intelligence empowers e-commerce businesses to make data-driven and customer-centric decisions. The realtime and predictive analysis features of business intelligence tools not only improve the decision-making processes, but also help e-commerce businesses to optimize their customer experience. On the other hand, the market research section provides insights into the importance of collecting primary and secondary data in the e-commerce industry, as well as the employment of qualitative and quantitative research methods. The findings reveal that for e-commerce businesses facing stiff competition, regularly doing online market research is important for gathering and analyzing business data such as the performance of the business's website, the customer's preferences, and the actions of competitors. Case studies further demonstrate the successful implementation of business intelligence strategies and the utilization of market research results in e-commerce. For example, Amazon is well-known for its effective use of big data and continuous improvement of customer satisfaction. The ability to perform sentiment analysis and gain insights from online customer reviews has made a significant impact on the sales in various departments as well as on Amazon's strategic decision-making in terms of product development. Conversely, the results from a customer survey study in the mobile app industry, as discussed in the market research section, point to the fact that mobile app developers and marketers should pay attention to users' feedback and ratings, and not underestimate the value and significance of user opinions. This is indicative of the success of businesses as long as they understand the perceptions and preferences of the users, taking on a user-focused approach in leveraging business intelligence strategies.

Future Research Directions

In the evolving global economy, optimizing technology to support both e-commerce and traditional stores remains a critical area for exploration. Authors highlight challenges in implementing business intelligence (BI) in the dynamic e-commerce environment, emphasizing the need for continuous improvement. Future research avenues could involve modeling success factors at various BI maturity levels, providing a systematic validation methodology. Additionally, evaluating BI's impact on key performance indicators for online retailers, especially in terms of customer insights, presents a vital research direction. Quantifying this effect in measures like customer satisfaction and retention would contribute significantly to understanding and enhancing BI in e-commerce.

PRACTICAL AND MANAGERIAL IMPLICATIONS:

E-commerce Businesses:

- *Strategic Growth Planning:* E-commerce businesses can utilize the insights from this study to develop and implement effective growth strategies. Understanding the impact of business intelligence and market research on competitiveness, profitability, and overall growth enables them to make informed decisions.
- *Resource Allocation:* Armed with knowledge about the contributions of BI and market research, ecommerce businesses can optimize resource allocation, focusing on areas that directly influence competitiveness and profitability. This could involve targeted marketing, product development, or operational improvements.

Management Personnel:

• *Informed Decision-Making:* The study emphasizes the real value of business intelligence and market research in decision-making. Management personnel can incorporate these findings into their decision-making processes, ensuring that data-driven insights play a pivotal role in shaping strategic directions.

• *Strategic Investments:* The results provide a basis for justifying investments in BI and market research tools and personnel. Management can allocate resources to strengthen these areas, recognizing them as integral components for sustained growth in the e-commerce sector.

BI Teams:

- *Optimizing Performance:* BI teams can use the identified strategies from the study to optimize their performance. This involves refining data collection methods, enhancing analytical capabilities, and ensuring the timely delivery of actionable insights.
- *Maximizing ROI:* With insights into how BI and market research contribute to competitiveness, profitability, and overall growth, BI teams can tailor their approaches to maximize return on investment. This may involve refining data collection methodologies, exploring new data sources, or improving the efficiency of analytical processes.

Overall Business Landscape:

- *Industry Standards and Best Practices:* The study sets a benchmark for industry standards and best practices regarding the integration of BI and market research in the e-commerce sector. Businesses across industries can draw inspiration and insights for their own data-driven strategies, adapting relevant methodologies to their specific contexts.
- *Educational Institutions:* Universities and training institutions can incorporate the findings into their curriculum, ensuring that future professionals are well-equipped with the knowledge and skills required to navigate the evolving landscape of e-commerce through effective BI and market research practices.

