



A STUDY ON IMPACT OF TECHNOLOGY ON E-COMMERCE BUSINESS OF THE LUXURY RETAIL INDUSTRY: AN EMPIRICAL STUDY WITH REFERENCE TO MUMBAI REGION

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Abstract

The impact of technology on e-commerce business in India has been immense. With the advent of the internet, e-commerce has become a major force in the Indian economy. It has revolutionized the way businesses operate and has opened up new opportunities for entrepreneurs. Technology advancement is both a cause and an effect of the growth of e-commerce platforms in the Indian market. E-commerce and e-retail have boosted B2B and B2C firms alike. When it comes to digital purchases, there has been a 45 percent increase in customer migration to virtual and digital methods. Digital payment ecosystems have sped up, simplified, and improved the comfort of shopping online. This research study explores the impact of technology on e-commerce, with a specific focus on the luxury retail industry. Ajio Luxe, NNNOW.com, Darveys, Tata Cliq Luxury, and Nykaa.com are some of the e-commerce brands as they compete for the opportunity to sell luxury goods to India's affluent consumers. The research begins with a literature review that examines the existing body of knowledge on the impact of technology on e-commerce, followed by a case study analysis of Tata Luxury Cliq's use of technology to enhance the customer experience, streamline operations, and drive sales. The study also includes primary research in the form of interviews with key stakeholders, industry experts, and customers. The research findings demonstrate that technology has had a significant impact on the luxury retail industry, with businesses leveraging advancements in AI, chatbots, virtual try-ons, and personalized recommendations to enhance the customer experience and increase sales. The case study analysis of Tata Luxury Cliq highlights how the company has incorporated technology to provide a unique and personalized experience to their customers, with a website, mobile app, and other digital platforms that incorporate technological advancements to drive sales. The findings can inform future strategies for businesses operating in this sector, with recommendations to incorporate technology to enhance the customer experience, streamline operations, and drive sales.

Keywords: Advancement in Technology, E-commerce, Luxury retail industry, consumer shopping experience

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Introduction

The world of commerce has been significantly transformed by the advent of technology, particularly in the realm of e-commerce. The impact of technology on e-commerce has been immense and has brought about fundamental changes in the way businesses operate and engage with their customers. Consumers define luxury in a variety of ways, but at its core, it is an experience, a slowing down of time, a heightening of sensory pleasure, and an unmistakable recognition of your achievements. Nearly incidental is the product. The world's luxury businesses are attempting to replicate this fleeting sensation online using technology and design. This research topic, "The impact of technology on E-commerce," explores how technology has affected the luxury retail industry, particularly Tata Luxury Cliq. The study aims to analyse the role of technology in enhancing the customer experience, increasing sales, and improving business operations. The research will investigate the various technological advancements that have impacted e-commerce and how they have been leveraged by Tata Luxury Cliq. By providing insights into the impact of technology on e-commerce, this study can contribute to a better understanding of the changing dynamics of the luxury retail industry and inform future strategies for businesses to remain competitive.

A review of the literature on the effects of technology on e-commerce with a focus on the luxury retail sector will be the first step in the research project. This will involve an examination of the various technologies that companies have implemented to enhance their online operations, including chatbots driven by AI, personalized recommendations, and virtual try-ons. The research will then conduct a case study analysis of Tata Luxury Cliq, examining the company's use of technology to enhance the customer experience, streamline operations, and drive sales. This will involve a review of the company's website, mobile app, and other digital platforms to understand how they have incorporated technological advancements to provide a unique and personalized experience to their customers.

About Tata Luxury Cliq

Tata Luxury Cliq is an Indian e-commerce platform that specializes in luxury fashion and lifestyle products. Launched in 2016, Tata Luxury Cliq is a subsidiary of Tata Group, one of the largest conglomerates in India. Tata Luxury Cliq offers a wide range of luxury products, including clothing, footwear, accessories, and home decor

items, from both Indian and international brands. The company aims to provide a seamless and personalized shopping experience to its customers through its online platform and mobile app. The company has also leveraged technology to improve its operations, incorporating AI-powered chatbots and personalized recommendations to enhance the customer experience.

Technology and International Trade

Advancements in technology have been a driving force in the growth of international trade, enabling businesses to engage in cross-border transactions more efficiently and effectively. For example, digital platforms have facilitated e-commerce, making it easier for businesses to reach consumers in different parts of the world. Online marketplaces like Amazon and Alibaba have revolutionized the way goods are bought and sold globally, enabling small and medium-sized enterprises to participate in international trade.

