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The Role of E-Commerce in Increasing Sales Using Unified Modeling Language

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Abstract: The advent of contemporary technology advancements and the proliferation of the internet have presented firms and retail establishments with significant prospects for augmenting their sales outreach via electronic commerce. E-commerce enables stores to engage in the sale of their products across Indonesia and international markets without being constrained by limitations of physical location or temporal constraints. E-commerce has the potential to offer consumers a more convenient, expedited, and efficient shopping experience. Consumers can conveniently look for and make choices on the things they intend to purchase, expediting and enhancing the efficiency of the transactional process. Furthermore, e-commerce can offer consumer satisfaction through many means, such as efficient delivery services, flexible return and refund policies, product exchanges, and responsive and amiable customer support. In contrast, e-commerce can enhance cost-effectiveness and improve operational efficiency within the sales process. E-commerce enables businesses to mitigate operating expenses, including expenditures related to physical store rentals, marketing initiatives, and inventory management. Furthermore, implementing e-commerce can facilitate inventory management and sales tracking for retail establishments. Hence, the significance of e-commerce in promoting the augmentation of store sales is noteworthy. Despite the significant profitability of e-commerce, retailers encounter other obstacles, including intensifying rivalry and the looming risk of cybercrime. Hence, retailers must develop a robust e-commerce strategy to compete effectively in the market and ensure secure and dependable services to their customers. This study uses the Unified Modeling Language, a precious tool for the design and modeling of software to be developed.

Keywords: Customer Support; E-Commerce; Modeling of Software; Purchase; Unified Modeling Language.

1. Introduction

The ever-advancing and rapid development of the information technology sector has significantly influenced individuals across many spectrums, ranging from those with basic knowledge to those immersed in the fast-paced modern world. Consequently, this has resulted in notable changes in information behavior across all domains. E-commerce, also known as electronic commerce, has emerged as a significant catalyst within the contemporary commercial landscape. One of the crucial factors contributing to the success of business individuals, particularly Small, Micro, and Medium Enterprises (MSMEs) [1][2], is offering contemporary and customer-oriented ordering and shipping services for their products. This can be achieved by establishing an online presence or an e-commerce platform, utilizing the Internet as a connection. E-commerce facilitates various commercial operations, encompassing buying and selling activities, marketing endeavors, and product distribution. This is particularly advantageous in Indonesia, where a substantial number of individuals, approximately 196.7 million, actively engage with the Internet. Building upon the context mentioned above, the primary objective of this research endeavor is to ascertain the impact of electronic commerce on the augmentation of sales for micro, small, and medium enterprises (MSMEs) [3][4]. The proliferation of internet technology and mobile devices has allowed businesses to leverage e-commerce platforms to enhance sales and attain substantial expansion. This introduction examines the significant significance of e-commerce in augmenting sales, substantiated by pertinent excerpts from scholarly journals.

The advent of e-commerce has significantly transformed the dynamics of business-consumer interactions [5][6], and transactions. Historically, businesses have depended on brick-and-mortar establishments and conventional marketing strategies to endorse merchandise and entice clientele. Nevertheless, due to technological advancements, corporations can establish virtual storefronts and market merchandise via prominent online retail platforms such as Amazon, eBay, or Shopify. In the Indonesian context, numerous enterprises opt to vend their products through media like Shopee, Lazada, Tokopedia, and Facebook. This approach presents a multitude of advantages and prospects for augmenting sales figures. The global reach of e-commerce is a significant advantage. In a traditional commercial setting, enterprises face constraints

imposed by geographical limitations and are compelled to consider substantial expenses associated with distribution. Nevertheless, using electronic commerce (e-commerce) enables enterprises to engage effectively with a global consumer base, transcending the limitations imposed by physical boundaries. As mentioned above, the article posits that the advent of e-commerce has facilitated the opportunity for corporations to engage in global product sales without necessitating a physical presence in each country. This development has expanded their market share and heightened the possibility for significant deals.

Furthermore, e-commerce can decrease the operational expenses associated with brick-and-mortar establishments. Organizations must bear the costs of leasing or constructing brick-and-mortar establishments, compensating personnel, and upkeeping storage facilities in conventional company operations. In e-commerce, the expenses mentioned above can be diminished or eradicated. According to a scholarly paper titled "The Advantages of Online Business Operations," engaging in e-commerce enables enterprises to circumvent the expenses related to leasing, servicing, and upkeeping brick-and-mortar establishments. Furthermore, organizations have the potential to enhance their supply chain efficiency by minimizing their inventory levels. This contributes to the augmentation of profit margins and overall operational efficiency. Using e-commerce enables enterprises to effectively target narrower market segments and tailor their product offerings accordingly. Enterprises can gain insights into consumer preferences and purchasing behaviors by analyzing customer data and utilizing digital marketing technologies [7]. Firms can better comprehend client preferences and requirements by gathering and evaluating customer data. This enables organizations to provide greater personalization and relevance in their offers, enhancing the potential for increased sales opportunities. Including uncomplicated purchasing and payment functionalities is a significant determinant in augmenting sales within e-commerce platforms. Consumers can efficiently and expeditiously peruse and evaluate various products, access feedback from fellow consumers, and engage in purchasing transactions with minimal effort through a few simple clicks. E-commerce has revolutionized customer shopping habits, providing a heightened level of convenience, speed, and simplicity. An online payment system that is both secure and adaptable also enhances the comfort of transaction completion for consumers. This phenomenon leads to a rise in sales.

