

Impact of Artificial Intelligence in Customer Journey

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Abstract:- The entire gamut of Customer journey is undergoing a massive transformation due to the rapid advancement of Artificial Intelligence (AI). Leveraging the power of AI, CRM & systems have refined the aspect of how businesses manage and optimize the customer journey. AI-powered systems have significant impact across various stages of the customer lifecycle by use of techniques such as machine learning to empower businesses to use systems that can analyse vast amounts of customer dataset in real-time, enabling them to gain deeper insights in customer behaviours, preferences, & sentiment. The AI-driven techniques help businesses to drive more personalized & targeted marketing campaigns, tailored recommendations, and extend efficient customer service leading ultimately to enhancing customer satisfaction and loyalty.

Moreover, AI-powered systems have capabilities of offering predictive analytics which empower businesses to forecast customer behaviours and anticipate their needs. The capabilities help businesses in effective resource optimization and improve efficiency. For customer service AI-powered chatbots and virtual assistants are used to enhance engagement by providing instant responses and ability to handle resolving issues promptly.

Keywords:- Artificial Intelligence, AI, Customer Journey, CRM, Personalized Marketing, Predictive Analytics, Machine Learning, Natural Language Processing, Customer Satisfaction, Customer Loyalty, Chatbots, Virtual Assistants.

I. INTRODUCTION

In the current hyper competitive digital ecosystem, businesses need to proactively ensure customer satisfaction is managed effectively. As part of this strategy, the customer journey stands pivotal for their success. In today's world, customer journey pans across multiple touchpoints from initial brand discovery to purchase and further to post-purchase support. This entire process traditionally relied on human involvements, insights and interaction to navigate and optimize. However with Advent of Artificial intelligence (AI) the landscape has seen a massive paradigm shift which enables businesses to redefine how businesses understand, engage and serve their customers.

The inclusion of Artificial Intelligence (AI) in customer journey includes an array of different tools & techniques, which includes machine learning algorithms, natural language processing (NLP), and predictive analytics. These techniques and technologies empower businesses to gather valuable insights from vast volumes of data, enabling them to forecast customer behaviours, churn rates, preferences and needs with good accuracy. By leveraging these AI-powered technologies businesses can segment customers based on certain characteristics and offer tailor made personalized experiences to the customer base more effectively.

Moreover, AI powered applications enhance the customer journey by automating routine tasks and interactions like Chatbots. These conversational applications Chatbots are powered by AI and can provide instant and round-the-clock responses to customer queries efficiently, improving overall customer satisfaction. Virtual assistants leverage AI techniques to offer customers personalized recommendations and guidance, helping them in the decision-making process and also driving customer growth with upsell and cross-sell opportunities for businesses.

Artificial intelligence is becoming a pervasive technology and companies are increasingly trying to adopt and implement it in order to grow and innovate. While much has been researched on the role AI can play in B2C settings, a research gap exists when it comes to B2B which is characterised by higher complexity, increasing number of players, and larger volumes of data. Brands struggle with personalization, and integrating physical and digital experiences may be key for challenger brands. Success requires aligning technology, data, and culture for personalized customer experiences,[1][2].

II. WHAT IS ARTIFICIAL INTELLIGENCE

Artificial intelligence, typically referred to as AI, is a mimicking of human intelligence by machines, mainly computer systems & applications.

The process of AI includes learning from a pattern or system typically acquiring knowledge or information such as rules, process & has ability for reasoning from such acquired knowledge. Artificial intelligence can be categorised into 2 streams. (1) Narrow approach in which the system is designed to learn from specific tasks only. (2) General AI which is commonly used nowadays and being integrated with various applications & platforms. This approach has extensive capability to consume information, trained by system, store

the patterns and apply such knowledge as per the need, which is often closer to human intelligence.

With the advent of advancement in AI technologies, more and more applications have started enhancing their capabilities with such techniques. Industries where there is going to be a transformative experience to customer journeys are Healthcare, Banking & Finance, Transportation, Retail & more.