Overall, advancements in technology have transformed the international trade landscape, opening up new opportunities and challenges for businesses and policymakers alike. The continued integration of technology and international trade is likely to shape the future of the global economy. Another key advancement in international trade is the use of digital currencies and block chain technology. Digital currencies such as Bitcoin and Ethereum enable businesses to engage in cross-border transactions with reduced transaction fees and faster settlement times. Meanwhile, block chain technology offers the potential to increase transparency and reduce fraud in international trade by enabling secure and tamper-proof record-keeping.

Artificial intelligence (AI) is another technology that is transforming international trade. AI-powered solutions are being used to automate routine tasks such as customs clearance, cargo tracking, and document processing, reducing costs and improving efficiency. In addition, AI is being used to analyze vast amounts of data to identify emerging trends and patterns, helping businesses to make more informed decisions about market opportunities and risks.

In conclusion, international trade has been greatly impacted by advancements in technology, driving increased efficiency, expanding consumer choices, and promoting economic growth. Businesses and policymakers must continue to adapt to the changing landscape of international trade by

embracing emerging technologies, promoting sustainable trade practices, and addressing social and environmental concerns. By doing so, they can help to drive innovation and create a more prosperous global economy for all.

Technology and E-commerce

The growth of e-commerce has been fuelled by advancements in technology, including the widespread adoption of smartphones, high-speed internet, and digital payment systems. E-commerce has transformed the retail industry, making it easier for businesses to reach customers around the world and enabling consumers to shop from the comfort of their own homes.

One of the key advancements in e-commerce has been the development of online marketplaces such as Amazon and Alibaba. These platforms enable businesses to sell their products to customers around the world, providing access to new markets and expanding consumer choices. Online marketplaces have also made it easier for businesses to manage their sales and inventory, reducing the need for physical storefronts and enabling greater scalability. Another key advancement in e-commerce has been the use of data analytics and machine learning to personalize the online shopping experience. By analysing customer data such as browsing history and purchase behaviour, businesses can provide personalized product recommendations and marketing messages, improving customer satisfaction and increasing sales. In addition, advancements in logistics and transportation have made it easier and more affordable to ship products around the world. The rise of e-commerce has driven investment in logistics infrastructure and innovation, including the use of drones and autonomous vehicles to deliver packages.

Finally, the growth of e-commerce has been facilitated by the widespread adoption of digital payment systems such as PayPal and Stripe. These payment systems have made it easier and more secure for customers to make purchases online, reducing transaction costs and increasing the speed of payment processing. Another significant advancement in e-commerce is the use of artificial intelligence (AI) and chatbots to enhance the customer experience. Furthermore, the rise of mobile commerce (m-commerce) has been a major driver of e-commerce growth. The proliferation of smartphones and tablets has made it easier for customers to shop online, anytime and anywhere.

Overall, the advancements in technology have transformed e-commerce into a global industry, enabling businesses of all sizes to sell their products and services online and expanding consumer choices. As technology continues to evolve, e-commerce is likely to continue to grow and evolve, creating new opportunities and challenges for businesses and policymakers alike.

Impact of Technology on E-Commerce

Improved Customer Experience: Technology has made it easier for businesses to create an engaging and personalized shopping experience for their customers. For example, businesses can use data analytics to understand customer preferences and behaviour, and then tailor their marketing and product recommendations accordingly. Additionally, businesses can use chatbots and other AI-powered tools to provide real-time customer support and answer queries, improving customer satisfaction and loyalty.

Enhanced Security: The rise of e-commerce has also led to an increase in cyber threats, including hacking and identity theft. As a result, businesses have invested heavily in improving their security measures, such as using secure payment gateways, encryption technologies, and multi-factor authentication. This has helped to improve consumer trust in e-commerce and ensure that sensitive information is protected.

Increased Efficiency: Technology has enabled businesses to streamline their operations and reduce costs, making it easier to sell products online. For example, businesses can use automation tools to manage their inventory and order fulfilment, reducing the need for manual labour and improving efficiency. Additionally, technology has made it easier for businesses to track sales and analyse customer data, enabling them to make data-driven decisions about their marketing and product strategies.