In electronic commerce, digital marketing and social media platforms are practical tools for promoting various products and services. In the contemporary era of digital technology, enterprises can enhance their online presence and expand their target audience using multiple methods such as search engine optimization [8][9](SEO), paid advertising, content marketing, and social media techniques. The scholarly article "The Influence of Digital Marketing on Electronic Commerce Sales" posits that utilizing digital marketing strategies and social media platforms enables businesses to extend their market reach, enhance brand recognition, and ultimately achieve substantial growth in sales. In summary, electronic commerce has produced a considerable impact on augmenting corporate revenue. Companies can achieve sustainable development and dramatically improve their sales through many factors, such as worldwide accessibility, decreased operating expenses, correct market alignment, simplified purchasing and payment processes, and efficient digital marketing strategies. Numerous scholarly articles have yielded significant findings and empirical evidence highlighting the pivotal significance of electronic commerce in facilitating sales growth. From the preliminary description, there is a research question as follows: How can e-commerce significantly increase watch sales? (Research Question 1). How to design a sales information system to increase sales? (Research Question 2).

2. Research Method

2.1 Business Model Canvas

The Business Model Canvas (BMC) is a framework for designing, describing, and analyzing the fundamental elements of a business model. BMC, which consists of nine tabular parts, assists entrepreneurs and businesses at various phases of business development, from initial planning to strategic innovation. The first element of BMC is "Customer Segments," which explicitly defines the target market and customer segments. "Value Offering" refers to what makes a business distinctive and appealing to customers, such as the products or services provided. The "Distribution Channels" section explains how products or services are delivered to consumers, including delivery and distribution options. Through customer support or loyalty programs, "Customer Relations" emphasizes interaction and connection with consumers. The "Sources of Revenue" section identifies the primary revenue sources for a company, such as product sales, transportation costs, and additional services. "Key Resources" refers to the assets and resources required to run a business, such as the technology infrastructure, product inventory, and management team. The term "Primary Activities" refers to the fundamental operations of a company, such as inventory management, marketing, and order fulfillment. "Key Partners" are external parties the company collaborates with, such as suppliers, delivery services, and marketing partners. The term "Cost Structure" describes the costs associated with administering a business, such as product acquisition, marketing, and other operating expenses. Figure 1. BMC provides a holistic and comprehensive view of all aspects of a business in a single view, allowing for a better comprehension of how various elements relate to and influence the overall business model. It also functions as an efficient tool for internal communication, allowing teams to collaborate and concentrate on business development strategies. By elaborating on every significant element, BMC facilitates improved planning, identifying new opportunities, and more informed strategic decision-making.

