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Original Research Article

Impact of Artificial Intelligence on E-Commerce Businesses in Ho Chi Minh City

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Abstract: E-commerce is talked about a lot, but a deeper understanding of its applications to apply in practice in businesses to contribute to great economic efficiency is an issue that needs to be discussed more. Artificial Intelligence (AI) is the technology that will have the maximum impact on e-commerce in the coming years. According to an IBM report, more than 90% of productive organizations are considering enterprise-level AI adoption. In addition, a Gartner report predicts that 37% of organizations have implemented AI in some form. From optimizing inventory levels to intelligent fraud management, AI is doing more than sending personalized product recommendations to customers. Based on the study of related concepts and the current situation of e-commerce enterprises in Ho Chi Minh City, this study wants to analyze the impacts of artificial intelligence on the management and business processes of e-commerce enterprises businesses in Ho Chi Minh City, thereby proposing solutions to improve the e-commerce business of enterprises in Ho Chi Minh City.

Keywords: Artificial intelligence (AI), impact, e-commerce, e-commerce businesses, Ho Chi Minh City.

INTRODUCTION

Why is the so-called Artificial Intelligence really one of the best-used systems your e-commerce can have? [1, 2]. Let's start with the effects this disruptive and innovative strategy can produce right now. Because in fact, and as in any business that seeks to improve and maximize its results [2], artificial intelligence may be the last resource that entrepreneurs in the business sector use in this growing business may have [3, 4].

With an impressive 35% of total sales, product selling and cross-selling on Amazon's e-commerce platform is one of the retailer's top success stories. What technology is driving this mode of transformation? Amazon's product recommendation technology is mainly enabled by artificial intelligence or AI [5].

In fact, a study conducted by Ubisend in 2019 found that 5 out of 5 consumers are willing to buy goods or services from a chatbot, while 40% of online shoppers search for deals great deals and purchases from chatbots [5].

While global e-commerce sales are projected to reach $4.8 trillion by 2021, Gartner predicts that around 80% of all customer interactions will be managed by AI technology (without any human agent) by 2020 [6].

The use of artificial intelligence in online shopping is transforming the e-commerce industry

by predicting shopping patterns based on the products shoppers buy and when they buy them.

Developing artificial intelligence to promote the development of the digital economy is one of the top priorities of Ho Chi Minh City. The plan is to implement Decision No. 575/QD-UBND dated February 23, 2021, of the People's Committee of Ho Chi Minh City on approving the Program "Research and development of artificial intelligence (AI) application in Ho Chi Minh City in the period 2020-2030"; organizing the implementation, testing, monitoring and evaluation of implementation results and contributing to promoting artificial intelligence to become one of the core technologies in building creative cities, smart cities, promoting promote rapid and sustainable digital economic development.

According to the plan, this year Ho Chi Minh City will deploy 9 key tasks related to the development and application of artificial intelligence (AI). In which, the City will implement the Digital Infrastructure Construction Project with a focus on 5G mobile network and internet of things (loT) connection infrastructure for Thu Duc city and districts in Ho Chi Minh City. According to this plan, the People's Committee of Ho Chi Minh City assigns the Department of Information and Communications Ho Chi Minh City to be the standing agency, responsible for coordinating with relevant agencies, organizations, and units to implement the implementation. The program "Research and development of artificial intelligence application in Ho Chi Minh City in the period of 2020-2030".

RESEARCH RESULTS AND DISCUSSION

Related Concepts

Artificial intelligence:

Artificial intelligence or artificial intelligence (AI) is a branch of computer science [1, 7]. An intelligence created by humans with the goal of helping computers to automate intelligent behaviors like humans.

Artificial intelligence differs from logic programming in programming languages in the application of machine learning systems to simulate human intelligence in processes that humans do better than computers [7, 8].

Specifically, artificial intelligence helps computers acquire human intelligences such as thinking and reasoning to solve problems, knowing how to communicate by understanding language, speech, learning, and self-adaptation, …

Although artificial intelligence has a broad connotation of intelligence in science fiction, it is one of the key branches of informatics. Artificial intelligence is concerned with the intelligent behavior, learning, and adaptability of machines.

E-commerce:

Electronic commerce (e-commerce), describes the process of buying, selling, transporting, or exchanging products, services, and information through computer networks, including the Internet. Some consider the concept of commerce to be just a description of transactions conducted between business partners. When this definition of e-commerce is used, some people find the concept of e-commerce rather narrow [2, 8]. So many people have instead used the concept of business. E-business refers to a broader definition of e-commerce, not only the buying and selling of goods and services but also serving customers, cooperating with business partners, and conducting learning. electronically, and conduct electronic transactions within an organization [9]. Others consider e-business to be activities that are “non-commercial” on the Internet, such as corporate and intra-corporate activities.