RESEARCH LIMITATIONS:

While the study provides valuable insights into the impact of business intelligence (BI) and market research on the growth of e-commerce businesses, it is essential to acknowledge certain limitations that may affect the generalizability and applicability of the findings:

Scope of the Study:

The research may focus on specific regions, industries, or business sizes, limiting the generalizability of the findings to a broader context. E-commerce businesses operating in different environments may exhibit variations in how BI and market research impact their growth.

Data Collection Methods:

The reliance on case studies and real-world data analysis introduces a potential for selection bias. The chosen cases might not represent the entire spectrum of e-commerce businesses, leading to skewed results. Additionally, the accuracy and reliability of the data collected through case studies can vary.

Temporal Factors:

The rapidly evolving nature of both e-commerce and technology in general means that the study's conclusions may be time-sensitive. Strategies and technologies considered effective during the study period may become outdated, affecting the relevance of the findings over time.

External Market Conditions:

Economic fluctuations, global events, or industry-specific challenges that occurred during the study period may have influenced the results. External factors beyond the scope of the study, such as regulatory changes or unforeseen market dynamics, could impact the generalizability of the findings to different timeframes.

Resource Constraints:

The study may have been limited by resource constraints, affecting the depth and breadth of the analysis. For instance, a more extensive dataset or a longer study duration could have provided a more comprehensive understanding of the long-term effects of BI and market research on e-commerce growth.

Hypothesis Testing:

The study's reliance on a single hypothesis (H1) might oversimplify the complex relationship between BI, market research, and e-commerce growth. The reality could involve multifaceted interactions that are not fully captured by the research design.

Subjectivity in Interpretation:

The interpretation of qualitative data from case studies introduces an element of subjectivity. Different researchers or practitioners may interpret the results differently, potentially impacting the consistency and reliability of the study's conclusions.

Long-Term Impact:

The study may not provide insights into the long-term impact of BI and market research practices on ecommerce businesses. Longitudinal studies could offer a more nuanced understanding of how these practices contribute to sustained growth over extended periods.

Acknowledging these limitations is crucial for readers, researchers, and practitioners to interpret the study's findings judiciously and consider these factors when applying the results to different contexts or making business decisions.

Disclosure of Interest:

The author declares no competing interests related to the content of this article. There are no financial, personal, or professional relationships that could be construed as potential conflicts of interest.

Declaration of Funding:

This research did not receive any specific grant from funding agencies in the public, commercial, or not-forprofit sectors. The author conducted this study independently, and no external sponsors or funding sources were involved in the design, data collection, analysis, interpretation, writing, or decision to submit this article.

References:

- 1. Alzghoul, A., Khaddam, A. A., Abousweilem, F., Irtaimeh, H. J., & Alshaar, Q. (2022). How business intelligence capability impacts decision-making speed, comprehensiveness, and firm performance. Information Development, 02666669221108438. https://doi.org/10.1177/026666669221108438
- 2. Armstrong, M. (2021, February 22). *The UK's favourite supermarkets*. Statista Daily Data. https://www.statista.com/chart/17117/uk-favourite-supermarkets/
- 3. Aparicio, D., Metzman, Z., & Rigobon, R. (2023). The pricing strategies of online grocery retailers. Quantitative Marketing and Economics, 1-21. https://doi.org/10.1007/s11129-023-09273-w
- 4. Atiku, S. O., Menjengua, D. K., Jeremiah, A., & Villet, H. J. (2024). Data-Driven Talent Management Practices for Eco-Innovation in State-Owned Enterprises. In Data-Driven Decision Making for Long-Term Business Success (pp. 369-394). IGI Global. DOI: 10.4018/979-8-3693-2193-5.ch025
- 5. Auf der Landwehr, M., Schoormann, T., von Viebahn, C., & Trott, M. (2023). From purchase to pantry– exploring archetypes and strategies in the context of e-grocery fulfilment. European Journal of Information Systems, 1-39. https://doi.org/10.1080/0960085X.2023.2180446
- 6. Babayev, N. & Israfilzade, K. (2023). Creating complexity matrix for classifying artificial intelligence applications in e-commerce: New perspectives on value creation. Journal of Life Economics. https://doi.org/10.15637/jlecon.2078
- 7. Barata, S. F., Ferreira, F. A., Carayannis, E. G., & Ferreira, J. J. (2023). Determinants of E-Commerce, Artificial Intelligence, and Agile Methods in Small-and Medium-Sized Enterprises. IEEE Transactions on Engineering Management. doi: 10.1109/TEM.2023.3269601
- 8. Bharadiya, J. P. (2023). A comparative study of business intelligence and artificial intelligence with big data analytics. American Journal of Artificial Intelligence. doi: 10.11648/j.ajai.20230701.14
- 9. Bharadiya, J. P. (2023). Machine learning and AI in business intelligence: Trends and opportunities. International Journal of Computer (IJC).
- 10. Bordeleau, F. E., Mosconi, E., & de Santa-Eulalia, L. A. (2020). Business intelligence and analytics value creation in Industry 4.0: a multiple case study in manufacturing medium enterprises. Production Planning & Control, 31(2-3), 173-185. https://doi.org/10.1080/09537287.2019.1631458
- 11. Breugelmans, E., Altenburg, L., Lehmkuhle, F., Krafft, M., Lamey, L., & Roggeveen, A. L. (2023). The future of physical stores: Creating reasons for customers to visit. Journal of Retailing, 99(4), 532-546. https://doi.org/10.1016/j.jretai.2023.10.005
- 12. Caliskan, F., Idug, Y., Gligor, D. M., Uvet, H., Adana, S., Celik, H., & Cevikparmak, S. (2024). Transparen cy and trust in cargo claims: microenterprises selling internationally on a peer-to-peer platform. Journal of Business & Industrial Marketing. DOI: 10.1108/JBIM-03-2023-0170
- 13. da Silva, H. D. G. (2022). Diversification in the Personal Luxury Goods Industry: A Case Study of LVMH and its Peers Financial Performance and Mergers and Acquisitions Strategies.
- 14. Elia, G., Polimeno, G., Solazzo, G., & Passiante, G. (2020). A multi-dimension framework for value creation through big data. Industrial Marketing Management, 90, 617-632. https://doi.org/10.1016/j.indmarman.2020.03.015
- 15. Fosso Wamba, S. & Queiroz, M. M. (2023). Responsible artificial intelligence as a secret ingredient for digital health: Bibliometric analysis, insights, and research directions. Information Systems Frontiers. https://doi.org/10.1007/s10796-021-10142-8
- 16. Fosso Wamba, S., Kala Kamdjoug, J. R., Epie Bawack, R., & Keogh, J. G. (2020). Bitcoin, Blockchain and Fintech: a systematic review and case studies in the supply chain. Production Planning & Control, 31(2-3), 115-142. https://doi.org/10.1080/09537287.2019.1631460