Expansion of Market Reach: E-commerce has enabled businesses to reach customers beyond their local markets, expanding their customer base and increasing sales. Technology has made it easier for businesses to sell products globally, with tools like online marketplaces, international shipping, and multilingual websites. This has also enabled consumers to access a wider range of products from around the world, increasing consumer choice and competition.

Mobile Commerce: Technology has enabled the rise of mobile commerce, allowing consumers to shop from their smartphones and tablets. Businesses have responded to this trend by creating mobile-optimized websites and apps that provide a seamless shopping experience. This has enabled consumers to shop on-the-go, increasing the frequency of purchases and driving sales.

However, there are also some potential downsides to the impact of technology on e-commerce. For example, the increasing use of automation and AI could lead to job losses in some areas of e-commerce. Additionally, the reliance on technology could increase the risk of technical glitches, which could impact the customer experience and damage consumer trust in e-commerce.

Despite these potential downsides, the impact of technology on e-commerce has been overwhelmingly positive, leading to increased efficiency, expanded market reach, and improved customer experiences. As technology continues to advance, it will be interesting to see how businesses adapt to new trends and continue to leverage technology to drive growth and innovation in the e-commerce space.

Various Technologies that are driving Change and Innovation

Block chain: Block chain technology is a decentralized ledger system that can be used to securely and transparently track and verify transactions. In international trade, block chain technology can be used to improve supply chain visibility and reduce fraud and counterfeiting.

Artificial Intelligence: AI technologies such as machine learning and natural language processing are being used to improve customer experiences and automate tasks in e-commerce. AI-powered chatbots can help customers with their inquiries, while machine learning algorithms can personalize product recommendations and improve supply chain forecasting.

Mobile and Cloud-Based Platforms: Mobile and cloud-based platforms are making it easier for businesses to reach customers and manage their operations. Mobile apps can provide a convenient way for customers to shop and make payments, while cloud-based platforms can improve supply chain coordination and allow businesses to scale their operations more easily.

Virtual and Augmented Reality: Virtual and augmented reality technologies are being used to create immersive shopping experiences for customers. Virtual reality can allow customers to try on clothes or visualize products in their home, while augmented reality can provide additional information about products.

Cross-border e-commerce: With the growth of e-commerce platforms and the increasing availability of online payment systems, cross-border e-commerce has become easier and more accessible than ever before. Businesses can now easily reach customers in other countries, opening up new markets and opportunities for growth.

Sustainable trade: There is growing interest in sustainable trade practices, with many businesses and consumers seeking products that are ethically sourced and produced. This has led to the development of certification schemes and other initiatives that promote responsible sourcing and production.

Data-driven decision making: With the increasing availability of data and analytics tools, businesses are able to make more informed decisions about their operations and customer needs. This can help to improve efficiency, reduce waste, and provide better experiences for customers.

New business models: The rise of platform-based business models, such as sharing economy platforms and online marketplaces, is disrupting traditional business models and creating new opportunities for businesses to innovate and grow. However, there are also challenges that come with these trends and technologies like, the increased connectivity and reliance on technology also comes with an increased risk of cyber threats and data breaches, rapid pace of technological change, regulatory and legal challenges that businesses must navigate. New technologies are constantly emerging, and businesses need to be able to adapt quickly in order to stay competitive. This can require significant investments in research and development, as well as ongoing training and education for employees.

Despite these challenges, the benefits of technology and innovation in international trade and e-commerce are clear. Businesses that are able to stay ahead of the curve and leverage new technologies and trends are well positioned for growth and success in the global marketplace.

Literature Review

Bhuiyan and Hossain According to their article on “Impact of digital technology on international trade and e-commerce” The authors discuss the potential benefits of digital technology, including increased efficiency and access to global markets. However, they also highlight the challenges related to cybersecurity, data protection, and privacy that must be addressed to fully realize the potential of digital technology.

Cai and Qiu in their article “Impact of mobile technology on international trade and economic growth”, examines the impact of mobile technology on international trade and economic growth. The authors discuss how mobile technology has increased access to information and reduced communication costs, which has led to increased trade and economic growth. They also highlight the challenges related to infrastructure and the digital divide that must be addressed to ensure that the benefits of mobile technology are widely distributed.

Soltani et al, “Impact of social media on international trade and e-commerce”, this article examines the impact of social media on international trade and e-commerce. The authors discuss how social media has changed the way businesses communicate with customers and the way consumers make purchasing decisions. They also highlight the challenges related to data privacy and security that must be addressed to fully realize the potential of social media for international trade and e-commerce.

