

An analyst on how the IoT and SMART technology affect businesses today, how this affects the consumer behaviour



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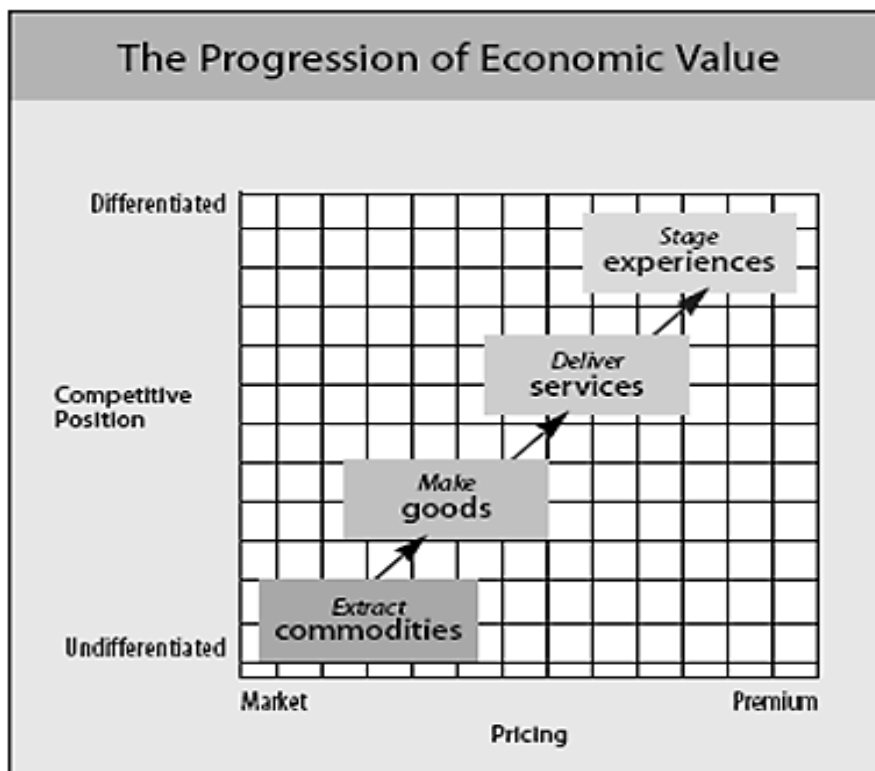
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Chapter 1: Background

The last decades have seen enormous economic progress related to the development of technology and the employment of societies. This leads to changing consumer preferences and increasingly high expectations. According to recent research, the emerging economy is based entirely on the customer experience. Consumers undeniably desire products and services that contribute to a unique experience and value, and more and more businesses are striving to meet this customer preference. (Voss, 2004) This undoubtedly leads to a new level of competition in the delivery of experiences illustrated in Figure 1.

Figure 1: The Progression of Economic Value



(Gilmore & Pine, 1998)

Goods and services may be interchangeable through substitutes, while experiences are unique to each individual consumer. Today, the concept of adding value to consumers is spreading rapidly in new technologies. Examples of such are virtual reality simulators, electronic assistants,

devices that make our home smart and many others. All these technologies add value in many aspects to people's lives.

Over the past decade, many companies have adapted to R&D and the creation of new IoT technologies. The goal was to create technologies that would help each user individually depending on their needs. The development of IoT has provided a wide-ranging impact on people's work and daily life to make life more convenient, productive and healthy.

In essence, the Internet of Things (IoT) is a network of connected devices and technologies that, through communication, facilitate the exchange of information between cloud and devices (Swamy & Kota, 2020). Artificial Intelligence (AI) as part of IoT is widely used in e-business. These modern concepts create huge changes by displacing traditional business practices and making them obsolete. But how ready are businesses for these fast-moving innovations? The power of AI and IoT is completely transforming the e-business sector. The emergence of new technologies has established a high impact worldwide, especially in the field of retail trade. The success of these technologies directly depends on providing a better and more consistent user experience.

Importance of the topic

The topic of the impact of technology on business is important because the development of smart technologies has contributed to significant changes in the business environment. There are many new marketing and business strategies aimed at winning consumer loyalty, which contributes to changes in their behaviour (Swamy & Kota, 2020).

I chose this topic because we live in years of rapid technological progress, a time in which customer preferences are changing rapidly and business is becoming more and more socially oriented. Today, for a business to be defined as successful, it must demonstrate good understanding and customer service. Almost all companies to some extent use the development of technology to improve their business positions and attract loyal customers, but not all succeed. For this, the following questions arise in me:

Research questions

- What are the drawbacks of using IoT technology?
- How technologies impacts e-business?
- Who are the effective strategies for sustainable growth of the business?
- How technology affects customer behaviour?

The procedure for finding an answer to the research questions will involve different methods and stages of action. A thorough research will be done to discover the correct information and confirm its authenticity. The sources of information that will be used for the research will be reliable web sources, journals, articles, conferences, books. In order to collect up-to-date information, research will be conducted among users of smart services. Analysis from the study will be used as evidence to help establish the truth of the claims originally made.

Chapter 2: Literary review

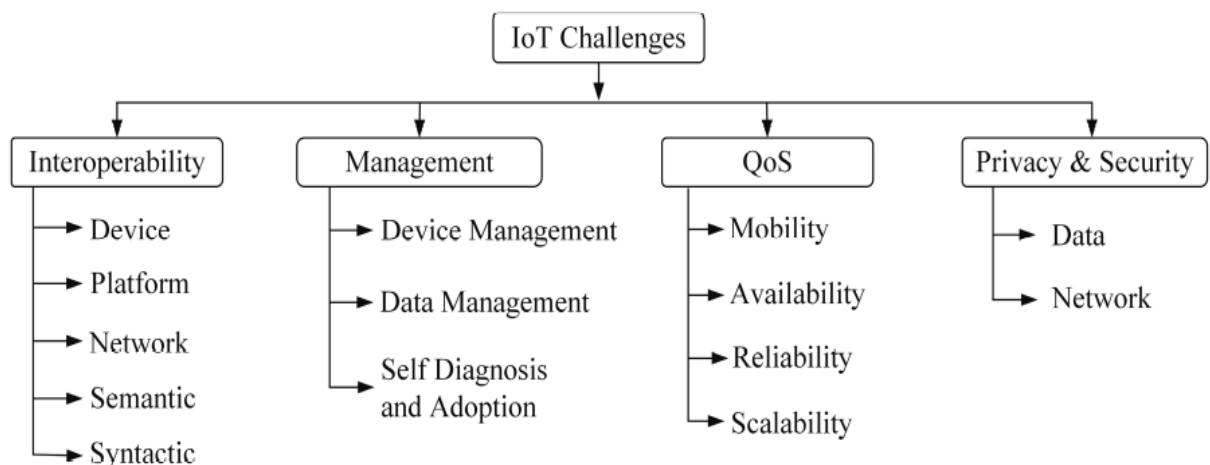
Introduction

The behaviour of customers and businesses can be significantly influenced by the development of digital marketing. The main contributor to this influence is the rapid development of Internet technologies, and the ability to use artificial intelligence in people's daily lives. In the second chapter, theoretical approaches and appropriate strategies will be used to contribute to finding target information.

Drawbacks of using IoT technologies

With the ever-rapid development of the IoT, the systems have an increasing need to introduce regulations, standards, and security measures for users. There are a large number of critical areas in which IoT systems need to take urgent measures at a global level. The drive to develop, modernize and facilitate our daily lives is a sign that the need for a secure environment is increasingly important for the trouble-free use of systems. This is precisely why IoT specialists need to focus their attention on these groups of shortcomings. Figure 2 depict the problem areas of IoT systems:

Figure 2: IoT Challenges



The widespread adoption of IoT leads to numerous disadvantages that lead to the need to find solutions soon. In this chapter I will focus on looking at the challenges related to Privacy and Security and the possible threats to online businesses and customers.

Cybersecurity and privacy challenges

Introduction

A major challenge these days is the lack of structure and generally accepted security regulations. This leads to many negative consequences for the wide spread of IoT in consumer and corporate environments. Some may assume that technological advancements provide better cyber security for internet users. Unfortunately, the security is not at the required level and cyber-attacks are increasing, even though there are a huge number of developed cyber security programs (Grabosky, 2016). A cyberattack is defined as, "the use of the Internet for the purpose of accessing unauthorized or protected information, spying, disabling networks, and stealing data and money" (Uma & Padmavathi, 2018).

