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The Impact of Artificial Intelligence in the Customer Journey: A Case Study of Bosch USA and Defy South Africa

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ABSTRACT

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Artificial intelligence (AI) continues to gain traction and is increasingly reshaping the media and marketing communications field. While significant research has been conducted on the impact of AI in other fields, there is little empirical evidence on how AI is affecting the customer journey. The present study explored both organizations' current use of AI tools and how customer perceptions about AI affect AI usage and adoption through the lens of diffusion of innovation theory. The research was conducted using mixed-method qualitative research. In-depth interviews and a case study content analysis were conducted to collect and analyze the data. The results suggest that consumer perceptions about AI impact levels of adoption when AI is recognized, but there appears to be cognitive dissonance regarding what constitutes AI and complicit acceptance of some of its benefits. Companies in different geographical locations have different levels of AI adoption along the diffusion of innovation stages.

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Chapter 1. Introduction

The advent of artificial intelligence (AI) has altered the dynamic of the business world. The present research aimed to explore the impact of AI in marketing by investigating customer experience perspectives in the customer journey and how these perceptions affect adoption for home appliance customers. To accurately explore the research variables and determine which applications of AI are meaningful in this industry, mixed methods qualitative research methodology was used. The media and marketing field is transforming rapidly, and the speed of change is modifying marketing in academia, research, and business. More emphasis has shifted to digital marketing as compared to traditional forms of marketing. While the idea of employing AI is not new, we see the field of media and marketing communications experiencing a growing application of artificial intelligence in the customer journey.

Panda (2019) asserts that AI continues to gain traction in media and marketing communications as one of the leading technological developments that can facilitate a better customer experience. AI has grown to be an important tool for various brands that have strategic goals to provide a targeted and personalized customer experience throughout the customer journey. Discussions regarding AI have also been dominating research in recent years, for example, a trend analysis report by Arizton (2019) mentions that the introduction of home automation technologies would enable home appliances to be regulated, managed, and organized in a convenient, productive manner in the global market. In addition, AI will offer a stronger home automation approach as it can learn from the environment to make case-based decisions. A group of AI experts addressed how machine learning could influence the workforce at the MIT Summit (MIT Sloan, 2021). While an analysis by Mckinsey (2018) indicates that AI can displace five percent of employees.

Home automation is becoming more efficient with the introduction of emerging technologies such as the Internet of Things (IoT) and AI (Philip, 2020). Also, industry leaders such as Google, Apple, and Amazon now rely more on AI-based smart assistants for home automation. This study thus explored how artificial intelligence enhances the customer journey for home appliance customers by investigating the views and perceptions of current Bosch and Defy consumers. There is plenty of evidence showing how the development of AI has major potential both at the individual level and organizational level. Therefore, this research evaluates what these companies, Bosch and Defy are doing in the AI space versus what is being perceived by customers along their customer journey. Regarding theoretical contributions, this research is one of the few studies to explore how customers' views and perceptions of AI tools in their customer journey impact their overall experience. Therefore, this study is hence aimed to fill this gap in existing research.

Background, Context, and Theoretical Framework

Today the automation tools that reshaped homes back in the 20th century have become smart. For example, voice assistants now allow you to talk to your TV (Gartz & Linderbrandt, 2019). All this is powered by artificial intelligence technology, but what is artificial intelligence? Artificial intelligence goes back to the 1950s in the scholarly field. According to Dignum (2018), the word ‘Artificial Intelligence’ was invented by John McCarthy who described it as an attempt to create a computer that could think like a human being. Seventy years later, this initiative is gradually becoming a reality. The adoption of digital technologies in smart home appliances is growing because of various advances of emerging AI technology in the daily lives of people. The adoption of AI is slow and is yet to become as prevalent as expected (Sinofsky, 2019). As a

result, one may wonder what is affecting or hindering acceptance of the adoption of this technology.

On one hand, we see the increased use of artificial intelligence in various areas, such as smart washing machines that will autonomously control the washing power and detergent to be used according to the load weight and type of clothing using AI techniques. Another example could be smart refrigerators that use deep learning (DL) algorithms to remotely track and identify food in the refrigerator. All information can be automatically stored in an inventory list that allows a user to check items wherever they are while using AI assistance to suggest recipes based on the food in the refrigerator (Khokale, 2018). In other industries, we already have Tesla's self-driving cars to improve customer experience, Amazon Prime Air uses drones to automate shipping and delivery, Replika is a chatbot focused on machine learning (ML) which offers emotional support to users by imitating their communication styles, and Lexus uses IBM Watson AI software to write its TV commercial scripts (Huang & Rust, 2020). It is therefore predicted that AI will similarly change the future of media and marketing communication (Davenport et al., 2020). As evidenced, AI is indeed already playing a critical role in digital transformation in the business world.