E-commerce organizations. Purely physical organizations (companies, corporations) are known as brick-and-mortar (old economy) organizations, and organizations that are only engaged in e-commerce are called virtual organizations. Click-and-mortar (or click-and-brick) organizations are organizations that conduct certain e-commerce activities [10]. However, their primary business is done in the physical world. Gradually, many brick-and-mortar companies are turning to click-and-mortar companies (e.g. Wal-Mart Online).

Internet e-commerce and non-Internet e-commerce. Much of e-commerce is done on the Internet. But e-commerce can also be conducted on private networks, such as value-added networks (VANs), on LANs, or even on a single computerized device. . For example, buying food from a vending machine and paying with a smart card or mobile phone can be considered an e-commerce activity [11, 12].

Types of e-commerce transactions:

E-commerce transactions that can be performed between different parties are as follows:

Between Business (B2B): In B2B transactions, both the seller and the buyer are business organizations. A large volume of e-commerce is of this type.

Cooperative Commerce (c-commerce): In cooperative commerce, business partners cooperate

electronically. This cooperation often occurs between business partners along the supply chain.

Consumer-Business (C2B): In C2B, a consumer indicates a specific need for a product or service, and competing suppliers will provide that product or service to the consumer.

Between Consumers (C2C): In C2C, an individual sells products or services to other individuals. (You will also see the term C2C used as "between customers" commerce.

Between government and citizens and others (G2C): In this case, the government provides services to its citizens through e-commerce technologies. Governments can work with each other or with businesses (G2B).

Mobile Commerce (m-commerce): When e-commerce is done in a wireless (wireless) environment, for example using a mobile phone to access the Internet, we call it mobile commerce. motion.

Scope of e-commerce. The field of e-commerce is very broad and has many e-commerce applications. To implement these applications, businesses need the right information, secure infrastructure, and other support services. Specifically:

People: Sellers, buyers, intermediaries, information system specialists and other employees, and anyone involved in the process;

State Policy: Legal, policy, and regulatory issues, such as privacy protection and government-regulated taxation;

Marketing and advertising: Like any other business, e-commerce often requires the support of marketing and advertising. This is especially important in B2C online transactions, where buyers and sellers often do not know each other;

Support services: Many services are needed to support e-commerce. These range from payment services to delivery or content creation;

Business cooperation: Joint ventures, e-marketplaces, and business cooperation of all kinds are very common in e-commerce. They often appear throughout the supply chain.

E-commerce business in Ho Chi Minh City

The report of the Department of Industry and Trade of Ho Chi Minh City shows that the e-commerce market in the city is more vibrant than ever, not only this year but the city is almost the leading locality in this market. over the years.

This is reflected in the fact that Ho Chi Minh City always leads the country in the E-commerce Index through 2017, 2018, and 2019 conducted by the Vietnam E-commerce Association.

The e-commerce market in Ho Chi Minh City grows in breadth and depth, maintaining strong growth momentum as the number of people using Internet-connected mobile devices and smart technology devices is increasing day by day the higher the increase.

The use of e-commerce in the shopping activities of people in Ho Chi Minh City today has become a habit and through many convenient online wholesale channels [13].

A representative of the Ho Chi Minh City Department of Industry and Trade said that people's Internet access through electronic means is about 90%, so they do not have difficulty finding goods and shopping on-demand on commercial channels. e-commerce. Many people also choose the e-commerce channel as the main channel to consult product information, directly approach manufacturers, and evaluate and compare prices.

On the contrary, in the face of fierce market competition, retailers participating in the e-commerce market have constantly made efforts to perfect their business models and develop new technology applications to increase customer experience. row. Which, some models can be mentioned such as e-commerce trading floors, sales websites, and social networks on both website and mobile platforms.

Moreover, electronic payment applications have been deployed more conveniently and effectively to support e-commerce transactions, including payment via card (POS, ATM, etc.); Internet (through an account opened at a bank); electronic wallet; mobile app…

Especially, in the context of the COVID-19 epidemic, the most popular online sales channels by consumers are e-commerce platforms (Shopee, Lazada, Sendo); electronic websites (Saigon Co.op, LOTTE Mart); social networks (Facebook; Zalo Shop, Instagram).

Shopee's statistics show that consumers often buy fashion clothes; cosmetics, food, technology, etc. High-value items such as household appliances, electronics; fresh food, etc. consumers tend to go directly to the store.