The reasons that contribute to the vulnerability of users in the Internet space are numerous and of a different nature, below I will list some of them:

Lack of IoT security standards

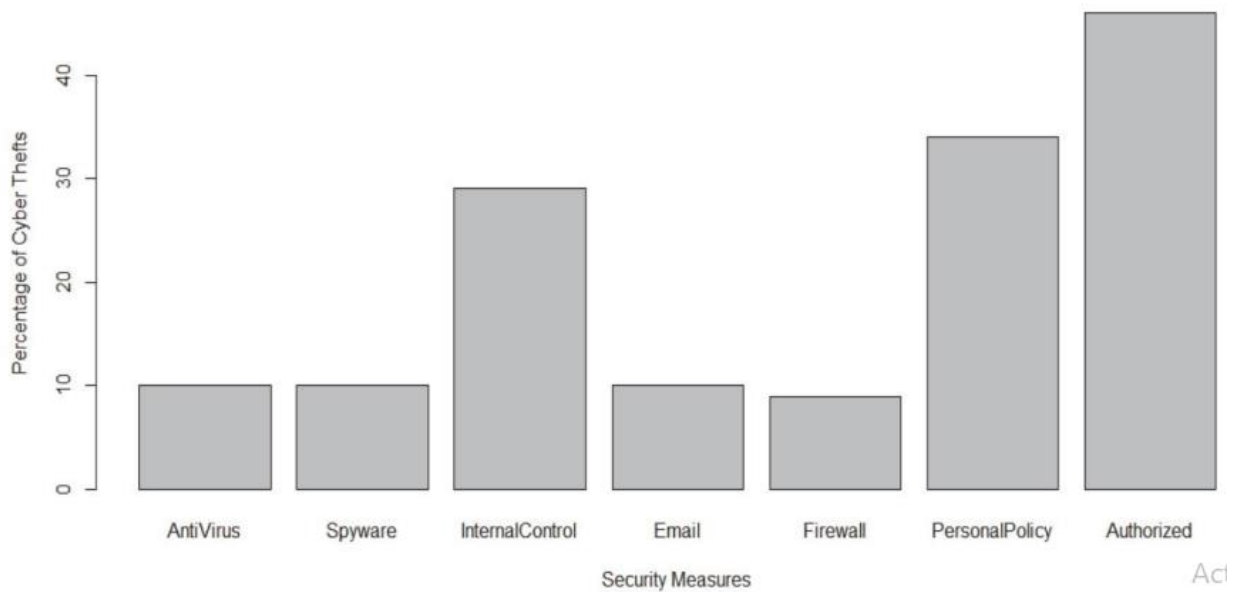
The IoT value chain encompasses a total of five layers: device, data, applications, services, and connectivity. Every one of these five layers is vulnerable because there is no unified global standard for their protection. There are some regulations such as the "American Cybersecurity Act" and "the European Consumer Data Protection Regulation", but they target a specific layer of the chain. This means that the entire IoT chain remains vulnerable and unprotected. (Kumar & Culler, 2019)

Manufacturers' lack of care about users' data protection

IoT devices through which people connect to the Internet network can be likened to an "open door" to users' personal space. Smart watches monitor our health, smartphones track our whereabouts, and security cameras monitor our families. Many companies do not have clear policies detailing how they use customer information (MarketLine, 2021).

Research by McAfee, a computer security company, reveals that a huge percentage of companies neglect security because they find it too expensive. The study claims that there are companies that have such weak defences that they wouldn't even know they had a security breach (Sharma, 2017). The following figure shows the percentage of areas where organizations demonstrate inadequate security.

Figure 3: Security flaws



Challenges facing the e-business

Cybercrime can have a huge impact on business operations as it can cause low productivity, legal liability, loss of data and finances, loss of reputation. Types of cybercrime for companies can include malware, denial-of-service attack, password attack, SQL injection, phishing, and more. Security is of great importance to the operational efficiency of companies to protect their business information and customer data. Businesses are responsible for maintaining security in the form of computer encryption to back up data and implementing cyber security best practices, as the use of Internet technologies leads to great vulnerability (Mahoney & Sousan, 2019). E-businesses face various challenges such as:

Low security awareness

Awareness of the importance of security is a must to deal with potential cyber-crimes. With insufficient awareness, many mistakes can be made that compromise the company's database. This can happen if employees do not have the necessary experience and are not able to determine the right tools and techniques to protect information (Mahoney & Sousan, 2019).

Low level of cloud security

With the development of Internet technology and online businesses, most companies are starting to use cloud computing technology. In the cloud, they store everything - documents, images, audio, video and more. In this way, companies entrust sensitive information in the hands of someone else and do not have full control over their own database. This means that the business is unable to properly configure its cloud security. In the presence of low security of the cloud service, there is a high probability that hackers will gain access to a sensitive database. The systems that the cloud uses to manage information are not authenticated. The cloud does not provide encrypted protocols, which makes the stored information extremely vulnerable (Sharma, 2017).

Attacks on the chain of interaction with other companies

Business to Business (B2B) is one of the modern marketing strategies, and it is exclusively used to promote the brand, reach new markets and gain a competitive advantage. Through this strategy, businesses interact with other companies while handling Internet technologies to exchange know-how, database, services, and more. The chain of interaction between companies can be the weak link in the protection of confidential information (Ashford, 2020).

Budget constraints

Many companies find it difficult to finance their cybersecurity needs. Often, companies rely on outdated security technologies that cannot protect them from the most sophisticated and modern cyberattacks. For most businesses, it is costly and impossible to update their security software due to the fact that technology and malicious attacks are changing every day. In addition to the expensive investment in cyber protection, companies need more and more qualified IT specialists to maintain the security of the organization (Ashford, 2020).

Summary

New Internet technologies can be extremely dangerous for all internet users if they are careless or neglect the threats that surround them. The need for higher security is critical to the future development of online business and consumption. It is necessary for countries, manufacturers and businesses to take cyber security with a higher degree of concern to prevent future crimes.

Smart technologies - impact in the e-business

Introduction

Modern trends are increasingly oriented towards a combination of both AI and IoT technologies. They are built using a transformational digital approach. The merging of the two technology models is due to the rapid technological progress and a clear cross-bridge between IoT and AI. Working together, the model concepts complement each other. IoT connects machines/devices and uses the data generated by them, and AI stimulates thought process and contributes to their intelligent behaviour (West & Allen, 2018).

The impact of smart technologies on e-business

Smart technologies have a huge application in the field of electronic business. It brings many benefits to customers by giving them a wide variety of options while shopping online, transacting, and managing their orders. Smart technologies make business much more efficient than it was before. The use of artificial intelligence in business processes helps the world to communicate much more easily. (Malapane, 2019)

The functions through which AI facilitates business companies are extremely numerous, some of them being automated interaction and communication with customers through chatbots, emails, social media, and other types of channels. Companies that work with millions of customers around the world would find it extremely difficult if these tasks were to be performed by humans. This would cost a lot of time, huge resources, the probability of making mistakes would be significantly greater, which could contribute to a bad reputation of the company. AI has a revolutionary contribution to business and especially in the field of digital marketing. Based on a

massive database and advanced algorithms, these systems show selected ads and content to different people. This marketing method is called "Programmatic Advertising".

Application of Smart technologies in e-commerce

AI is extremely pervasive in the field of computer science and capable of transforming jobs, marketing strategies, and the industry as a whole in many ways. According to a study by Oberlo, the number of companies that have started using artificial intelligence has grown by more than 270% within the last four years (Liu & Zhuang, 2021). This increase, in my opinion, is not surprising, considering all the advantages of implementing AI in marketing. The new marketing strategies have completely changed the look and the way of communication with customers. Some of the ways Smart Systems have transformed businesses:

Relationship management of e-businesses and customers

The development of IoT and AI technologies has led to their integration into CRM systems to improve the customer experience. E-CRM (Electronic Customer Relationship Management) is one of the new business approaches used by small businesses to large corporations. E-CRM can be defined as a customer relationship management tool, through the Internet, browsers or other electronic sources, the strategic purpose of which is to offer communication and information on the right topic, in the right amount and at the right time, meeting the specific needs of the customer (Wahab & Nor, 2010).

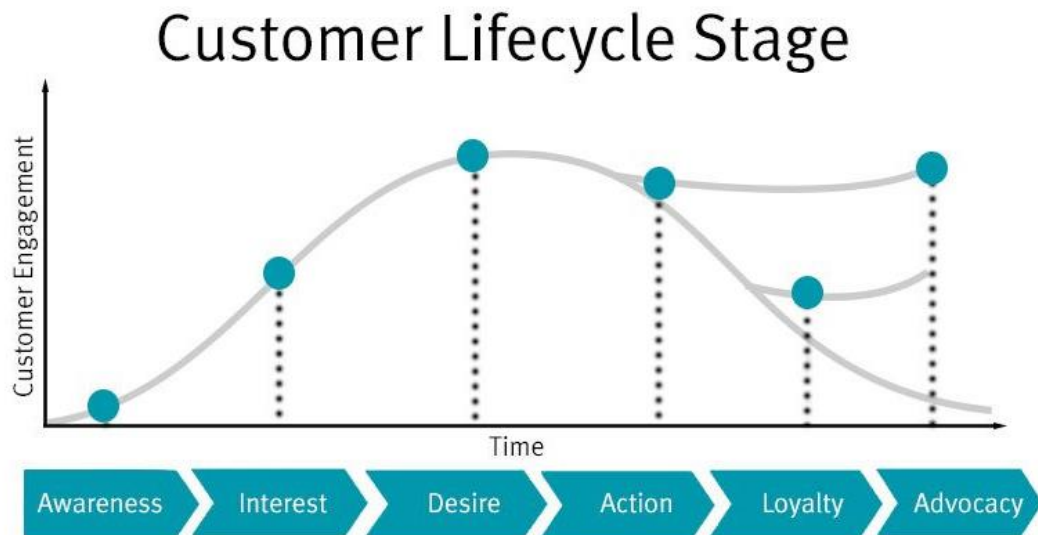
Essentially, CRM is a strategic tool for managing customers through all phases of the life cycle, helping to improve communication and strengthen customer loyalty (Vantage Market Research, 2022). The E-CRM Strategy includes three main components:

1. Operational - Information processes must be optimized in the direction of placing the needs of customers as the first and most important task. To run processes smoothly and to avoid repeated disturbance of customers.
2. Analytical – Continuous data analysis helps the company maintain long-term customer relationships.