The advancement of artificial intelligence is one of the key concepts of contemporary society, which will fundamentally transform individuals and our society and will have a significant influence on the economy. However, there are underlying fears and concerns regarding its development in the future (Palau & Popo, 2021). This digital transformation is changing the way customers interact with brands. Therefore, the convergence of these technologies presents businesses an opportunity to increase efficiency, reduce costs, and/or improve customer experience. Furthermore, they highlight that our everyday life is constantly

influenced by the existence of different types of AI from seeking directions with the aid of GPS, to self-driving cars, and to tracking our heart rate during sports. Clark (2020) asserts that AI constantly learns and evolves from the data it examines, unlike conventional data analytics tools, and can predict consumer behavior. Therefore, this makes it easier for brands to offer relevant content, improve sales potential and boost customer experience.

The theoretical framework for this qualitative research design was based on the Diffusion of Innovation (DOI) theory. Since the DOI theory explains the adoption of technological innovation, it is ideal for this research since AI is the topic of innovation in the context of this study. The diffusion of innovation theory was introduced by Rogers in 1962. Crucial to this theory is the idea that different types of people and organizations adopt new ideas at different times (Rogers, 2003). Innovation expands through the population to achieve acceptance. Rogers notes that individuals can be divided into various adopter groups based on their level of innovation. The bulk of the population is known to have a lower degree of innovation and their acceptance relies on perceptions of individuals with higher innovation. This theory provides a strong theoretical foundation to investigate AI adoption for customers and organizations. Subsequently, comparing different customer perceptions of AI against the companies AI efforts along the customer journey will help analyze its effectiveness or identify gaps that the home appliance field can benefit from.

Problem Statement

Although companies may be investing in AI-enabled tools along the customer journey to make the customer experience seamless, these AI tools may be perceived either positively or negatively by the targeted customers, which in turn impacts the overall customer experience.

Also, this study explored the consequences of a company not investing in AI technology. Drawing on this, it can be argued that how customers perceive these tools is important to how they are adopted to ensure the intended customer experience along the buyer's journey. However, little research has been conducted to show evidence of exploring the relationship between these two variables, therefore there is a need to add to this field. Lund et al. (2020) assert that given the recent advent of artificial intelligence, there is an opportunity to examine the perception of innovation and the connection it has with the acceptance of new technologies as proposed in the diffusion of innovation (DOI). The findings of this research aid to garner receptiveness among customers toward adopting AI technology in their customer journey.

Purpose of the Study

The purpose of this qualitative case study is to explore the impact of artificial intelligence in the customer journey for home appliances customers of Bosch USA and Defy South Africa. The research explored how views and perceptions of artificial intelligence play a role in the diffusion process of this technology. At this stage of the research, artificial intelligence will be generally defined as data processing, storage, and analytical methods allowing goods and services to execute tasks typically understood as involving intelligence and autonomous decision making on behalf of humans (Agrawal et al., 2018).

Research Questions

This research intended to answer and address the following research questions:

1. How is the perception of AI impacting customer experience in the customer journey?
2. How is AI being used in inbound and outbound marketing for the two companies?

3. Are there differences in the rate of adoption of AI-based tools for companies in different geographical locations?
4. Do consumers perceive any ethical issues regarding AI use in the consumer journey?

Scope of the Study

The scope of this research was limited to current Bosch and Defy customers only. This allowed a more in-depth case study investigation and a more thorough analysis of the research phenomena. Defy South Africa is one of Southern Africa's largest manufacturers and distributors of home appliances. Defy has been winning awards in stoves, ovens, vacuum cleaners, and washing machines in an annual awards forum hosted by South African market research (Defy, 2021). While Bosch USA is an industry leader in consumer-driven solutions for home appliances in the USA. Bosch has also won multiple awards annually for the best dishwasher, Choice award, and Partners of Choice award, among other accolades.

Due to ethical considerations, interviews were conducted only with healthy adults over the age of 18 who were eligible to participate. While the exclusion criteria highlighted that minors under the age of 18 years were not eligible and non-customers of the brands also could not participate. In the second stage of the research, the case study content analysis mainly focuses on the company's website and social media platforms.