Swati Gupta, a study on the impact of technology on e-commerce, The author analyses the impact of technology on e-commerce, specifically in the context of India. The study finds that technology has led to significant growth in e-commerce in India, but there are still challenges to be addressed, such as infrastructure limitations and customer trust issues.

Kim and Shin, in the article the impact of e-commerce on international trade and economic growth, the authors discuss how e-commerce has reduced trade costs and increased market access, leading to increased trade and economic growth. They also highlight the challenges related to data privacy, security, and infrastructure that must be addressed to fully realize the potential of e-commerce for international trade and economic growth.

Shenti Kumar in his article on Impact of information technology on e-commerce in India, analyses the impact of technology on e-commerce, including the effects on customer behaviour, business models, and supply chain management. The study finds that technology has enabled new business models and improved supply chain efficiency, but it has also created challenges related to cybersecurity and data privacy.

Cai, S., & Jun, M. in his article Effectiveness of online marketing campaigns for emerging market firms: Evidence from China, states that the effectiveness of online marketing campaigns for emerging market firms in China. The findings suggest that online marketing campaigns can be effective for emerging market firms, but the effectiveness is influenced by the type of campaign, the timing of the campaign, and the industry in which the firm operates.

Hanif, S., & Nawaz, A. Impact of E-commerce on International Trade and Employment, the study examines the relationship between e-commerce, international trade, and employment. The authors concluded that e-commerce has significantly impacted the traditional form of international trade, and it has become an essential part of modern trade. The employment rate has also been positively influenced by the development of e-commerce, particularly in the context of the gig economy.

B. Huang and R. Rust, Technology-driven retailing: Understanding the impact of future technologies on the retailing domain, this article examines the impact of technology on the retail industry, focusing on emerging technologies such as virtual and augmented reality, artificial intelligence, and block chain. The authors discuss the potential benefits and challenges associated with these technologies, as well as their implications for firms' e-commerce strategies.

A. Agarwal and C. Shankar, The impact of m-commerce on purchasing behaviour: Examining the role of perceived risk and trust. This article examines the impact of mobile commerce on consumers' purchasing behaviour, focusing on the role of perceived risk and trust in driving adoption. The authors highlight the importance of building trust with consumers in order to encourage adoption of mobile technologies for e-commerce transactions.

Research Objectives

- To explore the impact of technology on the luxury retail industry and e-commerce.
- To examine the role of technology in enhancing the customer experience in the luxury retail industry.
- To identify the key technological advancements that have had the most significant impact on the luxury retail industry.
- To identify the challenges and opportunities associated with incorporating technology in the luxury retail industry.
- To provide recommendations for businesses operating in the luxury retail industry on how to leverage technology to remain competitive and meet the changing demands of customers.

Research Methodology

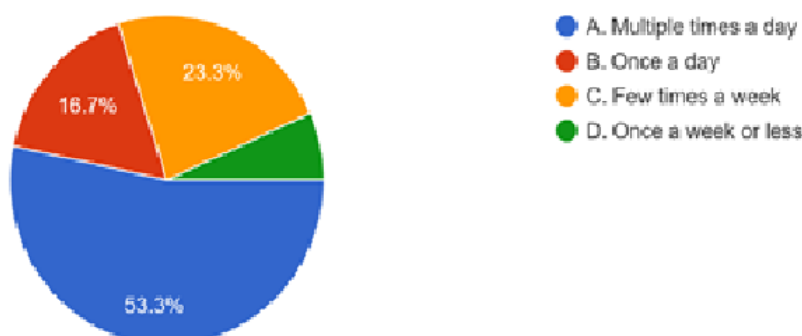
In this research study, exploratory and conclusive research types were used. To identify the important

variables, under the exploratory research the secondary resources analysis and expert opinion survey were conducted. The exploratory phase focused to gather information from the experts, employees of MNCs, common people in Navi Mumbai. A purposive sampling method was used to select participants for the semi-structured interview. Participants were selected based on their experience and knowledge in the field of E-commerce.

The use of blended research methods and intentional sampling methods enabled a comprehensive and in-depth study of the Impact of Technology on E-commerce - by Tata Luxury Cliq. The combination of primary and secondary data also provided a solid and reliable basis for the findings of this study. By using questionnaire primary data was collected from 50 customers of Mumbai region through random sampling technique.