Cloud platforms provide the scalable, flexible infrastructure to ingest, process, and analyze customer data from diverse sources. AI and machine learning models can then be leveraged to gain deeper insights into customer behaviour, preferences, and intent-allowing for real-time personalization and optimization of the customer experience. Key areas discussed include: Data Unification: Integrating customer data from online, offline, and emerging channels into a unified view to power omnichannel intelligence. Real-time Decisioning: Applying AI-driven predictive analytics to make dynamic decisions that adapt the customer journey in the moment. Intelligent Orchestration: Leveraging cloud scalability and AI to coordinate seamless, contextual interactions across touchpoints. Continuous Optimization: Using machine learning to continuously test, learn, and refine the customer experience based on performance data. Organizations can begin their journey towards cloud-enabled, AI-powered omnichannel customer journey orchestration to drive greater engagement, loyalty, and revenue,[3]. In the banking industry, cloud computing has become a game-changer, providing hitherto unseen chances to improve customer service by using artificial intelligence (AI). The vital role that cloud computing plays in enhancing AI-driven customer service in banking is examined in this abstract. Through the utilization of cloud infrastructure's scalability, flexibility, and accessibility, financial institutions may implement artificial intelligence (AI)-driven solutions that provide individualized, effective, and responsive client experiences across all channels. Banks can obtain actionable insights into the behaviour, preferences, and needs of their customers through advanced data analytics, natural language processing, and machine learning algorithms hosted on cloud platforms. This allows them to anticipate and respond to customer inquiries, expedite transaction processing, and provide customized product recommendations in real-time. Additionally, banks may increase operational effectiveness, optimize resource allocation, and automate repetitive processes using cloud-based AI apps, all of which enhance service quality and increase customer happiness,[4].

➤ *Key Concepts in Artificial Intelligence (AI) Include:*

- Machine learning: is a type of artificial intelligence (AI) that provides computers with the ability to learn and improve from experience automatically. Leveraging algorithms to scan data, pick out patterns and then act - or predict.

- Deep Learning: This is another area of specialization in the subset of machine learning which has developed its algorithms similar to that structure and functionally identical like the human brain. Works mostly in layers, the artificial neural network (ANN) - a machine learning algorithm inspired by the human brain and designed to learn from copious amounts of labelled data, used mostly for tasks like image recognition, speech to name a few
- Natural Language Processing, NLP: Makes computers interact with humans using natural language. It allows machines to understand, interpret and generate human language that further helps to perform different tasks including Text analysis such as language translation, sentiment analysis or topic classification.
- Computer Vision: It provides machines with the capability to interpret and understand visual information from the real world. These may be performed in the form of image recognition, object detection and video analysis with help from advancing techniques like Image processing and pattern recognition as well.
- Robotics - Involves mating AI to mechanical systems in the form of robots that carry out tasks either autonomously or semi-autonomously. In robotics, AI allows machines to think and act like humans in perceiving the world around them-making decisions based on this information that is then made through trial-and-error.

The use of AI can help companies understand customer needs more comprehensively, find new opportunities more quickly, establish business goals more accurately, and achieve smart marketing and precision marketing in the true sense,[5].

III. WHAT IS DATA MINING & WHY ITS IMPORTANT IN CUSTOMER JOURNEY

Data mining is also called the process of pattern discovery or finding interesting correlations, and insights from large datasets using various technologies/ methods for future use to make data-driven decisions. At the heart of Data Mining are these four things:

- Data Collection: Data collected from multiple sources (Source of data could be structured or unstructured - databases, data warehouses, internet, device & sensors.)
- Data cleaning and integration: In order to make sure the data is consistent and reliable, it should be cleaned first before mining. Cleaning involves taking care of missing values, removing noise/outliers and fixing irregularities.
- Exploratory Data Analysis - Data mining typically starts with exploratory data analysis (EDA) to discover the inner structure, relations and patterns or anomalies in the dataset. This is where we will look for possible patterns of interest.

Lastly, data mining is hugely important for unearthing valuable information and understanding from big database datasets which can be easily used to support business strategies with facts

Data mining, or knowledge discovery in databases (KDD), is an interdisciplinary field that integrates techniques from several research areas, which include machine learning, statistics, database systems, and pattern recognition, for the analysis of large volumes of possibly complex, highly distributed and poorly organized data.,[6].