Chapter 2. Literature Review

A customer journey is viewed as the process undertaken by a customer to achieve a goal involving one or more brands (Følstad et al., 2013). Customer experience is an important variable in the customer journey and as a holistic multi-dimensional concept, reflects on the customer's emotional, cognitive, sensorial, behavioral, and social reactions to a company's products during the purchase journey (Lemon & Verhoef, 2016). Batra (2019) adds that the overall customer experience can be conceptualized as a dynamic process of the customer purchase journey. While previous studies on artificial intelligence in the field of media, and marketing communication seem to focus on best practices and the technical aspects, this study aims to connect how AI is perceived by customers in their customer journey through the lens of the Diffusion of Innovation theory, since there is little evidence of current literature that covers this aspect. This research explored the extent to which the implementation of artificial intelligence in the customer journey has been diffused in business models and how it relates to customer perceptions of artificial intelligence. Therefore, this study presents an opportunity to add to previous research by focusing on how AI can impact every stage of the customer journey and surrounding customer perceptions.

Digital transformation is vastly changing how customers interact with brands. There is a need to research the influence of AI in a data-driven world in the home appliance industry. Changes in technology or innovation are resulting in changes in customer tastes and preferences. A survey conducted by Gartner (2017) indicates that:

> Although households are beginning to embrace connected home solutions, providers must push beyond adopter use. If they are to successfully widen the appeal of the

connected home, providers will need to identify what will motivate current users to inspire additional purchases. (para.3)

Young (2018) adds that consequently, the internet has had to become more commercial, as it has transformed into a series of strongly vested media interests. Additionally, for an advertiser, there is no one-stop-shop, for most of these media complement each other in various ways. It is now more of a race of algorithms in which profitability or advertising dollars is the price, not mere scale (p.30). The objective of the research at hand is to provide unique insights and identify gaps between adoption of artificial intelligence, consumer perceptions of AI, and how it impacts different stages of the customer journey.

What is Artificial Intelligence?

The field of artificial intelligence (AI) is a rising phenomenon with relatively few recent empirical studies in the field of brand and media. Its rapid growth raises important issues in modifying the business model. Since artificial intelligence has been slowly gaining traction among individuals and brands, it is imperative to explore the groundwork and scan how it relates to this study. There is little empirical evidence related to artificial intelligence and the customer journey in organizations and individuals from scholars. For example, Kietzmann et al. (2018) explored how marketers can leverage AI in advertising along the consumer journey, and Xu et al. (2020) compared AI customer service and human customer service online by examining what customers prefer to complete tasks in the banking services context. Grewal and Roggeveen (2020) researched the role of technology and understanding retail experiences and customer journey management (CJM). Therefore, this research aims to contribute literature and reveal

insights on how customer perspectives about AI affect the adoption of AI tools while also examining an organization's current use of AI tools.

Artificial intelligence goes back to the 1950s in the scholarly field. According to Dignum (2018), the word 'Artificial Intelligence' was invented by John McCarthy who described it as an attempt to create a computer that could think like a human being. Seventy years later, this initiative is slowly becoming a reality. Therefore, to benefit from AI it is necessary to systematically understand what kind of intelligence a human has and if these mental processes can essentially be simulated (Lichtenthaler, 2019). Here is where AI can make a difference through advanced computing processes, AI can tailor offerings and communications that are relevant to the targeted audience (Kumar et al., 2019). In addition, AI involves a range of actions including cognitive robotics and human-agent-robot interactions. Ideally, machines collect and assimilate information from data shared online by people. Batra (2019, p.226) references Alan Turing's foundation of computer philosophy known as the Turing Test, an operational definition of artificial intelligence. He asserts that for a computer to be classified as artificially intelligent, it needs to have these capabilities:

- *Natural Language Processing* (NLP) allows it to communicate effectively in languages such as English or Spanish.
- *Knowledge representation* stores what it knows and hears.
- *Automated reasoning* to use the information stored to answer questions and draw new conclusions.
- *Computer vision* to perceive objects.
- *Machine Learning (ML)* to adapt to different circumstances and identifying and extrapolating trends.

- *Robotics* for manipulating objects and navigating around them.

Dwivedi et al. (2019) summarize by stating that artificial intelligence is programmed to mimic human power capabilities while exceeding human capacity to be precise. Artificial intelligence has been evolving, recent advances in AI and new technology have revolutionized skills and abilities in the agriculture, finance, and health sector (Garbuio & Lin, 2018). The adoption of artificial intelligence has been faced with a mix of cynicism and optimism and potential users voicing concerns that AI may potentially turn against humanity with destructive outcomes or assumptions that artificial intelligence will displace human labor (Kietzmann & Pitt, 2020). On the other hand, suggestions for a more positive view of artificial intelligence are useful in both personal and organizational use.