Data Analysis and Interpretation

Customer responses on Use of Internet



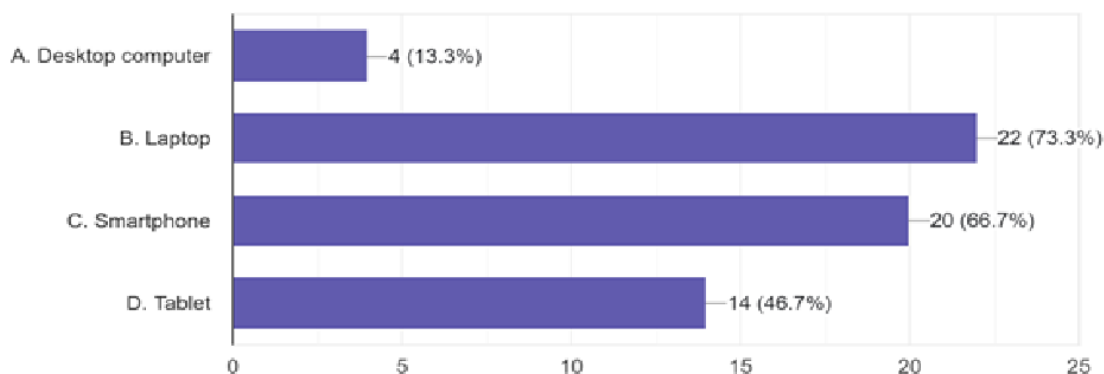
Explanation: The majority of participants (16 out of 30) reported using the internet multiple times a day. A smaller proportion of participants (5 out of 30) reported using the internet only once a day. Seven participants (7 out of 30) reported using the internet a few times a week. Only two participants (2 out of 30) reported using the internet once a week or less.

Customer responses on use of e-commerce platforms to purchase products



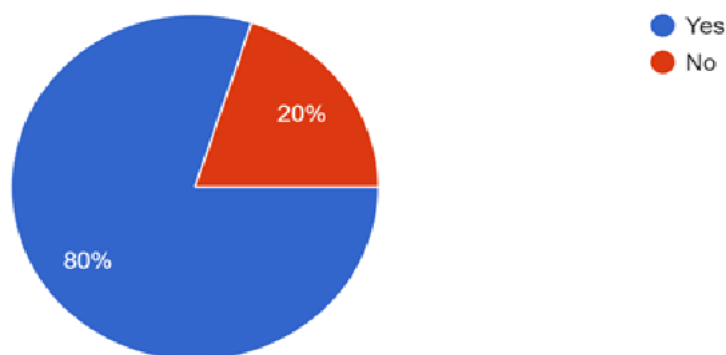
Explanation: The majority of the participants (20 out of 30) use e-commerce platforms at least once a week, either multiple times a week (8 participants) or once a month (12 participants).

Customer responses on most commonly used device to access e-commerce platforms



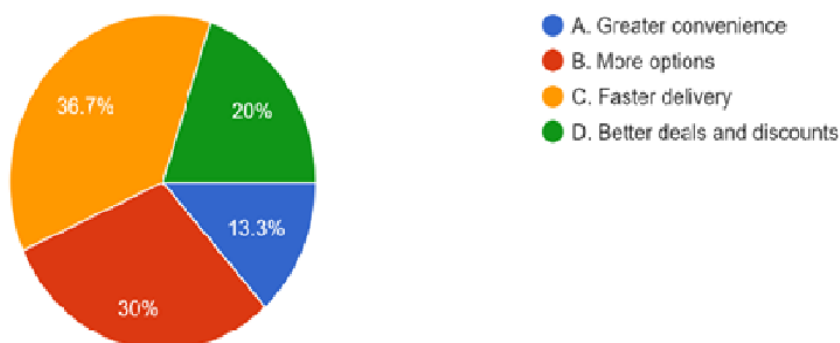
Explanation: Laptops are most commonly used by 73.3% respondents for accessing e-commerce platforms. Smartphones are the second most commonly used device (66.7%) and tablets are the least commonly used device for accessing e-commerce platforms (46.3%). Desktop computers are the least commonly used device for accessing e-commerce platforms, with only 13% participants.