According to Ms. Nguyen Thi Nhu Ngoc (2020) [6], Communications Director of Kantar Worldpanel Vietnam, from 2020, Vietnam's retail industry will boom to promote products online, because according to a survey, up to 72% of consumers make decisions intend to purchase goods after consulting social networking sites (Facebook, Instagram, etc.). At the same time, 88% of consumers surveyed said they were willing to pay extra for shipping to receive their goods the same day (or within hours) after placing an order.

Recognizing the reality in the market, some retailers have met these requirements well, bringing more and more conveniences to customers, especially in the field of fast-moving consumer goods, including food, chemicals, cosmetics, etc. Especially, the gap between urban and rural consumers is gradually being shortened by retailers themselves thanks to e-commerce channels.

In fact, Vietnamese businesses have been able to simultaneously develop large shopping centers with a chain of convenience stores and e-commerce channels. Therefore, it is forecasted that from 2020 onwards, the saturated urban retail market, modern shopping will approach the rural market with more than 70% of the population and 80% of the country's area. This is a potential consumption market for businesses to develop distribution channels, in which the e-commerce channel is an effective direction.

The number of members using the fast delivery service "TikiNOW 2 hours" increased 3 times, and the category of fresh food products increased many times. As for the Lazada e-commerce platform, the number of orders also more than doubled, especially fresh food orders increased 17 times over the same period last year.

During the epidemic, many e-commerce platforms have developed new services, supplies, and fast delivery. At the same time, connecting and supporting farmers and producers to put agricultural products and products on the floor, to consumers. Models connecting directly with farmers have cut out the intermediary steps, supporting farmers to optimize costs, and helping people buy products at better prices. Lazada reactivated the economic stimulus package to support sellers in digital transformation during the 4th Covid-19 wave. At the peak of the epidemic outbreak, this business organized a sales channel to stabilize prices to meet demand. essential products for the people.

“Enterprises strengthen sales channels to stabilize prices; coordinate to bring essential food products to supply vegetables, fruits, etc. to Ho Chi Minh City consumers through a stable platform on the platform, put farmers' agricultural products on the Lazada floor", Ms. Luu Hanh, Director Lazada media said [6].

Ho Chi Minh City Department of Industry and Trade said that in the second week of August 2020, sales at supermarkets and convenience stores decreased by 10%. The number of visitors to the supermarket decreased by 50% because people were afraid of coming into contact with many people. However, the number of goods bought and sold online and delivered at home has increased. Statistics from service providers show that the Tiki online shopping platform grows the fastest, with a record of 4,000 orders per minute; Online sales channels of SpeedL (of Lotte Mart) and Saigon Co.op increased the number of deliveries exponentially. In addition, according to the Department of Industry and Trade, sales of city businesses via the internet are accounting for 42.1% of total revenue; the percentage of households using payment cards and wire transfers when making purchases reached 30.8% [4].

Currently, Ho Chi Minh City has 567 e-commerce platforms, more than 20,680 sales websites, and 134 applications providing commercial services. Despite the prolonged Covid-19 pandemic affecting the circulation of goods, in 2021, many e-commerce platforms and sales websites will still achieve high growth. For example, the Tiki e-commerce platform still maintains a double-digit growth rate, while the fresh food delivery service set a record with an increase of 20 times over the same period last year.

Impact Of Artificial Intelligence AI On E-Commerce Businesses In Ho Chi Minh City

First: Leverage predictive analytics to improve product delivery:

Predictive analytics is a statistical analysis technique that uses data mining and machine learning to predict future events. In the context of e-commerce, predictive analytics provides store owners with a deeper understanding of customer decisions and behaviors.

AI finds different motivations in target consumer behavior so e-commerce store owners can leverage available data to improve their current product offering.

Each customer interacts with the online store in a unique way. Predictive analytics helps to understand every variable in customer behavior and tailor product offerings accordingly.

For example, products that are less likely to be purchased by customers can be replaced by products that are in higher demand. Similarly, if customer search data predicts customers are searching for new products each week, then existing inventory can be replaced with newer products.

Apply advanced data analytics and machine learning to intelligent fraud management.

E-commerce sales drive revenue growth of 209% year-over-year. With such an outstanding performance on growth, the e-commerce sector is very susceptible to fraud. It is estimated that by the end of 2021, e-commerce companies will lose about $6.4 billion due to fraud.