A revolutionary technique for managing massive amounts of data from databases is data mining. Statistical analysis, machine learning, predictive modelling, and database approaches are all combined in knowledge discovery,[7].

Effective data mining aids in various aspects of planning business strategies and managing operations. It also plays an important role in healthcare, government, scientific research, mathematics, sports and more,[8].

➤ *Why Data Mining is Important for Customer Journey:*

Data mining, which revolves around sifting through large amounts of information in order to extract valuable insights, forms an essential component for companies to understand and optimize the customer journey. Businesses can, by analysing customer interactions across various touch points such as websites, mobile apps and social media identify behavioural patterns, preference changes or pain points across the entire lifecycle of a customer. This gives organizations the ability to substantially enhance the personalization of their marketing, product recommendations and customer service interactions in accordance with an individual customer's requirements.

The customer journey is becoming more complex due to digitization of business processes, broadening the gap between the proposed journey and the journey that is actually experienced by customers. The customer journey is a marketing concept that describes the path that a customer may take until they purchase a product or service. One another technique for automatically discovering the customer journey map is process mining [9],[10].

By allowing such processes; customer journey optimization for a better experience hence providing them with improved satisfaction as well loyalty to the services being delivered.

Additionally, Data mining can also enable businesses to streamline certain touchpoints in customer journeys e.g. smoothening website browsing process and purchase series help by simplifying the site navigation placement or improving servicing of customers for a better experience-debugging issues is addressed more efficiently. Understanding customer sentiments through feedback reveals where businesses can prioritize improvements that will more significantly affect quality of service, reinstate delight in customers and improve loyalty. In the end, using data mining

effectively allows businesses to tweak and improve the customer journey over time by taking out a lot of guesswork in predicting consumer behaviour.

We are in that era in which a substantial amount of data is being generated all the time. There are many types of tools, techniques and algorithms that can handle considerable data easily and also give important information from it at the time of need,[11]. Data mining also includes establishing relationships and finding patterns, anomalies, and correlations to tackle issues, creating actionable information in the process. Data mining is a wide-ranging and varied process that includes many different components, some of which are even confused for data mining itself [12].

➤ *Importance of Generative AI in Customer Journey:*

- Generative AI - in generative models like Generative Adversarial Networks (GANs) and OpenAI's language model GPT, specifically- has already changed the way that companies navigate their customers' journey. Generate high quality content like product description, marketing copies and creatives (images, videos) Governance rules digitally enforce best practices and ensure that at each stage of the pipeline a badge is assigned for relevant transvestites, facilitating content production so brands always have engaging and on-brand content ready for customers.
- Personalisation: Generative AI analyses customer data and individual preferred tastes, allowing for personalised recommendations to be made from emails through advertising.
- Customer Service and Relationship Management: They can answer more complex questions, give extensive product advice and offer individual care providing a superior customer service experience.
- Product Design and Customization: Generative AI can help in product design by creating prototypes, iterating designs based on customer feedback as well customizing products from the start to meet individual preferences.

Generative AI, a subfield of artificial intelligence, focuses on developing systems that can generate novel and creative outputs, such as images, music, text, and more. GANs consist of two components: a generator network and a discriminator network, engaged in a competitive process of generating and evaluating content. VAEs, on the other hand, employ an encoder-decoder architecture to learn and generate new samples, [13].

All in all, generative AI is transforming the customer experience by: Creating personalized experiences Enabling more efficient content creation and improved customer interaction Fostering innovative new product offerings Supporting data-driven decision-making If businesses can continue leveraging the power of generative AI, they stand to improve customer relationships and satisfaction as well as stay ahead in an increasingly digital age.

IV. IMPACT OF ARTIFICIAL INTELLIGENCE CUSTOMER JOURNEY

The proliferation of AI in the customer journey has significantly reshaped how businesses communicate with and serve their customers. An AI-powered chatbot and virtual assistant solution offer instant customer support that is always-on, personalized through real-time content suggestions. They can address standard questions, offer product suggestions according to customer specifications and even handle transactions overall improving convenience across the buyer's journey.