3. Collaboration - Thanks to IoT and AI technologies, communication and information exchange is becoming more and more efficient. This contributes to the implementation of effective intra-organizational and inter-organizational relationships (Wahab & Nor, 2010).

E-CRM focuses on facilitating the management of e-business, services, and customers. It helps to select the customers in the different stages of their life cycle (Figure 4) and determines an appropriate method of interaction with them in order to keep them for a maximum period.

Figure 4. Customer Lifecycle Stage



(Kumar, 2020)

Continuous monitoring and analysis of customer behaviour is of great importance for companies. E-CRM helps engage potential customers with the right message at the right time and through the right environment to bring them to the stage of the buying process and over time earn their loyalty. Fortune Business Insight, the market for CRM products in 2021 amounted to 58 billion US dollars, and in 2022 it is expected to grow to 64 billion US dollars. Fortune Business Insight predicts that by 2029, the CRM market value will reach USD 145 billion at a CAGR of 12% during the forecast period (Fortune Business Insight, 2022).

Content intelligence and service

Since the last few years, many companies are developing their potential in content intelligence and better customer service. In this way, AI systems offer content, based on the management of incoming data, based on the behaviour of users on social platforms, websites, search engines. This means that AI technologies will select such a content for users that they would be interested in. Using AI in content creation has a positive impact in the following few examples:

- Effective preparation and optimization of social media posts and ads
- Personalized product recommendations
- Personalized emails
- Better customer service

Cookies are part of most websites' strategies to extract information about visitors. Cookies inform the server that the customer has returned to the same website, allowing the site to display targeted content. This helps advertisers better target ads to relevant customers.

AI processes a large database with high accuracy. Profiles millions of users in real-time to provide timely, personalized product recommendations. According to research by Engati Simply Intelligent, 80% of customers are more likely to buy from an e-tailer that provides them with a personalized experience and product recommendations (Engati Simply Intelligent, 2021).

Better customer service

The advantages of the Chatbot come from the fact that they can communicate in real time and can be available 24 hours a day and meet the needs of online users. According to Khoros Research, 83% of customers said they are more loyal to brands that are always available to resolve fast their complaints (Khoros, 2022). Currently, chatbot service is the most used AI application in the field of e-commerce. According to research by Frank Harris, in 2022, 73% of e-businesses will implement a chatbot on their sites, followed by AI technologies in marketing and sales at 59%. These percentages are expected to be maintained in the future and even increase (Harris, 2022). According to my observations, AI technologies will become the standard for maintaining a successful business in the future.

Effective strategies for sustainable growth of the business

Introduction

Choosing a good strategy helps the business to better monitor the changes in the internal and external environment of the company. This has a major impact on future development and stability. The skills to develop a successful strategy are critical to the long-term success of a business.

Resources and Capabilities (R&C)

Analysing the (R&C) of the business organization is essential for the strategic position it will take in the market. Their correct analysis will contribute to a clearer picture of the competitive advantages and the value that the business creates for its customers. Using them in the right direction is a prerequisite for supremacy over competitors and long-term stability. (R&C) can be divided into:

- *Tangible* – (physical resources) buildings, equipment, materials.
- *Intangible* - (not physical resources) contributing to the value of the company, for example software, technology, brand and others.
- *Capabilities* – are the skills and methods by which the business manages its assets, this includes management style, choice of strategies.

Rapid technological development necessitates rapid adaptation to different management strategies and methods. Even having a competitive advantage would not benefit the company if a proper management strategy is not implemented.

R&C can be subdivided as Threshold and Distinctive:

Threshold - are the most basic and necessary R&C, on which the existence of the business company in the long term depends.

Distinctive - are R&C contributing uniqueness. These are the factors that give the brand a competitive advantage and long-term stability (Kale, 2017).

Distinctive R&C, in e-business can be expressed in the possession of technology with a higher level of intelligence compared to competitors. By doing so, it will provide better customer service, better anticipate customer needs, and all of this will add value to customers. These are skills that would be difficult for competitors to imitate.

Effective Marketing Strategies

With the popularity and development of AI technologies in the field of B2C, e-commerce provides more and more choice to consumers, but some problems also arise:

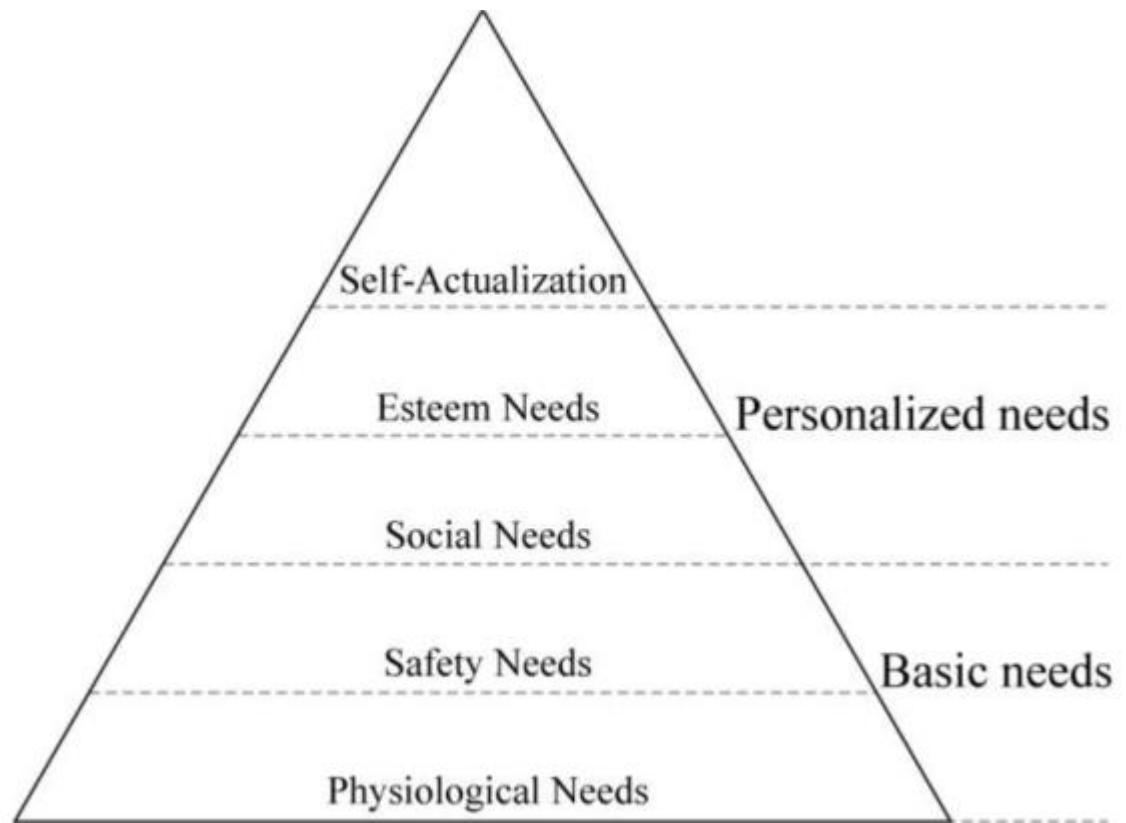
- an ineffectively built strategy for creating a user experience.
- neglecting to collect customer information that can contribute to higher value than the personalized needs of users.

(Yonghai & Xiaocheng, 2020)

The development of smart technologies has completely transformed marketing strategies. Many businesses are in a stage of adaptation and experimentation with different strategies, both successful and unsuccessful. The long-used marketing mix strategy was replaced by relationship marketing (RM). RM seeks to build customer relationships that lead to long-term retention, while the traditional marketing mix primarily aims to increase and maintain market share. Transactional marketing uses mass marketing and promotion to make sales, while relationship marketing uses personalized marketing and builds relationships with customers to make sales. The relationship marketing paradigm includes many more concepts, including brand loyalty, social relationships, alliances and partnerships in product development and offering, database management, active customer interaction (Schubert, 2016).

According to Maslow's Hierarchy of Needs, human needs can be represented in 5 categories: physiological needs, safety needs, social needs, esteem needs and self-actualization needs, which are depicted from low to high level in the next figure.