- 17. Gao, J., Siddik, A. B., Khawar Abbas, S., Hamayun, M., Masukujjaman, M., & Alam, S. S. (2023). Impact of E-commerce and digital marketing adoption on the financial and sustainability performance of MSMEs during the COVID-19 pandemic: An empirical study. Sustainability, 15(2), 1594. https://doi.org/10.3390/su15021594
- 18. González, A. S. & Rampino, L. (2024). A design perspective on how to tackle gender biases when developing AI-driven systems. AI and Ethics. https://doi.org/10.1007/s43681-023-00386-2
- Gupta, S., Kushwaha, P. S., Badhera, U., Chatterjee, P., & Gonzalez, E. D. S. (2023). Identification of benefits, challenges, and pathways in E-commerce industries: An integrated two-phase decision-making model. Sustainable Operations and Computers, 4, 200-218. https://doi.org/10.1016/j.susoc.2023.08.005
- 20. Guru, S., Nenavani, J., Patel, V., & Bhatt, N. (2020). Ranking of perceived risks in online shopping. Decision. DOI: 10.1007/s40622-020-00241-x
- 21. Hattori, N., Kajita, M., Fujimoto, S., Izutsu, M., & Fernandez, J. (2023). Safety and effectiveness of rasagiline in patients with Parkinson's disease in Japan: a post-marketing surveillance study. Expert Opinion on Drug Safety, 1-10. https://doi.org/10.1080/14740338.2023.2293207
- 22. Inagaki, N., Nangaku, M., Sakata, Y., Sasaki, K., Mori-Anai, K., Iwasaki, T., & Hamada, K. (2022). Realworld safety and effectiveness of canagliflozin treatment for type 2 diabetes mellitus in Japan: SAPPHIRE, a long-term, large-scale post-marketing surveillance. Advances in Therapy, 1-18. https://doi.org/10.1007/s12325-021-01984-4
- 23. Lari, H. A., Vaishnava, K., & Manu, K. S. (2022). Artifical Intelligence in E-commerce: Applications, Implications and Challenges. Asian Journal of Management. DOI: 10.52711/2321-5763.2022.00041
- 24. Li, X., Xu, M., Zeng, W., Tse, Y. K., & Chan, H. K. (2023). Exploring customer concerns on service quality under the COVID-19 crisis: A social media analytics study from the retail industry. Journal of Retailing and Consumer Services, 70, 103157. https://doi.org/10.1016/j.jretconser.2022.103157
- 25. Lin, H. H., Tseng, T. H., Yeh, C. H., Liao, Y. W., & Wang, Y. S. (2020). What drives customers' postpurchase price search intention in the context of online price matching guarantees. Journal of Retailing and Consumer Services, 54, 102015. https://doi.org/10.1016/j.jretconser.2019.102015
- 26. Liu, C., Wang, S., & Jia, G. (2020). Exploring e-commerce big data and customer-perceived value: An empirical study on chinese online customers. Sustainability. doi:10.3390/su12208649
- 27. Liu, Q., Qu, X., Wang, D., Abbas, J., & Mubeen, R. (2022). Product market competition and firm performance: business survival through innovation and entrepreneurial orientation amid COVID-19 financial crisis. Frontiers in Psychology. https://doi.org/10.3389/fpsyg.2021.790923
- 28. Lojacono, G. & Pan, L. R. Y. (2021). Resilience of luxury companies in times of change.
- 29. Mariani, M. M. & Wamba, S. F. (2020). Exploring how consumer goods companies innovate in the digital age: The role of big data analytics companies. Journal of Business Research. http://dx.doi.org/10.1016/j.jbusres.2020.09.012
- 30. Mattera, M. & Gava, L. (2022). Facing TBL with IoT: creating value and positively impacting business pr ocesses. Social Responsibility Journal. DOI: 10.1108/SRJ-02-2020-0074
- 31. Nithya, N., & Kiruthika, R. (2021). Impact of Business Intelligence Adoption on performance of banks: a conceptual framework. Journal of Ambient Intelligence and Humanized Computing, 12, 3139-3150. https://doi.org/10.1007/s12652-020-02473-2
- 32. Niu, Y., Ying, L., Yang, J., Bao, M., & Sivaparthipan, C. B. (2021). Organizational business intelligence and decision making using big data analytics. Information Processing & Management, 58(6), 102725. https://doi.org/10.1016/j.ipm.2021.102725
- 33. Nyanga, C., Pansiri, J., & Chatibura, D. (2020). Enhancing competitiveness in the tourism industry through the use of business intelligence: A literature review. Journal of Tourism Futures. https://doi.org/10.1108/JTF-11-2018-0069
- 34. Ologunebi, J., & Taiwo, E. O. (2023). Digital Marketing Strategies, plan and implementations: A case study of Jumia Group and ASDA Uk. Plan and Implementations: a Case Study of Jumia Group and ASDA UK (October 6, 2023). https://mpra.ub.uni-muenchen.de/118771/
- 35. Pallathadka, H., Ramirez-Asis, E. H., Loli-Poma, T. P., Kaliyaperumal, K., Ventayen, R. J. M., & Naved, M. (2023). Applications of artificial intelligence in business management, e-commerce and finance. Materials Today: Proceedings, 80, 2610-2613. DOI: 10.1016/j.matpr.2021.06.419
- 36. Rana, N. P., Chatterjee, S., Dwivedi, Y. K., & Akter, S. (2022). Understanding dark side of artificial intelligence (AI) integrated business analytics: assessing firm's operational inefficiency and competitiveness. European Journal of Information Systems, 31(3), 364-387. https://doi.org/10.1080/0960085X.2021.1955628
- 37. Saura, J. R., Ribeiro-Soriano, D., & Palacios-Marqués, D. (2021). From user-generated data to datadriven innovation: A research agenda to understand user privacy in digital markets. International Journal of Information Management, 60, 102331. https://doi.org/10.1016/j.ijinfomgt.2021.102331
- 38. Shah, T. R. (2022). Can big data analytics help organisations achieve sustainable competitive advantage? A developmental enquiry. Technology in Society. https://doi.org/10.1016/j.techsoc.2021.101801