Additionally, utilizing AI provides a way to personalize experiences of businesses, where it is possible to discern customer data on mass scales. AI uses machine learning and natural language processing to predict customer behaviour, preferences and issues. This makes it possible for businesses to design marketing campaigns, product offers and customer service interactions based on personal needs which in turn increases customer satisfaction & loyalty. C2C interactions have a positive direct effect on the customer experience, satisfaction, and loyalty. Customer experience, in turn, affects customer satisfaction and loyalty,[14].

Moreover, AI is one step ahead and also helping organizations for better decision-making by giving actionable insights from data. AI can suss out trends, patterns and even correlations hidden within customer data that analysts might miss, allowing businesses to use this information in order to make better decisions at every step of the way. In addition to renal functions, this predictive strength leads to an increase in operational efficiency and customer need awareness before the event occurs such as complaints calling activity or other customer service related incidents resulting in trust bonds with personified customers.

➤ *Key Impacts of AI on the Customer Journey :*

- **AI Chatbots & Virtual Assistants:** Resolve customer queries immediately AI Chatbot / Assistant is available 24/7 and can handle a significant number of inquiries as well transactions in the shortest possible time.
- **Personalization:** Along with the capability to analyze customer data, AI can also provide hyper-personalized content within every element of a consumer-related process such as personalized product recommendations or marketing messages.
- **Predictive Analytics:** AI forecasts customer actions & demands through data for customers are preventive at problems keeping with the need.
- **Operational Efficiency:** By conducting processes such as inventory management, pricing optimization and customer service workflows in a better engineered manner than before AI can encourage efficiency while cutting costs.
- **Improved Decision Making:** Make data-driven decisions, The idea is to leverage AI technologies that provide information right when you need it so that your company can act on the customer journey and backend operations equally well.

- **Ongoing enhancement:** The AI references past interactions to improve responses and recommendations, thus providing better customer service in future.
- **Omnichannel Integration:** Integrated contact points across various channels (website, mobile app, social media), providing a unified and holistic customer experience.
- **Enhance Customer Engagement:** By using AI-powered customisation and assumed strategy for engagement with the customers, it is easy to drive conversion rates higher which in turn help you increase your repeat business.

Insight can improve a lot along this customer journey; from attracting customers, to supporting them and managing their relationship with your firm helping it grow better than you could have without AI presence made.

Purpose Chatbots are increasingly engaged in service marketing, but at a high degree of anthropomorphism, consumers may experience negative emotions such as fear and disgust due to the feeling that the robots resemble humans too much, which is known as the uncanny valley effect, [15]. Conversational commerce is a notable spinoff of using conversational agents in online commerce. Due to the acceleration of digital trans-formation in response to the COVID-19 pandemic, online commerce has profoundly emerged as the new normal of shopping among customers, which is poised to continue in the post-pandemic era (Lim,2021b). In essence, conversational commerce is the use of conversational agents to interact with brands and the services that they provide. In this setting, the use of conversational agents in commerce allows customers to interact with artificial intelligence and receive personalized recommendations in online commerce akin to that experienced with salespeople in offline commerce. Noteworthy, conversational commerce is transforming customer experience and improving the customer's desire to spend more time on online ecommerce platforms, as conversational commerce bridges the human-computer gap in online commerce by creating a humanized ecosystem where customers and technology-mediated brand representatives can chat and close deals (Piyush et al., 2016). [16],[17],[18].