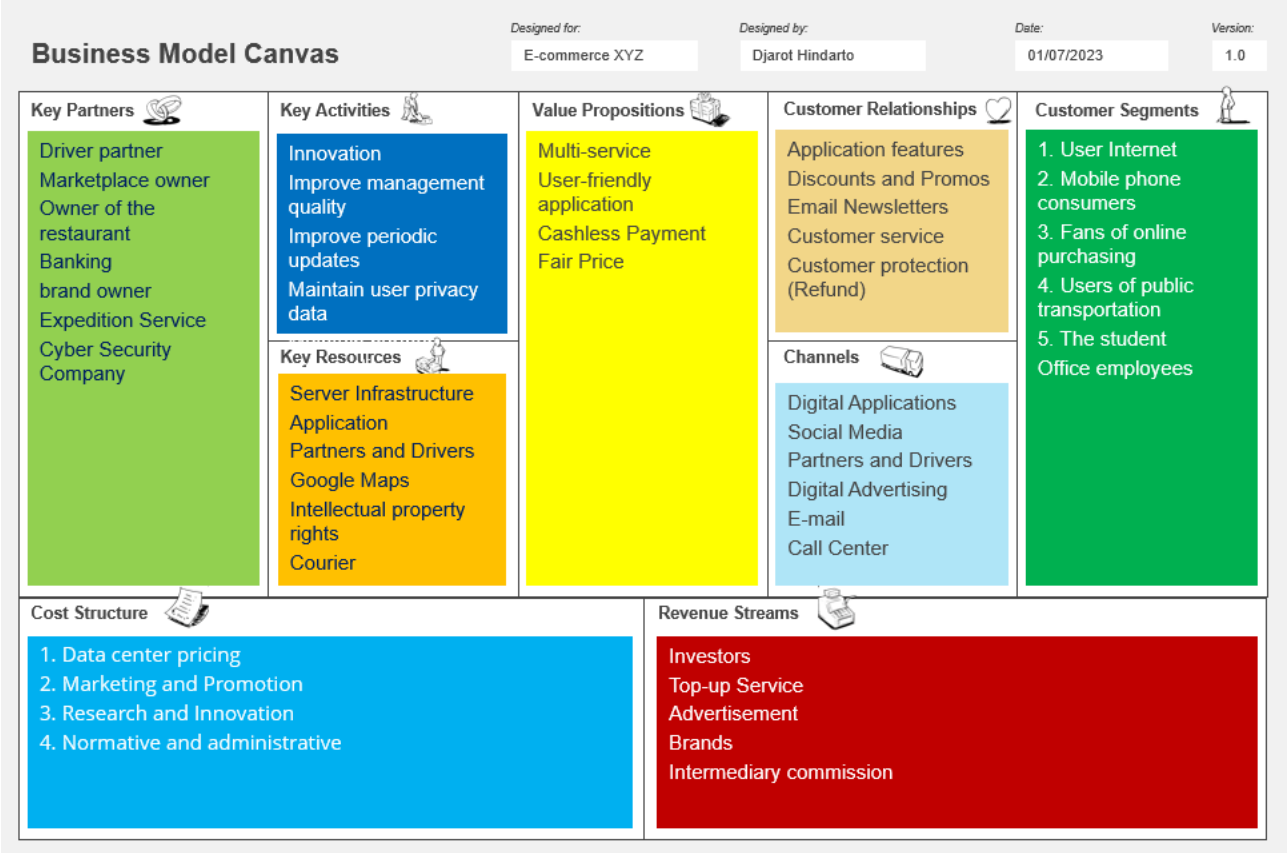

Figure 1. Business Model Canvas for Small and Local E-Commerce XYZ
Source: Researcher Properties

2.2 Steps of the Research Method

The research process about the impact of e-commerce on sales growth encompasses several distinct stages, which may involve the following sequential steps:

1) The establishment of precise research objectives is essential. This study demonstrates that the utilization of e-commerce applications has a positive impact on sales growth. In terms of comparison, sales conducted through e-commerce platforms exhibit superior performance compared to traditional sales methods.
2) Undertake a comprehensive analysis of existing literature to examine pertinent prior research and discoveries regarding the impact of electronic commerce on sales augmentation. The task involves identifying pertinent theories, significant findings, and methodologies employed in prior research.
3) Based on the comprehensive literature evaluation, a conceptual framework will be the theoretical foundation for the following research. The present conceptual framework aims to elucidate the interconnections among the variables under investigation, namely the utilization of e-commerce, the augmentation of sales, and other pertinent elements.
4) Several research methodologies, such as surveys, case studies, and experiments, were employed in this study. The chosen methodology is both pertinent and sufficient for addressing research inquiries.
5) The research approach selected for this study is data collection. The process of gathering data through interviews, observation, or document analysis. The obtained data encompasses pertinent details of utilizing e-commerce platforms and sales data, which may be subjected to comprehensive analysis.
6) Interpretation and Conclusion: Following thorough data analysis, the findings are interpreted, and conclusions are drawn following the research results. A notable correlation exists between the utilization of electronic commerce (e-commerce) and the augmentation of sales.

Discussion and recommendations were derived from the research findings by a comparative analysis with previous studies. This inquiry seeks to elucidate the merits and drawbacks of the conducted research while also proposing avenues for future investigation into the use of e-commerce.

3. Result and Discussion

3.1 Results

1) Use Case Diagram

A Use Case Diagram is a classification of diagrams within the Unified Modeling Language (UML) [10][11], framework employed to depict the interactions between external actors and the system under scrutiny or development. These diagrams comprehensively comprehend the system's functionality and visually represent the correlation between system users (actors) and the intended system behavior. The utilization of a use case in a particular context. The diagram comprises several primary components, specifically; Actors refer to external entities that engage in interactions with the system. Actors within a given context may encompass human users, hardware devices, other systems, or temporal entities. In diagrams, actors are depicted as human icons or in different appropriate shapes.

a) Use cases encapsulate specific actions or functionalities actors can execute within the system. Use cases serve to elucidate the range of actions that users can perform within the system, as well as the objectives that are intended to be accomplished. The figure depicts use cases in the form of ovals containing textual representations. The actor-use case relationship is the association between an actor and a use case, signifying the actor's participation in a particular use-case scenario. Three generally utilized relationships exist in Use Case Diagrams, specifically: Association refers to establishing a connection between actors and use cases to demonstrate their involvement in the use case. Associations are visually depicted as straight lines connecting actors and use points.

b) Generalization: Establishing a connection between two actors to demonstrate that the linked actor is either an exceptional instance or a derivation of the other actor. Generalizations are visually depicted using arrows that indicate broader or more generic actors.

c) Incorporate: Establishing a connection between two use cases, wherein one-use case necessitates the capability of the other. The inclusion relationship is visually depicted in a use case diagram by an unbounded line connecting the encompassing use case to the included use case. Furthermore, apart from the features mentioned above, a Use Case diagram may use further elements such as extension, dependence, and numerous other notations to enhance the diagram's level of detail and clarity.

d) Use case diagrams are precious tools for needs analysis and system planning. The utilization of visual aids facilitates the comprehension of the interaction between users and the system under development or investigation for both developers and stakeholders. The provided diagram can serve as a foundational tool for ascertaining the system's functional requirements and aiding in creating a proficient software architecture and development strategy.