Figure 5: Maslow's Hierarchy of Needs



Maslow's idea is to reflect the general norms of behaviour and psychological activity of people. All people possess the five needs of the hierarchy, but in different stages, the degree of people's desire and pursuit of certain needs can vary. In an identical manner, the personalized needs of e-commerce customers share the same needs as those in Maslow's hierarchy. With a low-cost, low-profit strategy, it would be difficult to build added value for the customer. Nowadays, e-tailers need to meet high-level, personal needs (Yonghai & Xiaocheng, 2020).

Based on the analysis of the previous paragraph, to build a strategy to increase the value of e-store services, business actions must be based on satisfying the personal needs of customers. The designed strategies can be divided into two perspectives.

Strategies for building experience of basic users' needs

Satisfying basic consumer needs is the base unit for consumer purchasing behaviour. When the basic needs of users are fully satisfied, then they will consider the experience for customized needs. The need for safety, physiological needs are the basis for making an online purchase. This means that the satisfaction of needs covers many elements and all of them are equally important, such as quality of goods and services, payment methods, personal data protection system. For example, the first thing that consumers pay attention to is the trust that the e-store offers, followed by the price-quality ratio, payment security, security of personal information. Once consumers have had a good shopping experience, they will come back to shop again. The use of AI technologies in building content on the website can prove to be key to future sales. Choosing the right colours, layout, logo, user interface is very important to be combined in the best possible way to enhance a visual, intuitive experience and inspire trust in the website. E-merchants must take the necessary safety measures and not allow an unpleasant user experience. In case of leakage of personal information, fraud, consumers may lose motivation to buy (Lijuan, 2018).

Strategies for building experience based of users' personalized needs

Integrated Marketing Communication Strategy (IMC)

Strategy acts as a connective tissue, ensuring brand consistency across all channels and aligning communications with company goals. AI technology takes target audiences into account and tracks their interests to engage them and move the business forward. IMC helps companies effectively deliver:

- The right message
- To the right audience
- From the right source
- At the right time
- Through the right channel

Personalized recommendation reflects AI's requirements for individuality, initiative, originality and accuracy. Intelligent AI tracks search terms, click path, and determines what products the user is interested in. Thus, the system recommends users personalized information

based on its prediction. This is also a method of eliminating unnecessary and uninteresting information to the customer. (Gong & Zhijun, 2008). According to Salesforce research, 66% of customers expect online stores to know their unique needs and expectations, proving to be a key factor in consumers returning to the same store (Smith, 2022).

Feeling of commitment - AI has become a powerful tool through which content can be displayed in front of the right people. Social networking is based on group culture and the gathering groups of people with similar or same preferences. The diversification of society is a prerequisite for the future development of individualization. According to Salesforce research, 80% of customers believe that the experience a company provides is as important as its products and services. (Smith, 2022) Circles built by AI in social networks, now manage to respond successfully in personalizing needs. Interaction through social platforms between businesses and consumers contributes to a rich user experience (Xiaodong, 2019).

Business to Business (B2B) marketing strategy

In today's business, companies increasingly interact with each other to contribute to their future development and growth. The B2B strategy is based on opportunity one company to sell/offer its products or services to customers through another company's platform. The goal of the strategy is for the company producing products to reach more customers through an intermediary company. This would help in greater popularity and recognition of the brand, contributing to the value of the products, finding new market niches. (Kale, 2017)

An example in the practice today of this type of strategy are companies that have chosen to promote and sell products and services through YouTube, Facebook, Instagram, and many other social platforms. This strategy, in combination with the artificial intelligence that is used in most online platforms, becomes a powerful means of reaching the target customers. Every day, social media B2B buyers and consumers are inundated with a huge number of advertisements. Many of the promoted ads turn out to be insignificant to the users, and they simply close and pass the ad. Advertisers lose money when they reach uninterested people. By using the B2B Strategy in combination with AI, businesses can maximize their return on investment by showing their ads to only relevant users. In this way, ads can be automatically personalized globally. This technique is already one of the most used by many advertisers (Malapane, 2019).

Chapter 3: Methods and methodology

Introduction

This chapter aims to discuss and explain the methods by which data were collected to support the study. The used research strategy, method, approach, paradigms, philosophy will be described and justified.

Research methodology

The purpose of the study was to answer the question of how new smart technologies affected e-business and what was the customer behaviour as a result. This study was important for understanding the changes that occurred as a result of the rapid development of new technologies.

Research strategy

For the present work, a case study was used as a research strategy. The case study enables empirical and in-depth research for business organizations and user groups. Causal relationships were used in an intervention with real facts that would have been difficult to understand if I had applied another type of research strategy (Alharahsheh & Pius, 2020). In order to collect the necessary database primary research was applied. The method of collection was through a questionnaire prepared and conducted by me.

Research Method

Based on the data collected so far from articles, books, conferences, web sources, etc., I have decided that the most appropriate way to verify the truth of my statements from chapter 2 is by using a questionnaire containing qualitative questions. The reason why a primarily qualitative method of data collection was used is because in marketing there are many factors that are somewhat out of the control of the business but have a huge impact on whether or not the product offered will be successful. These factors include technological environment, capabilities, cultural, social factors, and others.

Research Approach

The mode of generalization used is achieved by induction. In the current case study, this was achieved through the inductive generation of theory and concepts based on data supporting the research question. The inductive approach is applied in the present research by observing a sample of people in order to reach a conclusion about the population from which it comes (Neuman, 2017).

Research Paradigms

The research paradigm is based on interpretivism. It is based on interpreting data through concepts supporting assumptions made about them. In interpretivism, reality is subjective and socially oriented (Neuman, 2017). This is precisely why the current case study is interpretive, as the goal was to understand the reality of each of the participants through their experience, shaped by the social perspective of each individual.

Research Philosophy

The philosophy in the current research is based on epistemological theory. Epistemology in inquiry is used to acquire knowledge and the focus is on its acquisition and validation. Epistemology plays an important role in understanding what people think, what they believe, and how they apply new information (Alharahsheh & Pius, 2020). Thus, this qualitative study aimed to explore the perceptions of 40 participants, consumers of Internet technologies.

Questionnaire

I preferred to use qualitative type of questions instead of mixed ones. Integrating the two types of data would result in much more extensive research and analysis that would take more time and require more words than we are allowed in the task description.

A questionnaire consisting of 14 closed-ended questions was prepared for the study. The aim was to have the questions in the same form and with the same answer options for each participant. This type of question makes the study for individual participants comparable, meaning that the information obtained reveals differences between participants (Maison, 2019). The questionnaire was published in shopping-themed social groups on Facebook. A total of 40 people responded to the survey.

A question related to the age group of the participants was included in the questionnaire. Usually, questions related to the exact age of the participant are defined as quantitative. Because the current study is based on qualitative questions, the only scenario where age is not a quantitative variable is when we use age groups (Neuman, 2017). In this case, age can be grouped into categories and is defined as a qualitative variable.

Chapter 4: Results and Discussion

Introduction

In this paper, I have presented the relationship between two important indicators, how new Internet technologies have affected business and what is the customer's behaviour of the technological changes that have occurred. The relationship between the two indicators aims to help gain a clearer picture of the extent to which new Internet technologies bring advantages to businesses and consumers, and on the other hand, what are the disadvantages associated with their use.

To verify and confirm the collected information, research was conducted. The research was conducted to investigate the behaviour and effects of customer feedback on how the AI-personalized ads they see on social networks influence them and whether they succeed in reaching the desired product. How e-stores contribute to customer loyalty to their brands and what drives them away.

This chapter includes a description and analysis of the data collected.

Questionnaire results

Table 1. Gender

Details	Number of participants
Male	23
Female	17
I prefer not to say	0
Total	40

From the above results about 56% of the participants are men and the remaining 44% are women. I would like to point out that the difference between the two genders is not significant for this study.

Table 2. Age Range

Details	Number of participants
15-24	7
25-34	22
35-44	11
I prefer not to say	0
Total	40

The participants in the study are of all age groups, with the most numerous being in the group between 25-34.

Table 3. Shopping frequency

Question	Very Frequent	Frequent	Infrequent	Very Infrequent
How would you describe your online purchase?	10	16	8	6

Table 4. Steps of engagement through social media

Questions	Agree	Indifferent	Disagree
ATTENTION	34	5	1
I think social media ads often get my attention.			
INTEREST	37	1	2
Afterviewing a brand's ad, I often feel an interest in the product			
MEMORY	33	4	3
After seeing an ad for the same brand again, it's more recognizable to me because I can remember the review from before.			
SEARCH	36	3	1
Once I recognize the brand, you will look for detailed information from its website/e-shop.			
ACTION	29	7	4
After reviewing the product description, I think I will be willing to purchase a product.			