Most fraud happens online. Different types of e-commerce fraud that are relevant to an e-commerce store include Credit card fraud in which hackers steal confidential financial information of e-commerce companies to execute show fraudulent transactions; Affiliate Fraud in which affiliates charge commissions for short sales; Abuse of promotional codes where fraudsters can get a discount multiple times using the same discount code; Authorization fraud in which scammers pose as different individuals to purchase a limited number of pairs of shoes.

Security concerns during checkout are one of the top reasons for cart abandonment. ML and AI tools are effective in combating different types of e-commerce fraud.

An intelligent and AI-based data analysis system can be used to analyze what legitimate customer behavior looks like, including false denials. A supervisory decision tree is created to detect false transactions.

For example, systems like Fraudlabs Pro have a central blacklist database containing millions of IP addresses and email addresses for smarter fraud detection. AI helps screen every order for fraud patterns and even blocks multiple credit card attempts in a fraction of a second. Accurate fraud detection of every transaction helps e-commerce merchants reduce chargebacks and improve profits.

Second: Generate personalized product recommendations based on algorithms.

The product recommendation engine is based on a historical approach and a predictive approach. Historical approach algorithms will recommend products based on a decision the customer has made previously. However, the predictive approach algorithm will recommend products depending on what the customer might buy next.

In addition, the AI-powered product recommendation engine can recommend products based on the customer's current preferences. Amazon says its product recommendation engine drives 35% of sales. The product recommendation tool recommends products related to products that customers have purchased in the past.

However, AI recommendation engines have other uses as well. For example, if a group from a country shopped for a specific product during festivals, the AI engine could list that product on the homepage for visitors from that region. Similarly, if people in a certain age group are showing interest in buying a particular product, the AI engine can list products that are similar to them.

Tools like Finteza use advanced e-commerce analytics to identify products customers have purchased in recent days and at what prices. The AI also tells you the most popular item. When you can detect the most popular products based on customer location, you can offer those products to customers to increase sales.

Upgrade website design and product price after competitor analysis.

Dynamic pricing is the future of e-commerce. Major e-commerce companies have implemented robotic AI-based systems to offer dynamic pricing to customers. Dynamic pricing is a strategy that uses big data and AI to automatically add new prices to products after carefully analyzing current price trends and competitors' prices. Offering competitive pricing to customers leads to increased revenue from e-commerce.

AI is capable of providing personalized pricing to different customers. For example, if a customer visits a competitor's website and notices that the product they want to buy is not available. They will visit your website to buy that product.

Now, imagine if AI could feed this data to you and predict how likely a customer is to buy a product from your store. If the buying opportunity is high, the AI's pricing algorithms will automatically increase the price of the product resulting in a higher profit.

E-commerce giants like Amazon have a dynamic pricing strategy and they change product prices every ten minutes. For example, tools like Pinterest automatically check inventory for different products in other e-commerce stores and automatically inflate the prices of out-of-stock products in other stores. AI evaluates more than 20 KPIs and finds the best price for the product.

Third: Good inventory management and smart demand forecasting.

Inventory is a major part of an e-commerce store. Both overstocking and understocking are important factors that directly affect the revenue generated from an online store. Overstocking occurs when companies stock products with low demand and spend large amounts just to manage inventory. Similarly, stock shortages occur when companies do not have high-demand inventories, and this leads to losses.

Artificial intelligence helps e-commerce companies minimize losses while managing inventory. AI helps forecast product demand based on previous orders. For example, AI can predict that demand for certain products will increase in the coming months so that sellers can maintain optimal inventory levels. This will minimize inventory damage.

Solutions like Qualetics already leverage AI to automate optimal inventory management. The system uses robots to check and refill inventory after predicting demand.

Smart e-commerce players never keep excess inventory. Smart AI solutions can be used to track existing inventory, predict market trends, and maintain a supply-demand balance throughout the supply chain.

CONCLUSION

According to the Vietnam E-commerce Index Report 2022, just announced by the Vietnam E-commerce Association, Ho Chi Minh City continues to lead the ranking of the e-commerce index, followed by Hanoi and Da Nang. With the advantage of being the largest city in the country, e-commerce is increasingly interested in Ho Chi Minh City. The development of e-commerce will help in cases of local shortages of essential goods in some localities, at some points, suppliers can quickly replenish supply and deliver to people in a timely manner without necessarily having direct contact through shopping at supermarkets and traditional markets.

Moreover, when buying goods through e-commerce, delivery activities all ensure the rules of epidemic prevention. With reputable e-commerce platforms, shoppers can completely choose either fast delivery or economical delivery depending on the product ordered. Thus, understanding the role and impact of artificial intelligence on e-commerce in Ho Chi Minh City will help this field develop more and more in the future.

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