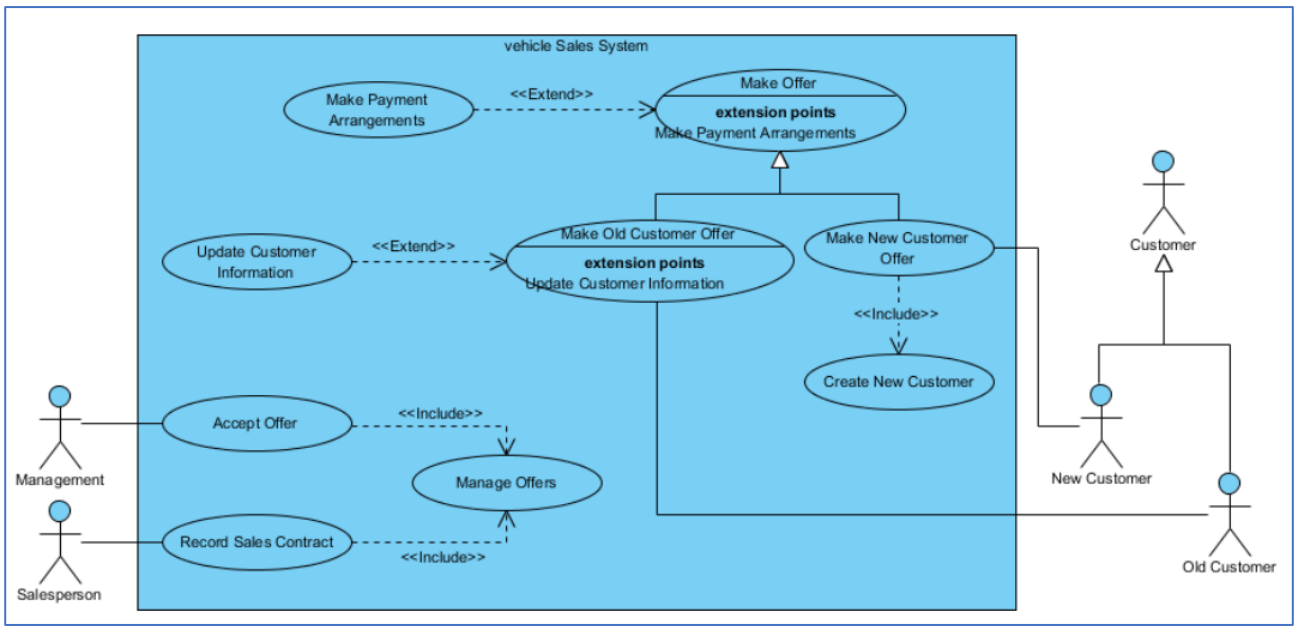

Figure 2. Use Case E-Commerce XYZ

Source: Visual Paradigm [12]

Figure 2 provides information on the register menu. The consumer must register as a member of the XYZ Store to purchase products from the XYZ Store. On the order menu, the customer can freely select the product to be bought; it can then be added directly to the shopping basket. Upon completion of shopping, the customer can check out and make payments. After a successful payment, the purchaser will receive a payment receipt as evidence of purchase. A username and password are required to access the primary web administration page on the admin login menu. Users can administer the products they wish to sell at the XYZ Store via the administer data menu. Users can collect already-paid customer

order data on the menu for managing order data and change it to full payment so that the goods can be shipped promptly. On the manage reports menu, users can view sales reports based on the time of purchase; words can then be printed and exported to Microsoft Excel for further processing. The proprietor can view sales and payment reports for the XYZ Store on the report menu.

2) Activity Diagram

Figure 3, an activity diagram, is a diagrammatic representation within the Unified Modeling Language (UML)[13], that describes the many workflows or activities that transpire within a given process or system. These diagrams are crucial in modeling, analyzing, and planning the sequential progression of steps within a move. Activity diagrams are precious tools for analyzing and strategically organizing the sequential steps involved in each process or system. Visualizing workflow processes aids developers and stakeholders in comprehending the sequence of actions and activities executed within the system, facilitating a comprehensive grasp of its functioning. As mentioned above, the diagram possesses utility in business process design, software system modeling, and activity analysis across diverse sectors, including manufacturing, service provision, and software development.

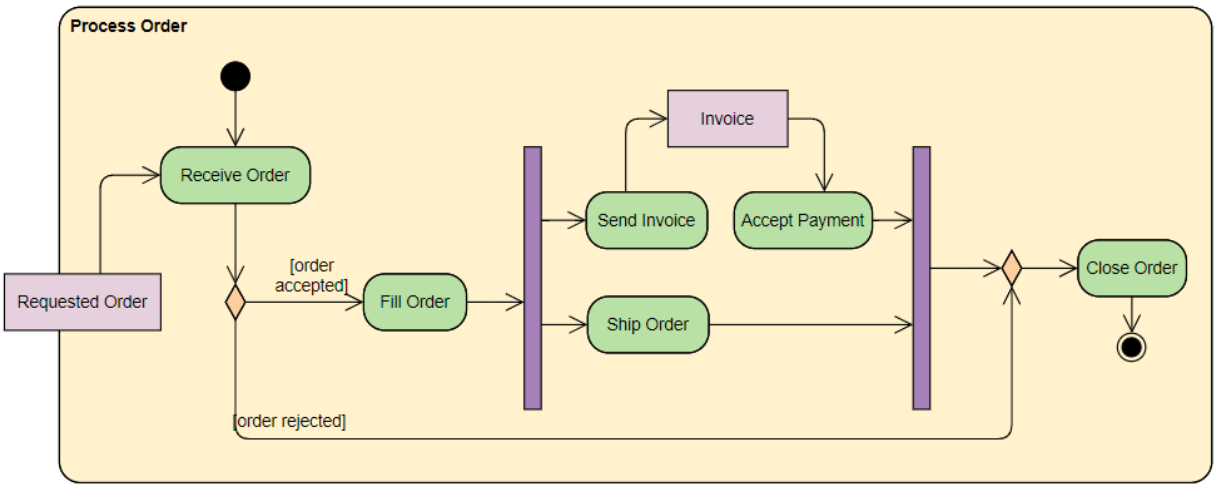

Figure 3. Process Order Activity Diagram
Source: Visual Paradigm [12]