Table 5. Loyalty and commitment to an e-business brand

Questions	Agree	Indifferent	Disagree
Do you agree with the following statement: I find product suggestions in e-shops useful, they help me find the desired product easily?	35	5	0
Do you agree with the statement that you would be more loyal to an e-store that manages to anticipate your unique needs?	28	12	0
Quick customer service response is of high importance to you?	34	5	1
Do you agree that customer service chatbots can successfully answer all your queries and complaints?	21	0	19
Do you agree that communicating with customer service chatbots saves you time?	33	4	3
Do you agree with the statement that e-shops will be able to protect your personal data?	11	6	23

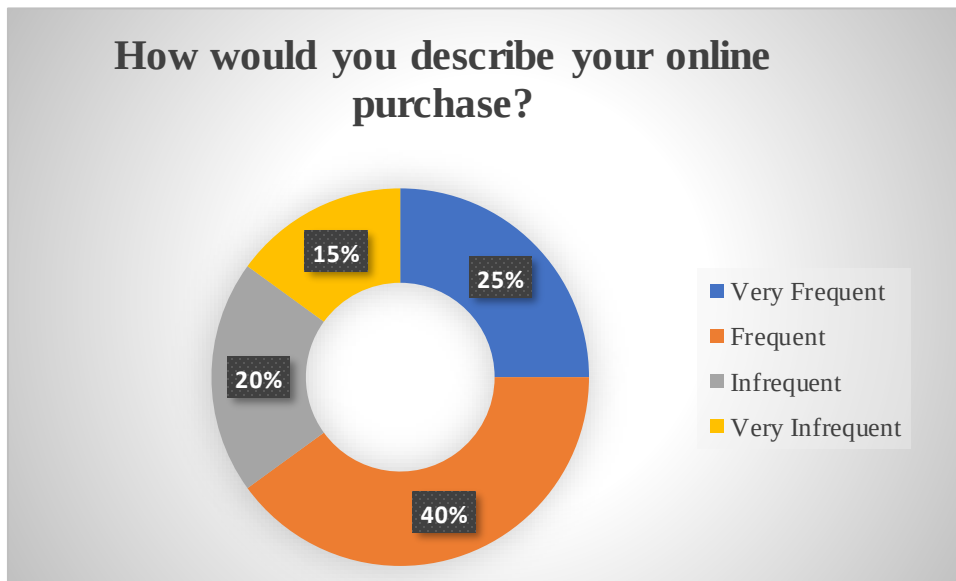
Discussion

The answers I received from the research justified some of my expectations how technology affects consumers. But on the other hand, I reached to new useful information.

Shopping frequency

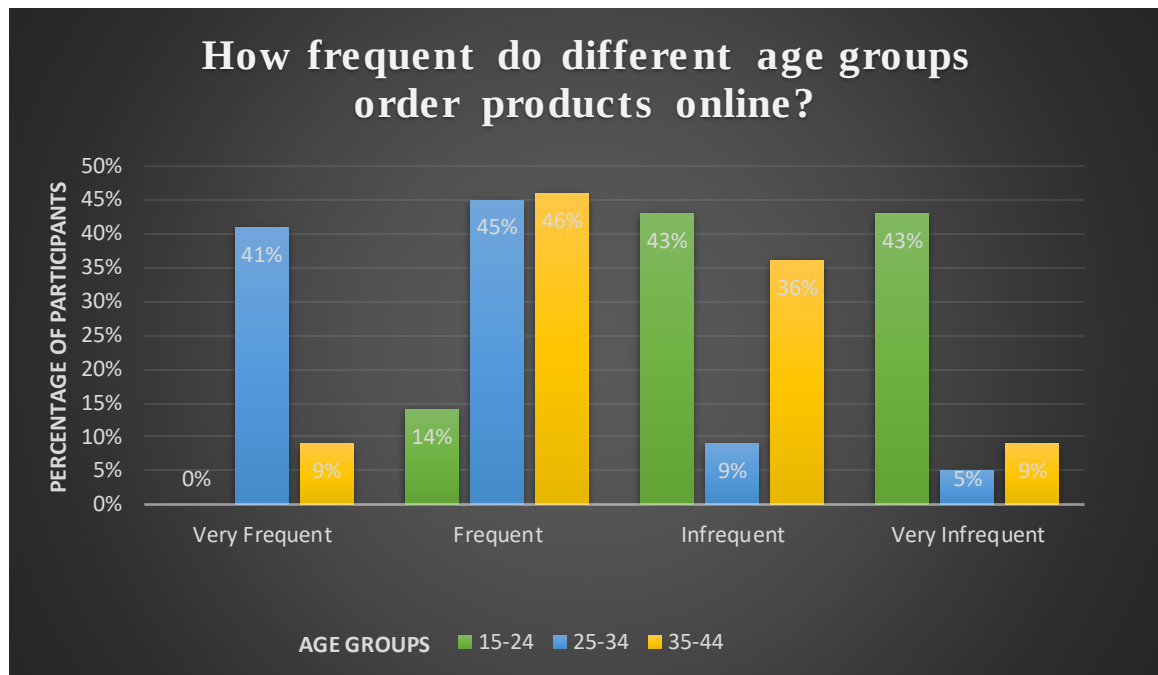
The initial information I wanted to find out from my survey participants was how often they shop online.

Figure 6: Purchase frequency



Most of the participants answered Very Frequent and Frequent, 25% and 40% of the participants, respectively. While 20% and 15% of the participants responded with Infrequent and Very Infrequent respectively (Table 3/Figure 6). This information is important for me to be able to draw future conclusions about user behaviour. I divided the answers given by age groups and got the following figure:

Figure 7: Purchase frequency by age group

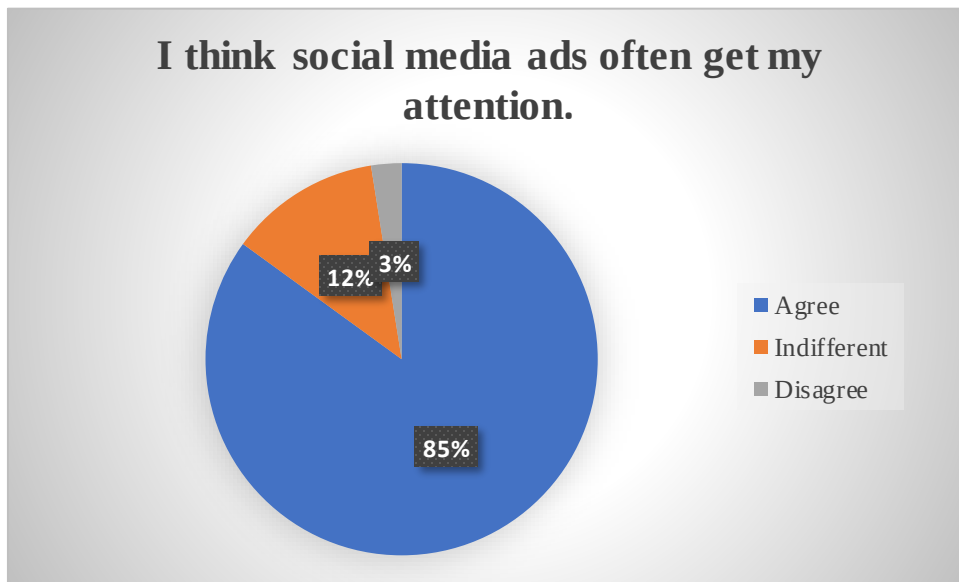


In this figure, it makes a big impression that 86% of the participants from the age group 25-34 massively answered Very Frequent and Frequent. The next age group with very frequent and frequent purchases is 35-44 with 9% and 46% respectively which contributes to the conclusion that they are the most active groups that shops online.

Steps of engagement through social media

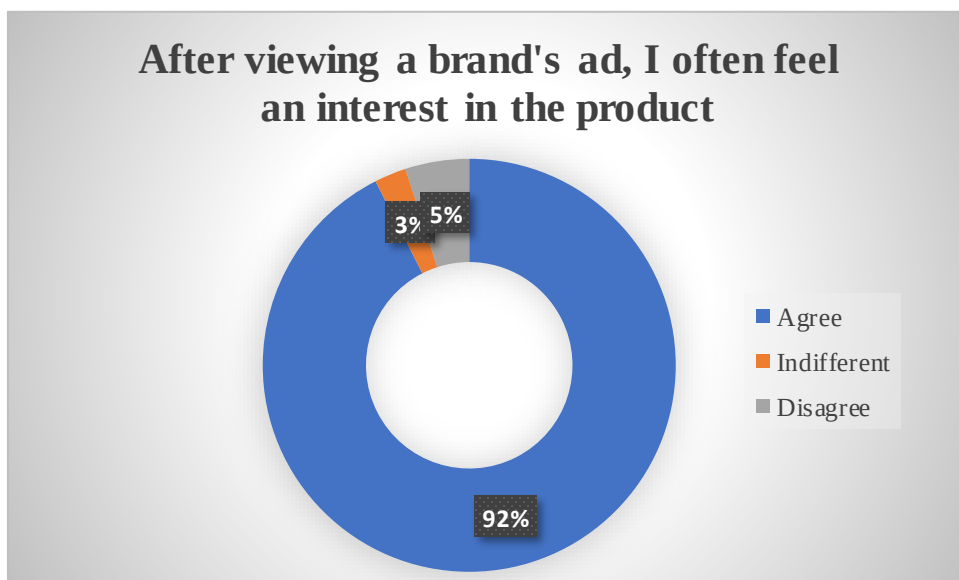
The B2B strategy is one of the most used in modern marketing to promote a brand and attract new customers. In the set of questions in Table 4, I aim to find out whether the use of AI in social networks gives a positive result for business and to what extent personalized ads attract the attention of users. The first and foremost goal of advertising is to attract the attention of target consumers. According to the results of the questionnaire, 85% of the participants claim that advertisements often attract their attention (Figure 8). From this result, it can be concluded that to a large extent the AI succeeds in offering the right content to the right online users.