According to Klein et al. (2017, p.25), artificial intelligence is disrupting customer engagement. Furthermore, they highlight that AI-powered customer service is the new reality for retailers. As underlined by Gacanin and Wagner (2019) in a survey about artificial intelligence offerings, they concluded that AI would offer smart services, automated manufacturing, support in strategic decision making, and automated customer support services. Based on their research, they established seven actionable areas for managers through the acronym DIGITAL (1) data, (2) intelligence, (3) grounded, (4) integral, (5) teaming, (6) agile, and (7) leadership. The more a company leans towards being DIGITAL, the more likely their digital transformation efforts rooted in artificial intelligence projects will succeed. However, Lichtenthaler (2019) argues that if a particular AI application is not compatible with the infrastructure of an organization, the same AI will not provide a competitive advantage for them. This main position in the organizational use of AI is often ignored. Artificial intelligence does not automatically produce results, its success will depend on human expertise and the intelligence to yield competitiveness.

Looking at the adoption and implementation of new technology and innovation at the organizational level, the major challenge mentioned by Brock and Wangenheim (2019) is that many organizations have employees who lack digital skills and knowledge in digital technologies such as artificial intelligence. Their research reveals that the significant difference between leaders and laggards in digital transformation and adoption was the organization's agility, employee resistance to change, security risks, lack of good leadership and sufficient funds, and difficulties in integrating existing technology with the new technology. As confirmed by Surendra (2001) who investigated the diffusion factors stated by Rogers (2003) and other factors to predict the adoption of web technology by professors and administrators using quantitative research methods, the researchers concluded that there is a relationship between computer knowledge and the adoption of innovation.

Artificial intelligence is opening new opportunities in the field of marketing. Customers can experience highly customized support and timely services (Mohannad & Smoudy, 2019). By speeding up the decision-making process and availing marketing managers with knowledge and insights that they could not build regardless, AI is supposed to make marketing more successful (Overgoor et al., 2019). For instance, the use of text-mining to better explain online word-of-mouth to model marketing responses using AI technology. According to Overgoor et al. (2019) marketing AI can be defined as the creation of artificial agents that recommend or take marketing steps to achieve marketing results, with the given customer and competitor data they have. Furthermore, examples of some AI that conform to this concept include customer service chatbots, tools that model the future effects of a marketing strategy, and recommendations for online marketing material. All these processes present an opportunity for artificial intelligence to strategically disrupt the customer journey. The benefit of smart technology and AI assistants

extends beyond brand engagement, providing companies with an opportunity to be part of an automated home, organizing goods and services, or information when a customer wants it (Newman & McClimans, 2019). However, Mannino et al. (2015) posit that companies should ensure that the advantages of using artificial intelligence surpass the risks.

Types of AI

Bourne (2019) states that the healthcare sector uses artificial intelligence in diagnostic tools designed to detect physical wellness among other medical instruments. Specifically, the financial sector uses artificial intelligence to give robo-advice (financial advice that offers moderate to limited human interaction online) while investors use it to track customer data for insurance policies. In the travel and recreation sector, AI is being used to take customer orders and respond to customer inquiries. AI and automation, on the other hand, give the corporate sector a mutual narrative, a vision of the future, and a goal to disrupt the global economy through advanced technologies. Furthermore, the advent of new technology such as artificial intelligence presents a future of a theoretically capital-labor hybrid economy model of efficiency. Choudhury et al. (2018) add that recent advances in AI allow computers to use sophisticated adaptive algorithms to process massive unstructured data sets to perform tasks that currently require human intelligence. AI performs activities such as decision making, voice recognition, and visual interpretation and helps companies to spend more time on delighting consumers through timely messages and useful touchpoints, thereby boosting the marketing impact (Microsoft Advertising, 2019).

One application of artificial intelligence can be seen from Skyline, a real estate company that gathers millions of data points on property patterns to predict where buyers can buy or the subsequent costs (Chalmers et al., 2020). Another example is Scoop Markets, which analyzes

Twitter messages to predict which stories can impact stock exchange prices, therefore, supporting stock and cryptocurrency dealers (Chalmers et al., 2020). An additional research study from Hubspot highlights how search assistants such as Siri, Cortana, and Alexa are powered by natural language processing and voice recognition making them AI tools (Hubspot, 2019). Voice search features are available on the world's 3.9 billion Apple, Android, and Windows devices. Voice search is one of the most developed AI-enabled innovations today.