3) Sequence Diagram

Sequence Graph "Request Order" is a graphical representation of the sequence of stages that comprise a system's request order process. In the context of request procedures, this diagram depicts the interactions between actors (users or other components) and the design.

a) An actor, a customer, initiates the process by submitting an order request to the system at the outset of the diagram. The system then responds in the following order:
b) Verification of Availability: The system verifies that the requested item is in the database. If the item is available, the method advances to the next stage; otherwise, a different step is taken.
c) Availability Confirmation: The system notifies the consumer via an availability confirmation message that the order can be processed if an item is in stock.
d) Purchase Confirmation: The consumer sends a purchase confirmation to the system in response to the proof.
e) The system processes orders by calculating the total cost, generating invoices, and preparing for the subsequent stages.
f) Invoice and Payment: The system sends the customer an invoice, and the customer pays according to the provided instructions.

Once payment is received, the system notifies the consumer that payment has been received. This sequence diagram illustrates the intricate interaction between the consumer and the system during placing an order request. This aids developers, analysts, and other interested parties identify potential enhancements, comprehending the system's workflow, and gain insight into how each process element interacts. "Request Order" sequence diagrams are beneficial for developing, understanding, and effectively communicating the details of the request order process.

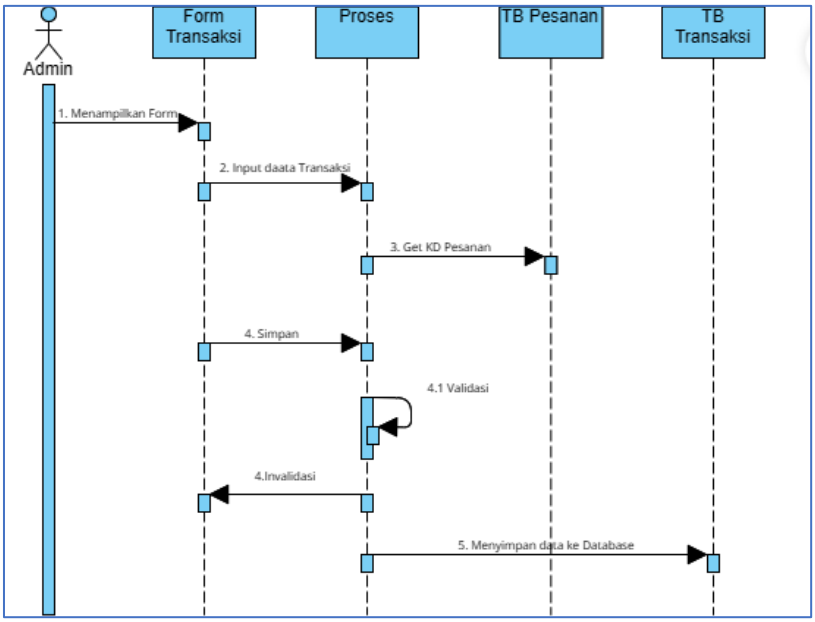

Figure 4. Sequence Diagram Request Order
Source: Researcher Properties

Figure 4. The author elucidates that the activity involves a singular actor, identified explicitly as Admin. Additionally, four distinct lifelines engage in mutual interaction, and seven messages convey vital information regarding the transpiring actions.

4) Class Diagram

The Class Diagram comprehensively represents the organization and interconnections among classes inside the system. Three distinct categories must be elucidated within the present situation: Customer, Bank, and Transaction Order. The class denoted as "Customer" serves as a representation of relevant information about customers. The properties of the system include "customerID" to uniquely identify the customer, "name" to represent the customer's name, "email" to save the customer's email address, and "address" to record the customer's physical address. The class under consideration exhibits a composition relationship with the "Transaction Order" class, allowing for several transaction orders associated with each client. The "Bank" class represents the entity of a bank that is involved in the process of transactions. The properties "bankID" and "bankName" can be utilized to identify and represent a bank's name. The "Bank" class links with the "Transaction Order" class, as a bank is affiliated with several transaction orders. The "Transaction Order" class encompasses a transaction order's details. The elements of the system include "orderID," which serves as a unique identifier for each order, "order date," which represents the date the order was placed; and "amount," which denotes the monetary value of the transaction. The class under consideration exhibits a compositional relationship with the "Customer" class, as each transaction order is associated with a singular customer. Furthermore, the "Transaction Order" class is associated with the "Bank" class, signifying that each transaction order is linked to a particular bank. In its entirety, this Class Diagram provides an overview of the organizational framework and interconnectedness among the classes labeled as "Customer," "Bank," and "Transaction Order." The visualization depicts the system's interactions between customers, banks, and transaction order details. The utilization of diagrams can aid developers and various stakeholders in comprehending the entities and relationships inside the system. This, in turn, facilitates developing, maintaining, and enhancing the functionality associated with consumers, banks, and transaction order processing.

Furthermore, the diagram clearly illustrates the possibilities for additional advancement. For instance, incorporating novel functionalities, such as the ability to track deliveries or the integration of third-party payment services, can be seamlessly integrated into the framework depicted in this figure. Figure 5. Class Diagrams offer vital insights into the contemporary corporate landscape, characterized by a substantial reliance on online transactions and the cultivation of client connections. This facilitates the development of efficient, understandable, and manageable systems. Through visualizing the structure and interconnections among essential classes, these diagrams enhance decision-making, solution creation, and the overall operational efficiency of development teams, analysts, and other relevant stakeholders.