Figure 8: Attention



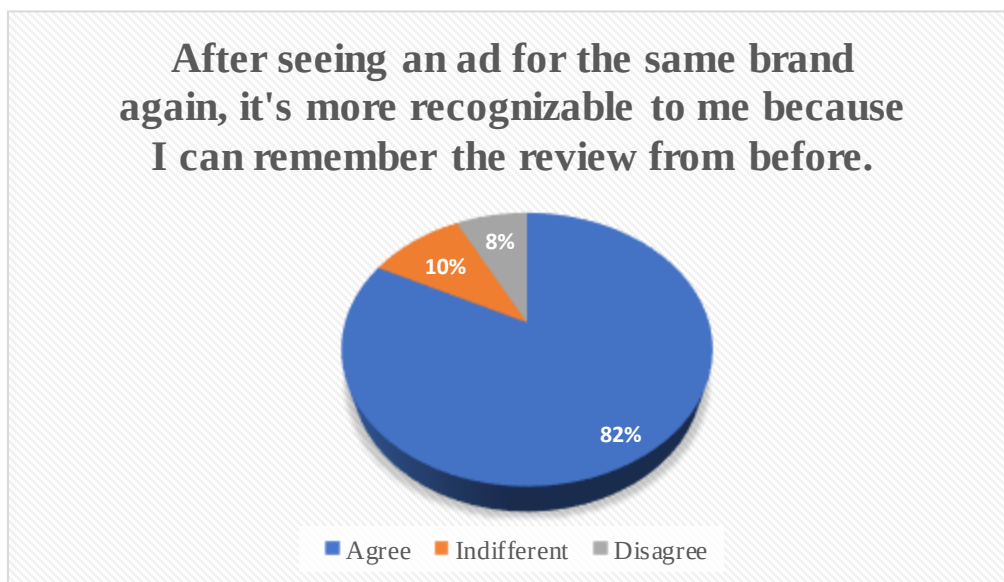
The next question aims to give an idea of the level of interest in the brand's product after the consumer has already seen the ad. A high percentage of the participants (92%) claim that they often show interest in the product in the advertisements they see, only 5% of them claim that they do not show interest, and 3% are simply indifferent (Figure 9). This is an extremely good result in favor of e-businesses.

Figure 9: Interest



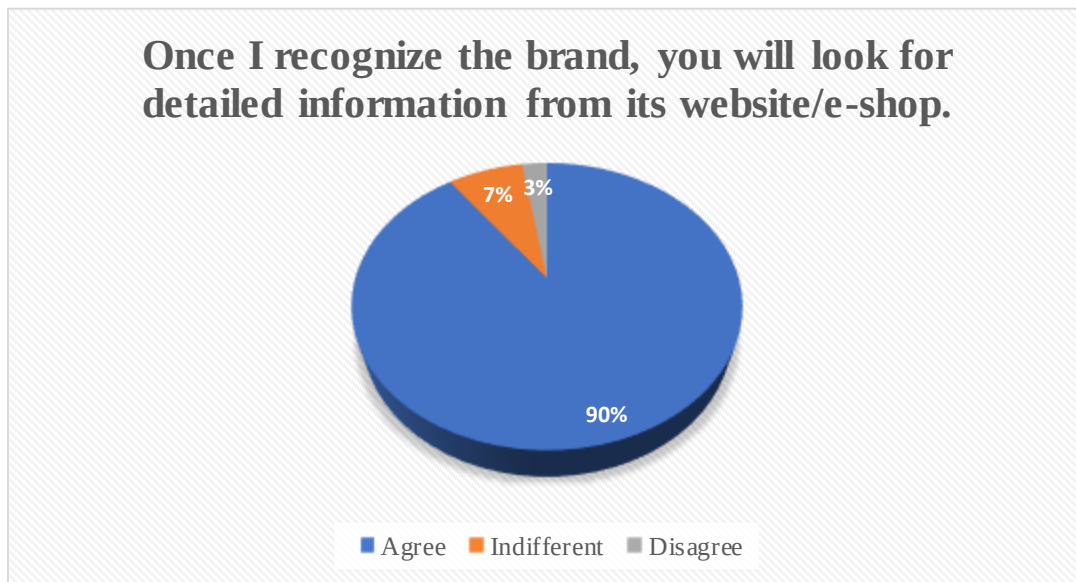
Interest arises from need (Browner, 2018), which proves that AI technology has been able to understand what is important at a given moment for the user. According to philosopher Jerome Postman, interest is the most important factor influencing memory. That is why my next question is aimed at understanding if consumers see an ad for the same product again, will it be more recognizable to them because they remember the ad and content from before. The result of the research shows that 82% of the participants remember and recognize the brand when they see it again (Figure 10). This is an extremely close percentage to the results of the previous two questions. Therefore, between 92%-99% of participants who have already shown interest in the ad will remember the content and recognize the brand more easily in the future.

Figure 10: Memory

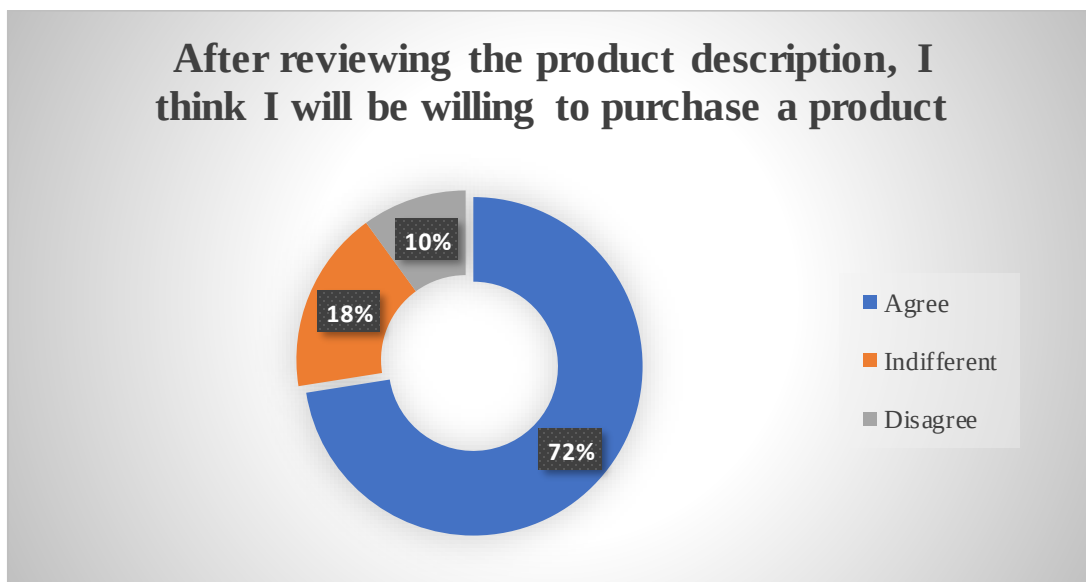


Once the ad has attracted attention, interest and activated memory, I need to find out how many of the participants will be willing to visit the website/e-store for more detailed information about the product (Figure 11). Surprisingly, the percentage of people who would seek more information is also high (90%). By reaching this stage, online users automatically become potential customers.

Figure 11: Search



In order to become customers of the brand, they have to take one last step, namely to make a purchase. 72% of the participants in the present study claim that they would order from the site. This means that 18% of site visitors will not take action.