Machine Learning and Deep Learning. Agrawal et al. (2018) defined machine learning (ML) as a computer program that learns from experience with tasks. That is, machine learning is a set of methods that can detect patterns automatically and use the discovered patterns to predict future data or assist in decision making. Machine learning has recently received the most public interest in the field of artificial intelligence (Finaly, 2017). Furthermore, ML is based on algorithms and statistics, and computer systems that enhance their efficiency in performing a specific task. Gartner (2020) adds the application of artificial intelligence technologies such as ML and natural language processing can help evaluate customer sentiment and customer feedback at a scale, speed, and accuracy unattainable by humans. Machine learning is based on simple data training which allows the system to make predictions without being specially programmed to complete the job. According to Taddy (2018), an artificial intelligence system can "ingest knowledge at the human level" and use this information to simplify and speed up activities previously done by humans only (p.62). To improve the machine learning process, deep learning uses propagation techniques, and this has catalyzed advancement in industries, the effects of these modern techniques are profound (Chalmers et al., 2020).

It is now possible to start with identifying vast pools of unstructured data that can be used to establish detailed forecasts of technological and behavioral phenomena (Cockburn et al., 2018,

p.14). Solis (2017) research assessed how AI is being adopted by retailers through AI-powered chatbots as well as customer insights to generate content. As a result, their statistics indicate that the implementation of artificial intelligence in a business model can reach 1 percent of customers who are worth 18 times more than normal retail customers due to personalization and increased customer engagement. Personalization refers to the extent to which information is tailored to customer needs to promote a positive experience (Bilgihan et al., 2016, p.110). The fundamental basis for artificial intelligence to provide personalized services is data. For machine learning and deep learning artificial intelligence to thrive, there is a need for sufficient data. A business with robust data capabilities will derive more value from artificial intelligence. Data mining is referred to as knowledge discovery from databases, therefore it is part of machine learning. Data mining is important for market analytics, for example, Amazon's forecasting to predict the demand for certain products before customers decide to purchase them.

According to a report by Microsoft Advertising (2019), eighty-eight percent of high-performing organizations say machine learning has improved their marketing. High performers are companies that are good at marketing performance and understanding the customer decision journey. An example of machine learning is Netherlands' largest supermarket, Albert Heijin, that created PredictMyList, a machine learning-enabled solution that creates customized grocery lists and recommends new products, and provides over 10 million recipes. Consequently, their sales have increased due to the timesaving and efficiency of adding more products to the shopper's basket. Another previous study concluded that artificial intelligence could create accurate personas because the technology makes it easier to know customer choices and preferences thereby creating engaging content (Panda et al., 2019). They add that AI assists in knowing pain points and failures by tracking reactions and results from the content. Overall, AI-based

technology such as natural language processing and machine learning improve customer experience that would otherwise be time-consuming or costly if done manually (Kirkpatrick, 2017).

Chatbots. According to Microsoft Advertising (2019), a chatbot is an AI-enabled software that simulates human conversation, either by voice or text. More advanced chatbots powered by artificial intelligence allow them to comprehend requests and customize responses along with using machine learning to improve over time (Nutall, 2019). A chatbot gets smarter through multiple search phrases due to machine learning. Currently, chatbots are being used to ease the strain on customer service departments since they are available at any time. Chatbots have removed the need for an online customer representative. Notably, there are no longer delays or mistakes when managing customer concerns because chatbots respond to queries from the customer 24/7 (Compunnel Digital, 2020). However, Xu et al. (2020) contend that an AI customer agent such as a chatbot would not eliminate the need for human customer service representatives; rather, these AI systems would allow them to concentrate their attention on addressing complicated and complex problems while AI handles repetitive tasks.

Neff and Nagy (2016) add that as a means of communicating with customers, most companies use social media and have now adopted AI chatbots as a cost-effective means of developing personal connections with customers. AI chatbots are playing a fundamental role in optimizing and customizing messages for current and future customers. As such, 36 percent of customers accept that they will be interacting and engaging with chatbots to receive customer support about products and services (Newman & McClimans, 2019). Companies both large and small have an opportunity to leverage artificial intelligence's natural language processing

abilities to support their customers and potential customers (An, 2019). Also, live chat has revolutionized customer service, with users finding it as preferable as email or a phone call.

Internet of Things (IoT). Oracle (2021) defines the internet of things as a network of physical objects (or "things) that are integrated with sensors, software, and other technology in order to communicate and share data with other devices and systems over the internet. These devices range vary from basic household appliances to specialized industrial tools (para. 1). With more devices connected today, smart technology has been developing rapidly lately, and the use of the Internet of Things (IoT) is growing. Silverio-Fernández et al. (2018) reported that there will be a rapid rise of 25 to 50 billion wireless connected devices by 2020 in the telecommunications industry. Ringel et al. (2019) highlight how a smart home is a tool for achieving energy efficiency targets and how it operates. Automation and smart home systems provide users with a low-cost solution to energy savings. In addition, AI behavioral analysis can help the system anticipate the needs of the user and improve its performance by providing more personalized recommendations.