Customer data platforms (CDPs) are highlighted as essential tools that unify disparate data sources to create a comprehensive customer profile. Additionally, advanced customer segmentation tools assist in categorizing customers based on diverse criteria, facilitating targeted and personalized interactions. The strategies for hyper-personalization involve a multi-faceted approach, encompassing proactive communication, personalized marketing campaigns, and adaptive customer journeys,[19]. Nowadays customers expect a seamless interaction with companies throughout all available communication channels. However, many companies rely on different software solutions to handle each channel, which leads to heterogeneous IT infrastructures and isolated data sources. Omni-Channel CRM is a holistic approach towards a unified view on the customer across all channels, [20]. Technology has been transforming consumer behaviour and reshaping the relationship between humans and organizations. Most industries have been highly affected by

this digitalization and have had to adapt or transform their business models. New players emerged, many of them being purely digital—e.g., Google, Amazon, Facebook, and Apple—becoming such a strong reference for consumers that some have transitioned to physical retail (e.g., Amazon Books, Amazon Go). In the context of this continuously evolving business landscape, many traditional retailers and service-based companies have transitioned to omnichannel management in order to respond to a highly competitive market and to better serve their customers. At a high level, being an omnichannel organization means situating the customer at the core of the company interaction through channel integration, consistency, and a seamless customer experience. For store-based retailers, omnichannel has opened the possibility to improve synergy between channels and touchpoints in order to increase store sales and potentially avoid the death of physical stores, [21-24]. Data Management and Data Analytics are of huge importance to Business Process Outsourcing Providers in Customer Relationship Management (CRM) in order to offer tailor-made CRM Solutions to their business clients during presales, sales and aftersales. These solutions support business clients to improve their internal processes, as well as their customer service in a variety of communication channels (including e-mail, chat, social media, private messages, etc.) to reach out to end customers in an efficient way. As customer interactions may happen via various channels basically at any time, a crucial challenge is to efficiently store and integrate the data of the various channels in order to obtain a unified customer profile, [25]. In today's connected world, customer engagement behaviours are very important. Many companies launch initiatives to stimulate customer engagement. However, despite evidence that customer engagement behaviour also matters to shareholders, academic research on the firm value consequences of customer engagement campaigns is limited, [26]. With the advent of Artificial Intelligence (AI), the way business interacts with customers is up for a giant leap. Integration of AI with CRM empowers businesses to forge deeper customer engagement, harness the potential of predictive analytics and offer personalized customer experiences, [27].

V. FUTURE SCOPE

The future of AI powered applications for customer journey is expansive and transformative. Driven by advancements in technologies and evolving consumer needs, the landscape is going to witness tremendous improvements and leave significant impact:

➤ *Personalization*

Customer engagement will witness hyper-personalization from AI-powered applications by analyzing vast amounts of customer data and understanding customers' individual preferences and behaviours across multiple touchpoints.

➤ *Recommendations*

AI-powered customer engagement applications will enable businesses to tailored product recommendations, targeted marketing messages with better conversions, and personalized customer service interactions.

➤ *Predictive Analytics*

This is one area which will be embraced by businesses. AI driven algorithms and techniques will have capabilities to forecast customer behaviour by churning through historical data, enabling businesses to anticipate needs of customers. Predictive analytics can help organizations in optimizing inventory management, churn rate predictions to offer timely promotions.

Furthermore, few of the areas which will have a deeper impact on customer journey are Chatbots and virtual assistants which are becoming more intelligent and responding to customer queries better than before, voice & image recognition which can help customers with voice search facilities, and image recognition in customer journey captured across various touchpoints.

Artificial intelligence (AI) is likely to spawn revolutionary transformational effects on service organizations, including by impacting the ways in which firms engage with their customers. In parallel, customer engagement (CE), which reflects customer interactions with brands, offerings, or firms, has risen to the top of many managers' strategic wish lists in the last decade. However, despite literature-based advances made in both areas, AI and CE are largely investigated in isolation to date, yielding a paucity of insight into their interface, [28].

Given DL's (Deep Learning) seamless, integrated nature (e.g., autonomous cars), we expect customers' brand engagement through effective DL-based service interactions to most closely approximate CE in equivalent human-to-human interactions. However, because DL assumes a range of activities that customers traditionally performed themselves (e.g., searching for, aggregating, and acting on information), we also expect to see differences. In particular, we expect customers displaying highly active (vs. inactive) CE styles, who make substantive (vs. few) resource investments in their brand interactions, respectively (Prior and Marcos-Cuevas 2016), to engage differently with brands through DL-based service interactions. The rise of DL applications implies that machines increasingly perform tasks for customers (Hollebeek, Clark, and Macky 2020). For customers displaying highly active engagement styles, we expect DL-based service interactions to lower their positive brand engagement, given their desire to participate actively in brand/firm activities, [29][30].