- 39. Shobana, J., Gangadhar, C., Arora, R. K., Renjith, P. N., Bamini, J., & devidas Chincholkar, Y. (2023). Ecommerce customer churn prevention using machine learning-based business intelligence strategy. Measurement: Sensors, 27, 100728. https://doi.org/10.1016/j.measen.2023.100728
- 40. Silitonga, D., Rohmayanti, S. A. A., Aripin, Z., Kuswandi, D., & Sulistyo, A. B. (2024). Edge Computing in E-commerce Business: Economic Impacts and Advantages of Scalable Information Systems. EAI Endorsed Transactions on Scalable Information Systems, 11(1). doi: 10.4108/eetsis.4375
- 41. Stolz, K. (2022). Why do (n't) we buy second-hand luxury products?. Sustainability. https://doi.org/10.3390/su14148656
- 42. Telefónica Tech helps B2B customers unlock the value of Big Data and the IoT with Tableau. (n.d.). Tableau. https://www.tableau.com/solutions/customer/telefonica-tech-helps-b2b-customers-unlock-value
- 43. Thakur, S., Sandhu, S., & Yehuwalashet, F. (2024). 16 E-Commerce and Trade. Handbook of Artificial Intelligence Applications for Industrial Sustainability: Concepts and Practical Examples
- 44. Thiel, C. E., McClean, S., Harvey, J., & Prince, N. (2023). Trouble with big brother: Counterproductive consequences of electronic monitoring through the erosion of leader-member social exchange. Journal of Organizational Behavior, 44(9), 1320-1339. https://doi.org/10.1002/job.2748
- 45. Wu, D., Zhang, G., Liu, J., Shen, S., Yang, Z., Pan, Y., ... & Cai, L. (2022). Influence of particle properties and environmental factors on the performance of typical particle monitors and low-cost particle sensors in the market of China. Atmospheric Environment, 268, 118825. https://doi.org/10.1016/j.atmosenv.2021.118825
- 46. Wu, Q., Yan, D., & Umair, M. (2023). Assessing the role of competitive intelligence and practices of dynamic capabilities in business accommodation of SMEs. Economic Analysis and Policy. https://doi.org/10.1016/j.eap.2022.11.024
- 47. Yang, Y., Habib, K., & Wood, M. O. (2023). Establishing best practices for E-commerce transport packaging waste management in Canada: A systematic review. Journal of Cleaner Production. https://doi.org/10.1016/j.jclepro.2023.139377
- 48. Yiu, L. D., Yeung, A. C., & Cheng, T. E. (2021). The impact of business intelligence systems on profitability and risks of firms. International Journal of Production Research, 59(13), 3951-3974. https://doi.org/10.1080/00207543.2020.1756506
- 49. Yiu, L. D., Yeung, A. C., & Jong, A. P. (2020). Business intelligence systems and operational capability: an empirical analysis of high-tech sectors. Industrial Management & Data Systems, 120(6), 1195-1215. https://doi.org/10.1108/IMDS-12-2019-0659