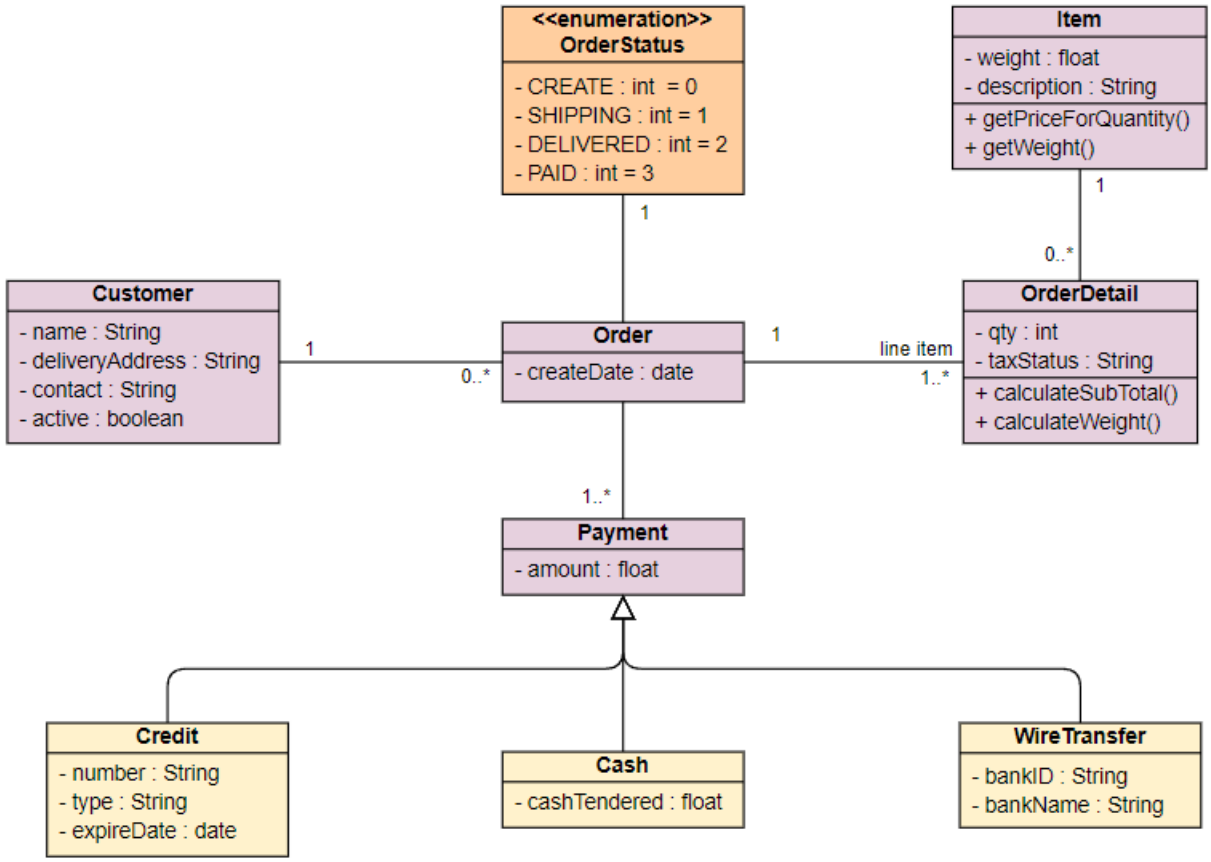

Figure 5. Class Diagram
Source: Visual Paradigm [12]

5) The implementation of the sales information system

Figure 6. Implementing a sales information system entails the execution of strategies, technologies, and processes within an organization to bring the envisioned system to life. This multifaceted process includes a series of steps for designing, developing, testing, deploying, and maintaining a robust sales information system that aligns with the organization's requirements and goals. During the initial phase, the organization defines its objectives, identifies key stakeholders, and establishes the system's scope. This phase lays the groundwork for subsequent stages and ensures that the implementation of the system corresponds with the overarching business strategy. After the planning phase concludes, the development phase begins. This includes developing the software, interfaces, and databases required to operate the sales information system effectively. During this phase, software developers, system architects, and designers collaborate to build the system following the predefined requirements. After the development phase, rigorous testing is conducted to identify and fix any flaws, inconsistencies, or bugs. This ensures the system's seamless and dependable operation under real-world conditions. After the practical completion of the testing phase, the deployment phase commences. This involves integrating the organization's infrastructure with the sales information system. The deployment procedure must be carefully coordinated to ensure minimal disruption to ongoing operations.

Employee and stakeholder training is a crucial aspect of implementation. Adoption of the system is contingent on users' ability to comprehend and effectively employ its features and functions. Comprehensive training programs and user manuals are frequently provided to facilitate a seamless transition to the new system. Post-implementation maintenance and support are essential to sustaining the system's functionality and adapting to shifting business requirements. Regular updates, problem fixes, and enhancements are implemented to maintain the system's compatibility with evolving needs and technological developments. Implementing a sales information system is both a technical and strategic endeavor. It requires collaboration between IT specialists, business analysts, management, and end-users. Successful implementation necessitates efficient communication, meticulous planning, ongoing monitoring, and adapting to unforeseen obstacles. When properly implemented, the sales information system can streamline operations, improve decision-making through data-driven insights, enhance customer relationship management, and contribute to the organization's overall growth and competitiveness.