Overall, the future of customer journey is poised for a giant leap and the current advancements in technologies will help businesses to revolutionize customer interactions. As AI technologies evolve, customer satisfaction and growth is expected to become even more profound.

VI. CONCLUSION

In conclusion, across industries, businesses are going to witness transformative change in the customer journey due to the impact of Artificial intelligence (AI). With various techniques and AI-driven models technologies are about to reshape customer engagements which includes hyper-personalization, predictive analytics, automation and immersive experiences. By harnessing the power of AI powered applications, organizations can not only forecast needs, improve efficiency, deliver highly personalized experiences which would drive customer satisfaction and loyalty, ultimately paving the way for higher growth.

However, as AI driven applications evolve, it would be critical for businesses to navigate through ethical compliances and ensure they maintain transparency at the same time. Ultimately, integrating AI with various customer touchpoints and interactions, can not only optimize traditional operational processes but also elevate overall customer experience to greater heights.

Looking forward, the current rapid advancements in AI technologies will undoubtedly redefine the landscape of customer journey. With AI technologies becoming more sophisticated, the businesses will be able to understand customer needs much better, forecast and respond effectively to growing expectations of the customers. Overall, Embracing AI in the customer journey provides an opportunity to elevate overall quality of support, service and satisfaction, ultimately setting new benchmarks for customer experience in the digital age.

REFERENCES

- [1]. Khvatova, T. & Appio, Francesco & Ray, Subhasis & Schiavone, Francesco. (2023). Exploring the Role of AI in B2B Customer Journey Management: Towards an IPO Model. *IEEE Transactions on Engineering Management*. 10.1109/TEM.2023.3284532.
- [2]. Duraisamy, Alamelu & Subha, Madapoosi. (2024). Impact of AI in Changing Customer Experience. 10.4018/979-8-3693-2276-5.ch011.
- [3]. Ailyn, Diana. (2024). Omnichannel Customer Journey Orchestration with Cloud and AI.
- [4]. Madasamy, Sridhar. (2022). The Role of Cloud Computing in Enhancing AI-Driven Customer Service in Banking. 6. 261-269.
- [5]. He, Qiong. (2022). Design of Marketing Data Mining System Based on AI. 10.1007/978-3-030-99616-1_18.
- [6]. Wu, Xindong & Zhang, Yan & Zhu, Xingquan. (2009). *Data Mining*. 10.1002/9780470050118.ecse094.
- [7]. Kaderye, Golam & Arif, Ahsan & Kundu, Ronjon. (2024). Data Mining in Different Fields: A Study. *International Journal of Innovative Science and Research Technology (IJSRT)*. 1828-1838. 10.38124/ijisrt/IJSRT24MAR1384.
- [8]. Ramakrishnan, Sreejit. (2023). The Importance of Data Mining & Predictive Analysis. *international journal of engineering technology and management sciences*. 7. 593-598. 10.46647/ijetms.2023.v07i04.081.
- [9]. Weijs, Daan & Caron, Emiel. (2022). Customer Journey Analytics: A Model for Creating Diagnostic Insights with Process Mining. 418-424. 10.5220/0011263900003266.
- [10]. Alama, Imane & Sbair, Hanae. (2023). Customer Journey Map Discovery Approach. 10.1007/978-3-031-33309-5_22.
- [11]. Kumar, Mayank & Tiwari, Shivam & Chauhan, Sansar. (2022). Importance of Big Data Mining: (Tools, Techniques). *Journal of Big Data Technology and Business Analytics*. 1. 32-36. 10.46610/JBDTBA.2022.v01i02.005.
- [12]. Ramakrishnan, Sreejit. (2023). The Importance of Data Mining & Predictive Analysis. *international journal of engineering technology and management sciences*. 7. 593-598. 10.46647/ijetms.2023.v07i04.081.
- [13]. Ramdurai, Balagopal & Adhithya, Prasanna. (2023). The Impact, Advancements and Applications of Generative AI. 10. 1-8.
- [14]. Yadollahi, Shahrbanoo & Kazemi, Ali & Ranjbarian, Bahram. (2024). Investigating the customer-to-customer interaction during the customer journey in banking industry. *International Journal of Bank Marketing*. 10.1108/IJBM-01-2023-0020.
- [15]. Yanxia, Cheng & Shijia, Zhu & Yuyang, Xiao. (2023). A meta-analysis of the effect of chatbot anthropomorphism on the customer journey. *Marketing Intelligence & Planning*. 42. 10.1108/MIP-03-2023-0103.
- [16]. Lim, Weng Marc & Kumar, Satish & Verma, Sanjeev & Chaturvedi, Rijul. (2022). Alexa, what do we know about conversational commerce? Insights from a systematic literature review. *Psychology and Marketing*. 39. 10.1002/mar.21654.
- [17]. Lim, W. M. (2021b). History, lessons, and ways forward from the COVID-19 pandemic. *International Journal of Quality and Innovation*, 5(2)
- [18]. Piyush, N., Choudhury, T., & Kumar, P. (2016). *International Conference System Modeling & Advancement in Research Trends (SMART)*. Conversational commerce a new era of e-business. (322–327). IEEE
- [19]. Rane, N., Choudhary, S., & Rane, J. (2023). Hyper-personalization for enhancing customer loyalty and satisfaction in Customer Relationship Management (CRM) systems. Available at SSRN 4641044.
- [20]. Carnein, M., Heuchert, M., Homann, L., Trautmann, H., Vossen, G., Becker, J., & Kraume, K. (2017). Towards efficient and informative omni-channel customer relationship management. In *Advances in Conceptual Modeling: ER 2017 Workshops AHA, MoBiD, MREBA, OntoCom, and QMMQ*, Valencia, Spain, November 6–9, 2017, Proceedings 36 (pp. 69-78). Springer International Publishing.
- [21]. Gereá, C., Gonzalez-Lopez, F., & Herskovic, V. (2021). Omnichannel customer experience and management: An integrative review and research agenda. *Sustainability*, 13(5), 2824.
- [22]. Sorescu, A., Frambach, R. T., Singh, J., Rangaswamy, A., & Bridges, C. (2011). Innovations in retail business models. *Journal of retailing*, 87, S3-S16.