Customer responses on any technical issues experienced by themselves while using Tata Luxury Cliq



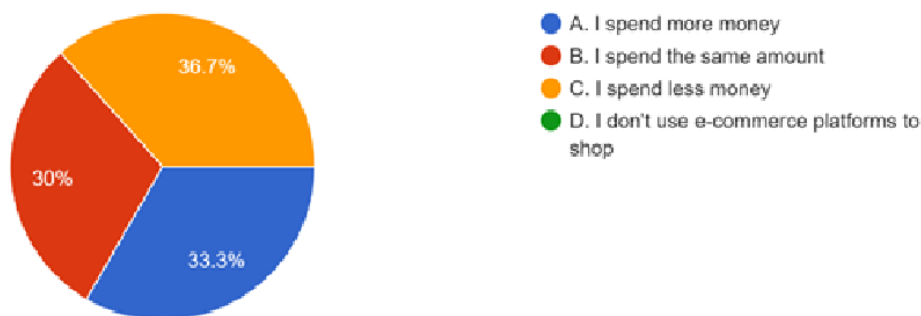
Explanation: The majority of participants (24 out of 30) have experienced technical issues while using Tata Luxury Cliq, whereas, 6 participants reported not experiencing any technical issues while using Tata Luxury Cliq.

Customer responses on shopping online has becomes easier due to technology



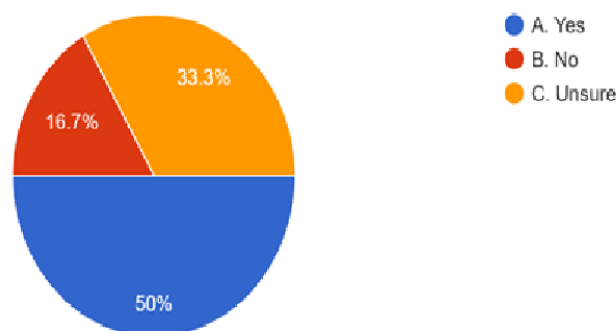
Explanation: The majority of participants i.e. 36.7% reported that technology has made online shopping easier by enabling faster delivery. A significant number of participants i.e. 30% reported that technology has made it easier to shop online by providing more options. A smaller number of participants i.e. 20% reported that technology has made it easier to shop online by providing better deals and discounts.

Customer responses on impact of technology on their spending habits on e-commerce platforms



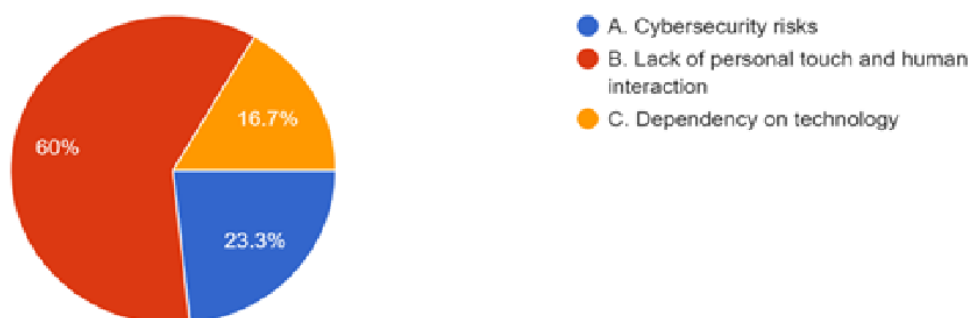
Explanation: A significant number of participants i.e. 36.7% reported that technology has impacted their spending habits on e-commerce platforms by causing them to spend less money. A smaller number of participants (9 out of 30) reported that technology has not had a significant impact on their spending habits.

Customer responses on whether technology has made e-commerce platforms more reliable and secure