In conclusion, implementing a sales information system is a multi-staged process involving planning, development, testing, deployment, and ongoing maintenance. It requires a substantial investment of resources, time, and expertise. Still, its prospective benefits regarding operational efficiency, informed decision-making, and customer satisfaction make it essential for organizations seeking to thrive in the contemporary business environment.

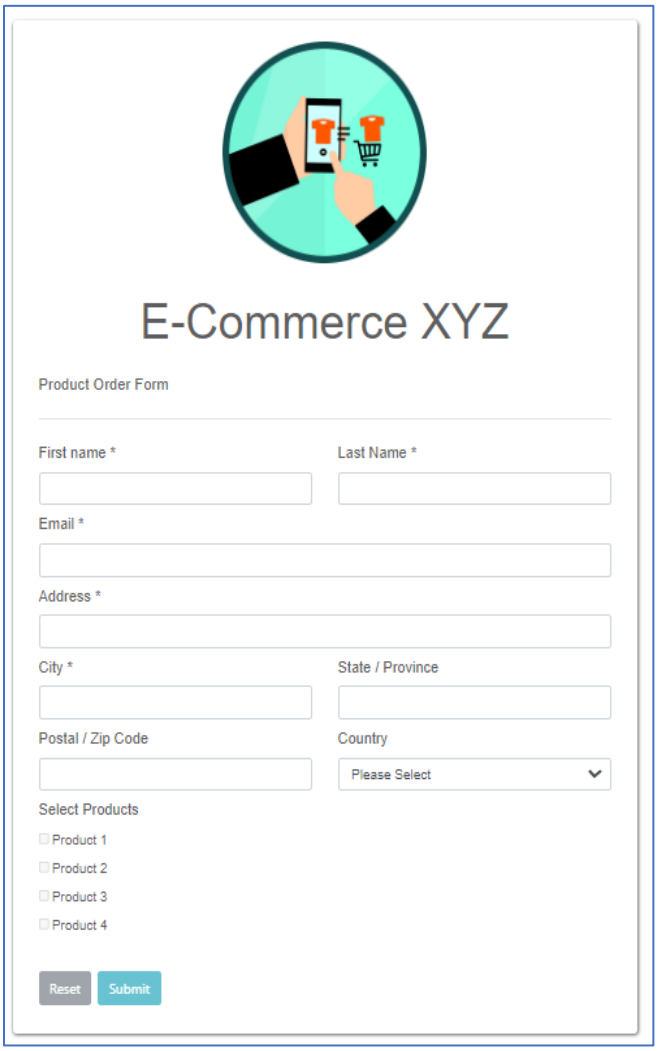

Figure 6. Form Order
Source: Visual Paradigm [12].

3.5 Discussion

Based on the results of the research that has been described, a number of significant findings emerged that enrich the understanding of the role of e-commerce in increasing sales. The Use Case diagram provides an overview of how e-commerce can strengthen relationships with customers through a smoother and more structured shopping experience. Customer activities from product selection to payment are efficiently facilitated, resulting in increased customer satisfaction and loyalty development. In line with that, the Activity Diagram underlines the optimization of a structured and controlled sales process. Having clear steps in a series of processes contributes to reducing errors and time efficiency in completing transactions. In addition, the Sequence Diagram details the exact interaction between the customer and the system in the product ordering process. By looking at the sequence of activities from start to finish, the potential for increased transaction speed and data accuracy becomes clear. On the other hand, the Class Diagram provides a comprehensive picture of how the internal organizational structure can be optimally managed. Entity settings such as customer, bank, and transaction enable better transaction management and accurate reporting. The implementation of the Sales Information System represents an important foundation in this research. This confirms the positive impact of technology on business processes, where the system provides guidance based on available data and makes it easier to monitor sales performance. While these findings provide beneficial insights, it is also necessary to acknowledge the challenges that may arise, such as data security issues and technology adaptation. However, this research also opens future opportunities in integrating advanced technologies such as artificial intelligence and predictive analytics. In this study, the overall findings make a significant contribution to our understanding of the vital role of e-commerce in accelerating increased sales. The practical implications of these findings could lead to the development of more targeted business strategies and more sophisticated technology integration to support business growth. Furthermore, this research has the potential to contribute to further literature on aspects of e-commerce and sales that have not been fully explored.

4. Related Work

To understand this study more deeply, a review of the relevant literature is essential. This review not only links the research findings to previous research contributions, but also details the latest developments and trends on the role of e-commerce in increasing sales. Previous studies, as described in this study, have highlighted the positive impact of e-commerce on sales, including increasing operational efficiency and providing a better shopping experience for customers. client. Previous research has highlighted how integrating an e-commerce platform with supply chain management can improve responsiveness and speed product delivery. Other research shows that implementing business information systems provides lasting benefits in customer data management and business decision making. In terms of technological innovation, recent studies have reflected the increasingly important role of artificial intelligence and predictive analytics in optimizing sales strategies and understanding customer behavior. By leveraging existing data, this analysis can provide insights into customer preferences, help design more effective marketing campaigns, and identify emerging market trends. In addition, security and privacy aspects are also the focus of research related to e-commerce. Research conducted by [Reference] highlights the importance of keeping customer information secure in an online environment vulnerable to cyber threats. Deploying strong security practices and protecting customer data is a major concern in building a successful e-commerce system. However, some research gaps still need to be investigated. For example, although many studies have described the positive impact of e-commerce on sales, it remains unclear how to turn a better shopping experience into long-term customer loyalty. In addition, the role of integration with social media platforms and the creation of more complex predictive models to predict consumption trends is also an interesting area of research.