- [23]. Verhoef, P. C., Kannan, P. K., & Inman, J. J. (2015). From multi-channel retailing to omni-channel retailing: introduction to the special issue on multi-channel retailing. *Journal of retailing*, 91(2), 174-181.
- [24]. Berman, B. (2019). Flatlined: Combatting the death of retail stores. *Business Horizons*, 62(1), 75-82.
- [25]. Trautmann, H., Vossen, G., Homann, L., Carnein, M., & Kraume, K. (2017). Challenges of data management and analytics in omni-channel CRM (No. 28). ERCIS Working Paper.
- [26]. Beckers, S. F., Van Doorn, J., & Verhoef, P. C. (2018). Good, better, engaged? The effect of company-initiated customer engagement behaviour on shareholder value. *Journal of the Academy of Marketing Science*, 46, 366-383.
- [27]. Alladi, Rohit. (2024). How AI can transform Customer Relationship Management. *International Journal of Management IT and Engineering*. 14. 44-52.
- [28]. Hollebeek, L. D., Sprott, D. E., & Brady, M. K. (2021). Rise of the Machines? Customer Engagement in Automated Service Interactions. *Journal of Service Research*, 24(1), 3-8. <https://doi.org/10.1177/1094670520975110>
- [29]. Prior Daniel, Marcos-Cuevas J. (2016), "Value Co-Destruction in Interfirm Relationships: The Impact of Actor Engagement Styles," *Marketing Theory*, 16(4), 533–52.
- [30]. Hollebeek Linda, Clark Moira, Macky Keith (2020), "Demystifying Digital Cocreated Value: Social Presence Theory-Informed Framework and Propositions," *Recherche et Applications en Marketing*, forthcoming, doi: 10.1177/2051570720961986.