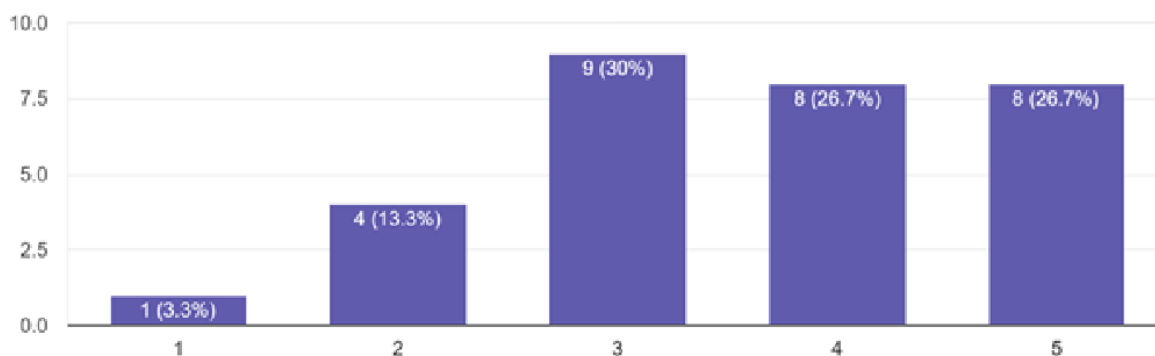
Explanation: The majority of participants (15 out of 30) believe that technology has made e-commerce platforms more reliable and secure. A smaller number of participants (5 out of 30) do not believe that and a significant number of participants (10 out of 30) were unsure whether technology has made e-commerce platforms more reliable and secure.

Challenges that e-commerce platforms face due to technology



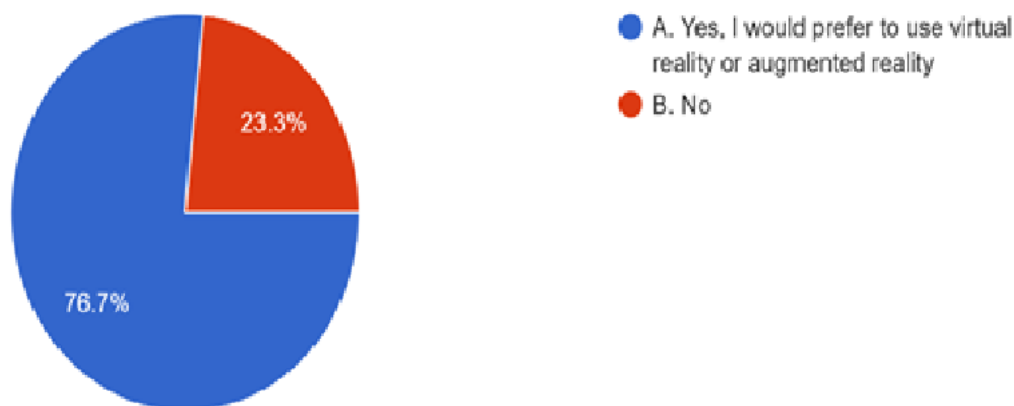
Explanation: The majority of participants (18 out of 30) believe that the biggest challenge that e-commerce platforms face due to technology is the lack of personal touch and human interaction. A significant number of participants (7 out of 30) identified cybersecurity risks as the biggest challenge facing e-commerce platforms due to technology. A smaller number of participants (5 out of 30) identified dependency on technology as the biggest challenge facing e-commerce platforms.

Customer responses on the availability of multiple payment options for shopping online



Explanation: The majority of participants, 80% (24 out of 30), consider multiple payment options as either important or very important when shopping online. Out of the 24 participants who consider multiple payment options important or very important, 67% (16 out of 24) rated it as very important.

Customer preference on virtual reality or augmented reality to shop for products online



Explanation: The majority (76.7%) of the participants indicated that they would prefer to use virtual reality or augmented reality to shop for products online. Only 7 participants (23.3%) responded "No" to the question, indicating that they would not prefer to use virtual reality or augmented reality for online shopping.

Findings

- It was found that the 53.3 % respondents are using internet multiple times a day and it has become an integral part of their daily routine. While 16.3 % are using internet specific tasks or at certain times of the day and 23.3 % respondents use internet for specific tasks or for leisure activities, but not necessarily as frequently as others.
- None of the participants reported using e-commerce platforms once a week or less, which suggests that e-commerce has become an integral part of their shopping habits. The results indicate a high level of adoption and acceptance of e-commerce platforms among the participants, which is consistent with the trend of increasing online shopping worldwide. The findings also suggest that e-commerce platforms are becoming

the preferred choice for consumers due to their convenience, accessibility, and wider range of products and services.

The study reveals that Laptops are most commonly used device for accessing e-commerce platforms. This could be because laptops offer a larger screen size and better functionality compared to smartphones and tablets. Smartphones are the second most commonly used device to access e-commerce platforms. This is not surprising considering the increasing popularity of mobile devices and the convenience they offer. Tablets are the least commonly used device because tablets are not as portable as smartphones and laptops and may not offer the same level of functionality as a laptop.