According to Bart (2019), the developments in cross-device communications in artificial intelligence allow brands to connect their user experiences with actual customers, not only smart devices. Thereby, enabling brands to understand how and why customers use their devices in their customer journey, streamline personalized content, and facilitate purchase or re-purchase. The rapid developments in machine learning and natural-language processing have powered voice search in the buyer's journey, for example, speech recognition such as Alexa, Siri, and Amazon enabled by smartphones and Internet of Things (IoT) devices (Canhoto & Clear, 2020). The integration of these digital assistants across customer devices is aimed at developing

customer engagement. However, the future leans towards virtual companionship, which is AI-based emotion recognition technology (Bart, 2019).

One common digital assistant that is becoming popular and is powered by IoT is voice assistants, which can serve as integrators that accommodate a range of communication protocols and thus improve interoperability. Voice assistants can provide access, coordination, and control for multiple devices by converging data from one or more devices (Rouse, 2018). Patel et al. (2013) describe voice assistant technology that makes use of the science of speech recognition, which is the innovation that distinguishes spoken words and therefore allows control with voice commands. Paschen et al. (2020) stated that the most common use cases for voice assistants are answering queries, streaming services, monitoring the weather, and setting alarms. Smart home solutions were reported to be the 9th most common use case of voice assistants.

Augmented Reality (AR)/ Virtual Reality (VR). AR and VR are rapidly establishing themselves as the future of retail shopping. O'Reilly and Battelle (2009) refer to AR as a combination of the physical world with digital content. This technology comes in a variety of forms including wearable smart glasses, for example, the Google Glass AR headset (Farshid et al., 2018). VR refers to a complete, 3-D virtual image of the physical world or objects within it, for example, virtual 360-degree tours to explore distant locations or the CNET virtual Smart House tour (Farshid et al., 2018). As stated by Milman (2018), VR immerses users in a completely digital environment while AR overlays virtual objects in the real world. Research conducted by Gartner (2020) revealed that virtual personal assistants powered by artificial intelligence are gaining attention in customer service transformation. They predict that by 2021, 15 percent of all customer service interactions will be handled by a form of virtual office assistant. Customers can view products remotely in their homes with precise materials and sizes,

reducing speculation and boosting purchase confidence. Moreover, 60 percent of customers prefer to shop at stores that offer AR, with 40 percent willing to pay extra for a product so they can try it in AR (Inhaabit, 2021). To retain customers and improve user experience, prominent home appliance companies that have adopted AR include Samsung Smart TV AR application, Vizio Showroom that allows customers to envision how a TV will fit in a space in their home, and Amazon's "view in your room" where you can design and decorate your home with augmented reality.

However, Newman and McClimans (2019) indicated in their research that 61 percent of their respondents had no AR/VR tools or devices in their households and less than 10 percent reported having more than two active devices, though 45 percent anticipated an increase in usage through 2025. They also observed that brands are anticipating investing in this technology to improve the customer experience of existing and new products. Notably, VR technology is still mostly confined to the gaming industry. Meanwhile, AR is finding its way to most households through smartphones and mobile devices (Newman & McClimans, 2019). Their study highlighted that this is an opportunity for brands to engage with customers and enhance the value of their products and services.

AI Digital Marketing Tools

Digital marketing and AI are still in their prime stage and all tactics need to align the marketing strategy to artificial intelligence. AI is swiftly being incorporated in digital marketing tactics such as search engine optimization (SEO), content curation, and predictive analytics. Digital marketing can benefit from personalization by using AI, such as a variety of recommendation systems. Businesses can create stronger marketing strategies by effectively

evaluating customer behavior. AI plays a vital role in this, as AI enables consumer analytics to seek high-impact customer insights (Compunnel Digital, 2020).

Search Engine Optimization

Search Engine Optimization (SEO) has been a large focus of AI-related research in digital marketing, for example, evolutionary computations, machine learning algorithms, web crawlers for reading, and boosting webpage rankings in search engine results (Yuniarthe, 2017). SEO tools provide advice about how best to optimize your search engine content, ensuring you will not miss critical aspects of a blog post, web page, or landing page, which will boost how your content ranks on search engines and can directly impact the number of leads on your website (Nutall, 2019). SEO is constantly evolving on its own through AI. For example, Google's RankBrain is a machine that generates an SEO algorithm based on AI data interpretation and updates. It has the power to decide if a platform is trustworthy or not, which implies for companies' sites to rank high on Google, they must be authentic in all aspects from design to content (Paradiso, 2016).