5. Conclusion

Increase Sales through the development of an Internet-based application system. It must be designed using the Unified Modeling Language to construct the system. Using the Unified Modeling Language (UML) methodology, the contribution of e-commerce to sales growth is discussed. UML is a standard language for defining, describing, and modeling software systems; it can be applied to e-commerce to enhance efficiency, expandability, and precision. This study also describes how using UML to develop e-commerce solutions enables a comprehensive analysis of business requirements, database structure, user interface interactions, and transaction procedures. Using UML diagrams such as use cases, classes, sequences, and activities, e-commerce industry participants can visualize business processes comprehensively, identify potential enhancements, and optimize the user experience. The results indicate that integrating UML into e-commerce development can result in fewer errors, less confusion, and a more transparent comprehension of the interactions between system components. With explicit modeling and improved communication between development teams, implementation errors are less likely to occur, ultimately contributing to enhanced system quality and customer satisfaction.

However, this study also identified several obstacles, including the complexity of the UML model, which can impede comprehension among less-experienced developers. In addition, implementing UML necessitates a substantial investment of time and resources, particularly in the early phases of development. Using UML in e-commerce development can significantly increase sales through increased efficiency and more precise system development. Implementing UML is a valuable instrument for optimizing e-commerce operations due to the long-term benefits of reduced errors, increased collaboration, and improved customer experience. However, certain obstacles must be overcome.

References

[1] Kilay, A.L., Simamora, B.H. and Putra, D.P., 2022. The influence of e-payment and e-commerce services on supply chain performance: Implications of open innovation and solutions for the digitalization of micro, small, and medium enterprises (MSMEs) in Indonesia. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(3), p.119. DOI: https://doi.org/10.3390/joitmc8030119.

[2] Esubalew, A.A. and Raghurama, A., 2020. The mediating effect of entrepreneurs' competency on the relationship between Bank finance and performance of micro, small, and medium enterprises (MSMEs). *European Research on Management and Business Economics*, *26*(2), pp.87-95. DOI: 10.1016/j.iedeen.2020.03.001.

[3] Tejamaya, M., Puspoprodjo, W., Susetyo, H. and Modjo, R., 2021. An analysis of pivotal factors in the implementation of occupational health and safety management systems in micro, small and medium enterprises (MSMEs): Literature review. *Gaceta Sanitaria*, *35*, pp.S348-S359. DOI: https://doi.org/10.1016/j.gaceta.2021.10.050.

[4] Samantha, G., 2018. The impact of natural disasters on micro, small and medium enterprises (MSMEs): a case study on 2016 flood event in Western Sri Lanka. *Procedia engineering*, *212*, pp.744-751. DOI: https://doi.org/10.1016/j.proeng.2018.01.096.

[5] Loutfi, A.A., 2022. A framework for evaluating the business deployability of digital footprint based models for consumer credit. *Journal of Business Research*, *152*, pp.473-486. DOI: https://doi.org/10.1016/j.jbusres.2022.07.057.

[6] Bocken, N. and Konietzko, J., 2022. Circular business model innovation in consumer-facing corporations. *Technological Forecasting and Social Change*, *185*, p.122076. DOI: https://doi.org/10.1016/j.techfore.2022.122076.

[7] Classen, M. and Friedli, T., 2019. Value-Based Marketing and Sales of Industrial Services: A systematic literature review in the age of digital technologies. *Procedia Cirp*, *83*, pp.1-7. DOI: https://doi.org/10.1016/j.procir.2019.02.141.

[8] Egri, G. and Bayrak, C., 2014. The role of search engine optimization on keeping the user on the site. *Procedia Computer Science*, *36*, pp.335-342. DOI: https://doi.org/10.1016/j.procs.2014.09.102.

[9] Yalçın, N. and Köse, U., 2010. What is search engine optimization: SEO?. *Procedia-Social and Behavioral Sciences*, *9*, pp.487-493. DOI: https://doi.org/10.1016/j.sbspro.2010.12.185.

[10] Bergström, G., Hujainah, F., Ho-Quang, T., Jolak, R., Rukmono, S.A., Nurwidyantoro, A. and Chaudron, M.R., 2022. Evaluating the layout quality of UML class diagrams using machine learning. *Journal of Systems and Software*, *192*, p.111413. DOI: https://doi.org/10.1016/j.jss.2022.111413.

[11] Hindarto, D., 2023. Indonesian Culinary Application System Design with UML Method. *Journal of Computer Networks, Architecture and High Performance Computing*, *5*(2), pp.612-622. DOI: https://doi.org/10.47709/cnahpc.v5i2.2675.

[12] S. Christopher and S. John, 2023. Visual Paradigm, *Visual Paradigm*. https://online.visual-paradigm.com/.

[13] Hindarto, D. and Hariadi, M., 2023. Information System Design at FGH Stores with Unified Modelling Language. *Journal of Computer Networks, Architecture and High Performance Computing*, *5*(2), pp.623-633. DOI: https://doi.org/10.47709/cnahpc.v5i2.2702.