- The majority of participants have experienced technical issues while using Tata Luxury Cliq, which suggests that the platform may have some areas for improvement in terms of its technical performance. This could be due to various factors such as slow loading times, errors during the checkout process, or difficulty in finding products or information on the platform.
- It was found that technology has made online shopping easier by enabling faster delivery, which suggests that the speed of delivery is a key factor for many online shoppers. Also it provides more options, which suggests that the wider range of products and services available online is a key benefit for many shoppers. It was also observed that technology has made it easier to shop online by providing better deals and discounts, which suggests that online shoppers are motivated by cost savings and value for money.
- The study reveals that technology has impacted their spending habits on e-commerce platforms by causing them to spend less money, which suggests that increased price transparency and comparison shopping online may be causing consumers to become more price-sensitive and restrained in their spending. It suggests that the convenience and ease of online shopping may be leading some consumers to make more frequent purchases or to spend more on individual purchases
- It was found that the majority of participants believe that technology has made e-commerce platforms more reliable and secure, which suggests that advances in security and encryption technologies have helped to increase consumer trust in online shopping.
- The study shows that the majority of participants believe that the biggest challenge that e-commerce platforms face due to technology is the lack of personal touch and human interaction, which suggests that some consumers may prefer the social aspect of traditional brick-and-mortar shopping or may have concerns about the quality of customer service provided by e-commerce platforms.
- It indicates that the majority of participants, 80% consider multiple payment options as either important or very important when shopping online.
- The study reveals that the majority of respondents (76.7%) would prefer to use virtual reality or augmented reality to shop for products online. They showed strong interest in using these technologies for online shopping. These

findings suggest that there is a significant interest in using virtual reality and augmented reality for online shopping, with the majority of participants expressing a preference for these technologies.

Recommendations and Suggestions

- Tata Luxury Cliq should focus on enhancing the user experience of their website and mobile app. They can achieve this by improving the website's user interface, simplifying the checkout process, and providing personalized recommendations to customers based on their browsing history.
- Tata Luxury Cliq should leverage Artificial Intelligence (AI) and Machine Learning (ML) algorithms to provide personalized recommendations to customers. These technologies can analyze customer data to recommend products that are most likely to be of interest to them.
- Tata Luxury Cliq can implement chatbots to provide 24/7 customer support to their customers. Chatbots can quickly respond to common queries, freeing up customer support staff to handle more complex issues.
- Tata Luxury Cliq should invest in social media marketing to increase brand awareness and reach. They can leverage social media platforms like Instagram, Facebook, and Twitter to showcase their products and engage with their customers.
- Tata Luxury Cliq should implement a loyalty program to incentivize customers to make repeat purchases. The program can offer rewards like discounts, free shipping, and early access to new product releases.
- Tata Luxury Cliq should offer multiple payment options to cater to different customer preferences. They can consider implementing payment options like credit/debit cards, net banking, mobile wallets, and cash on delivery.

Overall, Tata Luxury Cliq should embrace technology to improve their e-commerce operations continually. By doing so, they can provide a better shopping experience to their customers and increase their brand loyalty.

Conclusion

It can be concluded that technology has had a significant impact on e-commerce, particularly in the luxury goods industry, as seen through Tata Luxury Cliq. The use of innovative technologies, such as artificial intelligence, virtual reality, and augmented reality, has transformed the way

customers interact with products and the overall shopping experience.

Technology has had a profound impact on e-commerce, and the trend is likely to continue in the future. E-commerce businesses that are able to adapt to new technologies and leverage them to create value for customers will have a competitive advantage in the market. However, it is essential to maintain a balance between technology and human touch, as customers still value personalized interactions and exceptional service.

However, businesses must also be mindful of potential challenges associated with technology adoption in e-commerce, such as cybersecurity risks and data privacy concerns. As technology continues to advance, it is important for businesses to stay up-to-date on best practices and regulations to ensure the security and protection of customer data.

Furthermore, the impact of technology on e-commerce by Tata Luxury Cliq has also paved the way for new business models, such as omnichannel retailing, subscription-based services, and direct-to-consumer sales. The use of artificial intelligence and machine learning has enabled businesses to provide personalized product recommendations and offers based on customer data, leading to higher conversion rates and customer satisfaction.

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