Content Curation

Content curation and predictive marketing use data collected from blogs, directories, and social media, data processing, imaging procedures, and text mining. Content curation also utilizes machine learning techniques, such as keyword extraction, expert networks, customer service system, text analysis, predictive analysis to generate an improved content analysis of website data and to increase the ranking of directories (Hall, 2019). AI can both curate and create content, and then put it on the right channels in front of the right people or target audience. Gkikas and Theodoridis (2019) assert that this technology is now automating the generation of

content at a systemic level, and thus AI could potentially generate feasible topics for writers or even create original content drafts based on such criteria. AI has the ability on the strategy side to help advertisers plan out an end-to-end strategy for advertising.

This functionality is already supported by some marketing software such as Curata, Flipboard, and UpContent. The software helps marketers to evaluate and measure web content, thereby removing content marketing guesswork by offering marketers data-driven insights that help them determine content strategies and compare their content results against competitors. Furthermore, Hall (2019) adds that such programs work independently, putting the right kinds of commercials in front of the right kinds of individuals based on sophisticated algorithms and big data. This is what is known as "programmatic ads."

Predictive Analytics

AI can provide companies with deep insights into their clients through machine learning and big data processing. Young (2018) mentions that data is the currency of the digital age, nearly every action today creates data. Not only will marketers be able to provide hyper-personalized experiences, but based on the data obtained, they will also be able to anticipate potential consumer habits. A study conducted by Nutall (2019) revealed that product recommendations led to 31 percent of sales from high-performing pages, which means that the lead generation capacity of customized recommendations should not be overlooked. Also, a previous study on public relations and artificial intelligence by Panda et al. (2019) highlighted that AI can simplify and execute diverse functions in public relations. The activities include writing data-driven stories, organizing and updating media lists, helping to navigate crisis management, transcribing audio into text, forecasting media patterns, and managing social media

to maintain a positive brand image and mutual relationship between the company and its publics. Overall, AI can automate repetitive tasks which leave more time for strategy formulation for management.

Companies are utilizing artificial intelligence to recommend products or services to customers based on previous data, for example, Netflix based on what you have watched, Amazon based on what you have purchased, Spotify based on what you have listened to, and Starbucks based on what you ordered. Gupta et al. (2018) add data collected and generated from smart homes through user interaction produces smart and data-abundant ecosystems that contribute to the development of society using big data analytics. Even self-driving vehicles optimize regular travels and longer road trips. The AI variable in these cars is focused on past customer behavior as well as considering in-vehicle entertainment details and favorite routes (Compunnel Digital, 2020). Customer relationship management systems such as Salesforce, Einstein, and Zoho have integrated artificial intelligence to include features that help the marketing team to understand and engage their customers more effectively, including real-time decision-making, statistical forecasting, conversational assistants among other features (Clark, 2020).

AI Concerns

One of the key subjects of discussion associated with artificial intelligence revolves around the extent to which consumers can trust and adopt AI. Consumer privacy issues continue to be a recurring topic of discussion in this age of technology, which presents consumers with previously unmatched privacy invasions. Previous research shows that an increase in consumer's privacy rights affects the reputation of a company (Lwin et al., 2016). For example, following

the launch of Google Buzz in 2010, Gmail users' personal information was being shared without their approval. Regardless of the strong tide, scholarly work argues that the torts previously developed in the twentieth century are not entirely adequate to comprehensively address privacy and data security problems being encountered today. Section 5(a) of the FTC regulations prohibits "unfair or deceptive acts or practices in or affecting commerce" (FTC, 2018, para 1). Also, the Federal Trade Commission (2020) recently released its annual privacy and security update for 2019, which discusses a 5-billion-dollar penalty collected from Facebook for not appropriately protecting consumer privacy and data security. Companies are constantly being faced with the dilemma of how they can respect consumer's privacy policies online but also collect consumer data that enables them to target audiences better and give them more personalized experiences along their customer journey. According to a research article published by Deloitte Insights (2020), the major challenge being faced by organizations is how to optimize the use of data collected through new technologies while staying within privacy regulations and not being intrusive.

Besides privacy concerns associated with the use of AI, Daugherty et al. (2019) highlight that there are other concerns such as the negative impact of artificial intelligence on jobs that were historically done by humans. Another arising issue mentioned by Johnson and Verdicchio (2017) is AI anxiety, which refers to the fear of the stability and capabilities of artificial intelligence. Bentley et al. (2018) support that individuals fear that machines are becoming super intelligent and will exceed human intelligence because AI systems are continuously improving themselves. This explains why certain customers are skeptical to adopt innovations along their customer journey. In addition, theoretical physicist Hawking expressed fear that AI may end humanity and the rise of robots will lead to the enslavement of humans (Batra, 2019). However,

Wilson et al. (2017) state that AI will create new roles such as *trainers* that optimize algorithms by adding nuance to decision making, then *explainers* who bridge the technological gap between AI systems and managers, and lastly *sustainer*s who will handle ethics and overall system management rather than threatening employees' jobs.