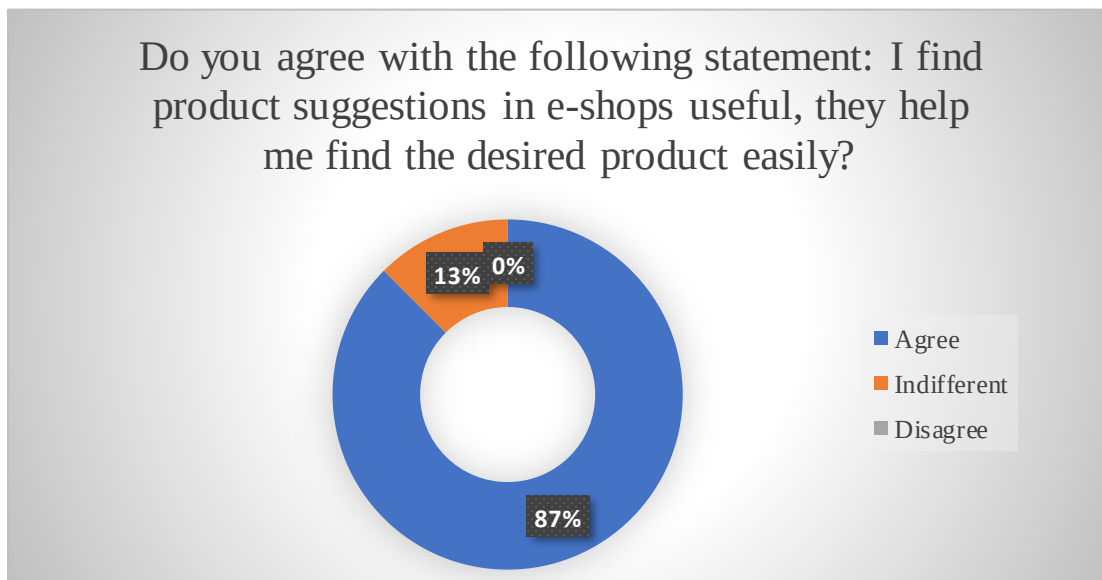
There can be many reasons that influence potential customers to buy the product. For example, lack of intriguing content about the product, lack of an easy interface, difficult to connect with customer service when needed, mistrust of the site, reasons related to the security of personal

data. That is why my next group of questions is related to the factors that influence customers to feel loyalty and commitment to a brand and its e-store.

Loyalty and commitment to an e-business brand

According to the answers received from Table 5, the following can be said: 87% percent of the participants believe that the personalized offers for products in the brand's e-store are useful and help them find the desired product more easily (Figure 12). Which confirms the effectiveness of smart technologies, which I described in chapter 2.

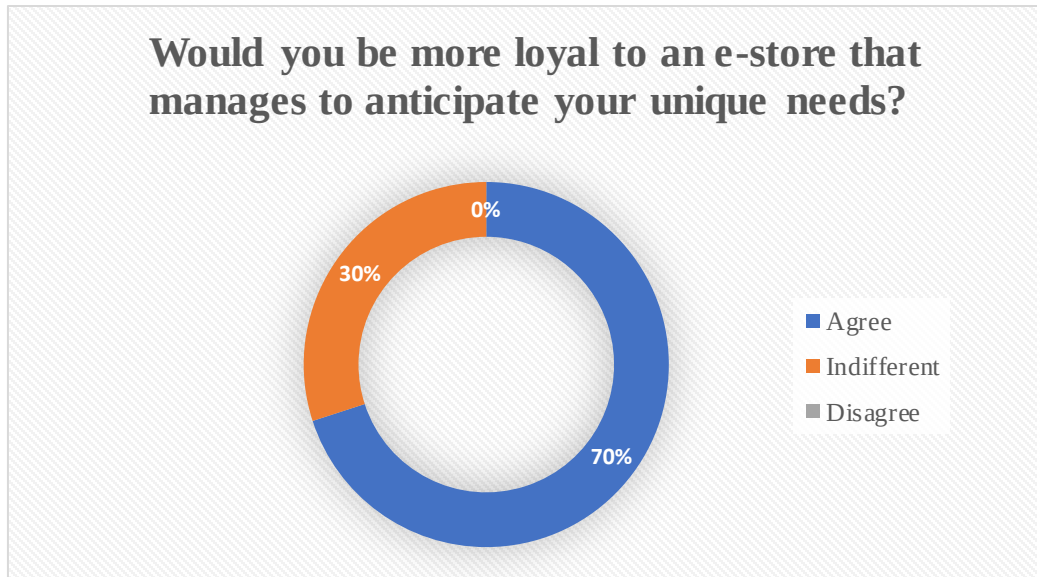
Figure 12: Easy to find



70% percent of participants claim that they would be more loyal to an e-store that manages to anticipate their unique needs (Figure 13). The obtained result is 4% different from that of the Salesforce study (66%) which was mentioned above in the study. The close result between the two studies proves the truth of the information obtained. The high score of interest in personalized recommendations confirms Schubert's hypothesis, which states that the Marketing Mix strategy and its four Ps have become ineffective for modern business and have given way to Relationship Marketing (Schubert, 2016). Because the marketing mix is oriented towards a broad mass of

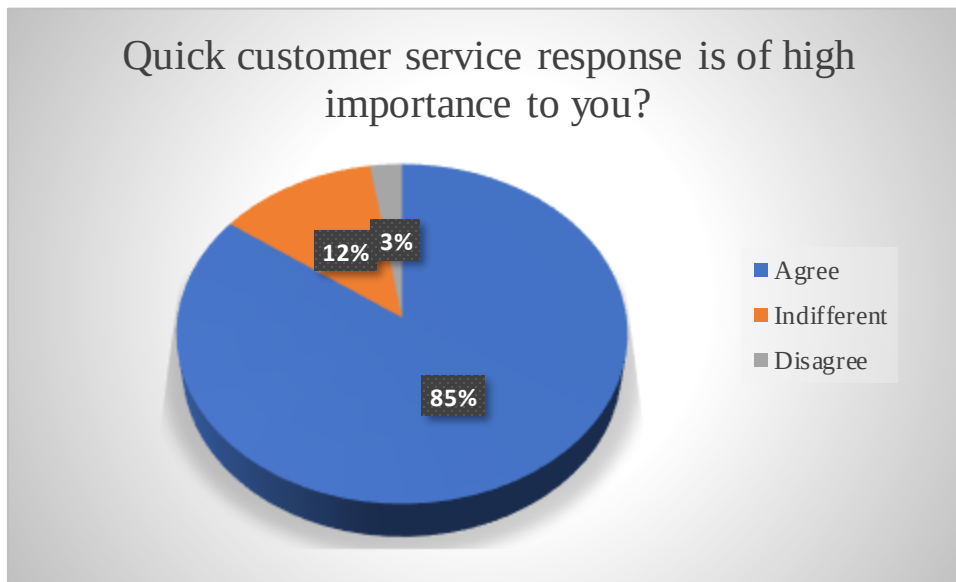
people, while relationship marketing uses a direct interaction approach depending on individual customer preferences, which in turn are based on smart technologies.

Figure 13: Loyalty



Another important factor on which customer loyalty to the e-store depends is customer service. The result I received from my questionnaire states that for 85% of the participants it is important to receive a quick answer and solution to their problem (Figure 14). This result is extremely close to the result of Khoros Research (83%) from 2022 in which they claim that customers are more loyal to a brand whose customer service is always available to quickly respond to customer needs (Khoros, 2022). The close result of the two studies with a difference of 2% confirms the truth of this statement.

Figure 14: Quick customer service



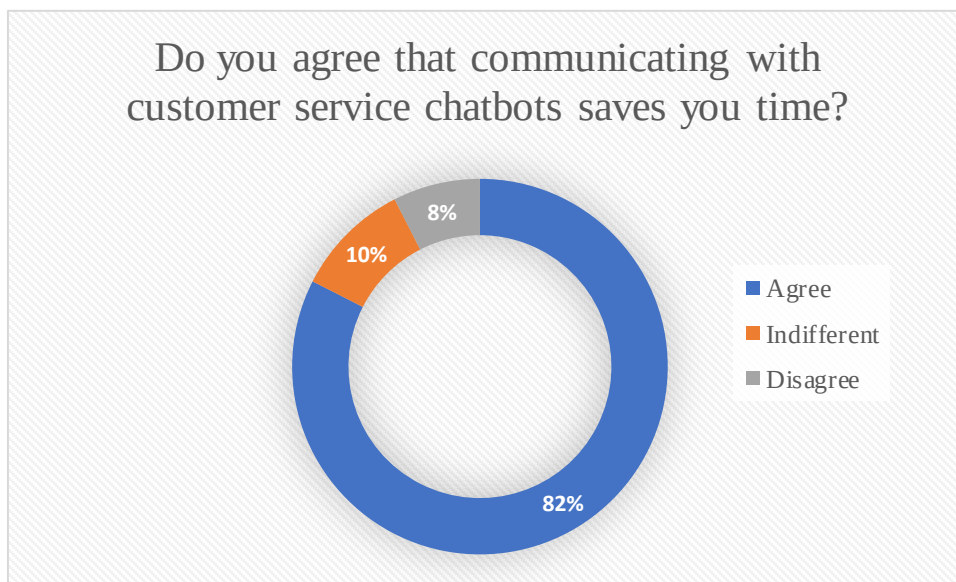
In recent years, chatbot service has been the most common AI application in the field of e-commerce. According to the participants in the current study, 52% agree that chatbot-based customer service can successfully meet their needs, while 48% are of the opinion that a chatbot cannot provide answers to all their questions and complaints (Figure 15). The percentage ratio between the two answers is extremely close, which cannot give a definite answer to the question.

Figure 15: Chatbot service



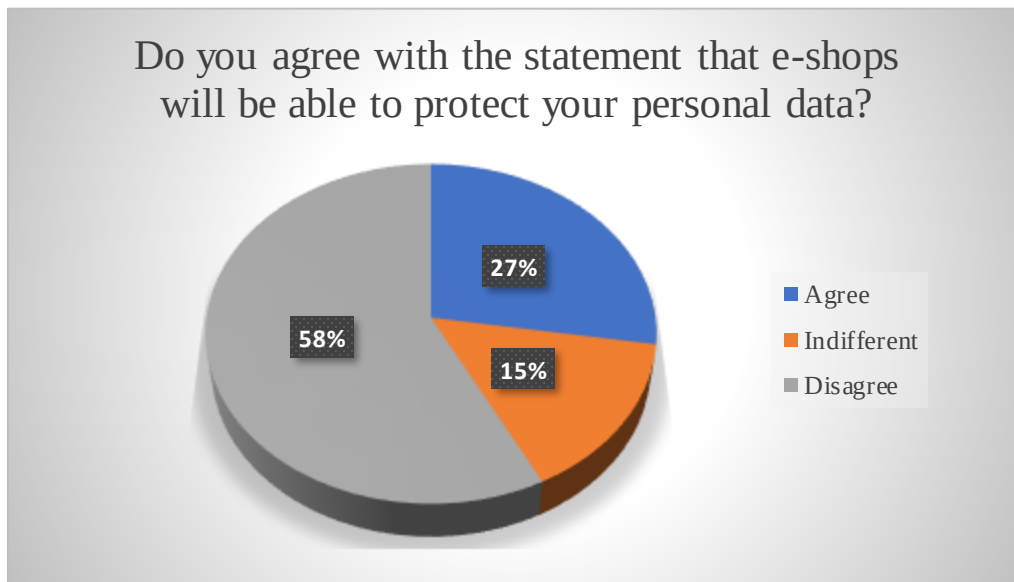
When asked if participants think chatbot customer service saves them time, the majority (82%) of them are of the opinion that it definitely saves them time, with only 8% disagreeing with this statement. Considering the data from the last two questions, I can conclude that the chatbot service is more effective in routine tasks, while in more complex and specific situations it cannot answer the problem as effectively as possible. This means that the artificial intelligence of the chatbot service cannot give a 100% guarantee of effectively dealing with every situation that arises.

Figure 16: Saving time



In addition to the need to understand all the factors that influence prospects to become customers, it was important to include a question related to cyber security. When asked whether they believe e-shops are able to protect the personal information of their customers, 58% of the participants in the questionnaire answered with disagreement, only 27% believe that e-shops provide sufficient security for their data, and 15% of them have no opinion (Figure 17).

Figure 17: Protection



The result clearly shows that a large proportion of online users do not feel that they will be fully protected if they share their personal information when registering or making a purchase. Although the majority of participants in this study do not believe in the cyber security of online platforms, 66% of them shop "Very Frequent and Frequent" (Table 3). This proves that their need to shop is greater than the fear of misuse of their data.

Summary

From the analysed data from the questionnaire, it can be concluded that, without a doubt, smart technologies positively affect both businesses and consumers. But in addition to benefits, smart technologies also have their drawbacks, the biggest of which is related to cyber security. To a large extent, the collected information presented in Chapter 2 was proven through the responses received from the research participants from the questionnaire.

Chapter 5: Conclusion - limitations, findings, and recommendations

Limitations

Every researcher strives to write quality work through which they can gain insight into issues of public importance. In large-scale studies, there are often some limitations that must be acknowledged.

Formulation of research goals and objectives

The goals I set for myself at the beginning guided me through the writing of the entire work. Subsequently, it turned out that the topic is extremely extensive, and a large amount of data is needed in order to answer the main research question. This necessitated a rethinking and the need to include only part of the information that I consider most appropriate.

Analysis of the sample

I admit that the analysis made as a result of the conducted survey has the possibility of divergence from reality. In my opinion, surveying a larger number of people would lead to more definitive results and even to different conclusions than the current ones. Although by and large the response percentage I received is extremely close to the percentages received from surveys in the same area of other companies

Findings

❖ The main and directly affected by technological changes are customers and business companies. The disadvantages that are most relevant according to the database collected so far is the lack of sufficient protection (software, hardware, security standards). Businesses are facing an inability to keep up with the protection of their personal database and their customers' data due to the ever-emerging cyber threats.

❖ The survey found that although many customers are aware of the danger of cyber attacks, this does not stop them from sharing personal information with the e-store they wish to shop from. And another part of customers do not have sufficient awareness of the dangers of data sharing, claiming that they believe that the platforms and stores they use will protect their sensitive database.

❖ The union of the two technology models (IoT and AI) complement each other in the construction of new strategies and methods of business management and interaction with customers. The most used strategy for customer relationship management is E-CRM systems, as it is focused on each stage of the customer's life cycle. Conducting the survey clearly showed that the group of questions related to the stages of the life cycle, to a high degree, work successfully to attract and retain customers.

❖ In terms of marketing strategies, technological advancements have rendered traditional strategies ineffective and strategies such as Relationship Marketing, Business to Business, Business to Customer have taken their place. These new strategies are fully geared towards contributing to a better personalized customer experience.

❖ The customer's loyalty to a certain e-store is based to a large extent on customer service, which expresses itself in a quick response, a quick solution to a problem. Modern businesses deal with these demands by using automated chatbots to make the process as easy as possible. Based on the analysed database, it became clear that chatbots also have shortcomings in understanding the real need of the client.

Recommendations

Awareness of personal data protection

Despite the desire of some countries and technology companies to create cybersecurity standards, the idea of a world with safe use of Internet services is still a mirage. Customers and businesses alike should not underestimate the danger that surrounds us and educate themselves on how they can better protect themselves from having their data, money or identity stolen.

Optimizing the skills of chatbot services

As it became clear, the customer's loyalty to the e-store depends to a large extent on the customer service. The survey showed that some of the users believe that the service is ineffective in resolving specific situations. In order for businesses to respond to the diverse needs and questions of their customers, they need to further train the chatbot service so that it can handle better in diverse and complex situations.

Improving the effectiveness of forecasting needs

Despite a successful CRM strategy, which increases the interest of users and attracts customers to make a purchase, there is also a percentage of people on whom the strategy does not influence. This is a group of people who probably have different types of needs that intelligent algorithms cannot easily predict. This is why the need for continuous regulation and self-education in improving data processing is of utmost importance to understand the needs of all online users.

Conclusion

Whether we realize it or not, smart technologies and artificial intelligence are all around us and play an increasingly important role in our daily lives. Whenever users open their Facebook news feed, or perform a Google search, get a recommendation on Amazon, or book a tour, AI always plays an active role in helping to meet the customer's personalized needs.

Personalization to a large extent, facilitates users and even this becomes a criterion for loyalty. Whether society realizes it or not, many of us have allowed smart technology to rule our lives, entrusting it to protect and store our personal information and expecting its help. But in the end, the new smart technologies led to positive and negative effects. For the positive features to prevail, companies, politicians, and social networks should think more about the importance of the case and act accordingly to build a safe online technological environment.

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Appendix

Questionnaire

* 1. What is your gender?

- ☐ Male
- ☐ Female
- ☐ Prefer to not answer

* 2. What is your group age?

- ☐ 15-24
- ☐ 25-34
- ☐ 35-44
- ☐ None of the above

* 3. How would you describe your online purchase?

- ☐ Very Frequent
- ☐ Frequent
- ☐ Infrequent
- ☐ Very Infrequent

* 4. I think social media ads often get my attention.

- ☐ Agree
- ☐ Indifferent
- ☐ Disagree

* 5. After viewing a brand's ad, I often feel an interest in the product.

- ☐ Agree
- ☐ Indifferent
- ☐ Disagree

* 6. After seeing an ad for the same brand again, it's more recognizable to me because I can remember the review from before.

- ☐ Agree
- ☐ Indifferent
- ☐ Disagree

* 7. Once I recognize the brand, you will look for detailed information from its website/e-shop.

- ☐ Agree
- ☐ Indifferent
- ☐ Disagree

* 8. After reviewing the product description, I think I will be willing to purchase a product.

- ☐ Agree
- ☐ Indifferent
- ☐ Disagree

* 9. Do you agree with the following statement: I find product suggestions in e-shops useful, they help me find the desired product easily?

- ☐ Agree
- ☐ Indifferent
- ☐ Disagree

* 10. Do you agree with the statement that you would be more loyal to an e-store that manages to anticipate your unique needs?

- ☐ Agree
- ☐ Indifferent
- ☐ Disagree

* 11. Quick customer service response is of high importance to you?

- ☐ Agree
- ☐ Indifferent
- ☐ Disagree

* 12. Do you agree that customer service chatbots can successfully answer all your queries and complaints?

- ☐ Agree
- ☐ Indifferent
- ☐ Disagree

* 13. Do you agree that communicating with customer service chatbots saves you time?

- ☐ Agree
- ☐ Indifferent
- ☐ Disagree

* 14. Do you agree with the statement that e-shops will be able to protect your personal data?

- ☐ Agree
- ☐ Indifferent
- ☐ Disagree