AI Perceived Benefits

Although there are pre-existing norms about what AI is or what it will be in the future, others perceive its impact to be a positive one. Pelan and Pop (2021) state that more Americans are in favor of AI than opposed to it. Users tend to trust automation if the algorithms are understandable towards achieving their goals. They hypothesized that increased efficiency and fascination with AI technology will catalyze social use of AI, while social media can reduce the fear associated with the use of artificial intelligence. Previous studies have focused on the benefits of AI in other industries such as the potential benefits of AI to improve health systems and health surveillance, allowing patients to assess health risks while giving the administration more accurate patient recommendations and diagnostic AI tools (Paul & Schaefer, 2020).

Since marketing is a mix of qualitative and quantitative elements it allows AI to expand into many domains (Wierenga, 2010). As highlighted that one of the main advantages of AI is increased effectiveness and saving time in marketing functions, conversion rates, and understanding consumer data. The insights help provide better quality and satisfaction to customers. Moreover, AI supplies enhanced data analysis and efficient handling systems as well as improving the overall business performance. According to a study of 1004 industry leaders by MIT Technology Review (2020) customer service rendered through chatbots is a leading artificial intelligence tool being implemented today. 73 percent of the participants suggested that

by the year 2022, AI will continue to lead in business. They highlighted that chatbots are a fundamental conversational tool that can be used to drive customer engagement and provide personalized customer service. However, they cannot replace human contact, but rather enhance or complement the human workforce. It should be noted that different types of mechanical AI technology are being used in marketing to offer standardized products or services. For example, collaborative robots (cobots) help with packaging, self-service robots assist, and service robots automate frontline social presence (Colgate et al., 1996; Mende et al., 2019).

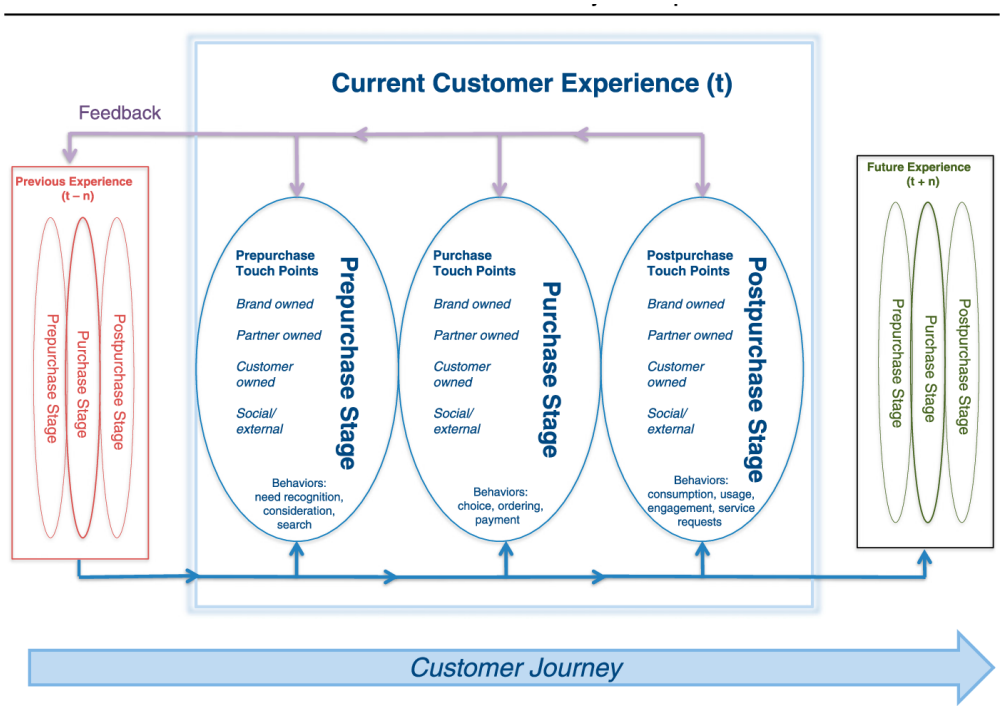
The strength of AI-enabled customer experience analytics is that it can browse through wider and more complicated data and therefore reveal more marketing prospects including ones that marketers did not know they could look for. Ultimately, this gives them more time to prioritize and make strategic decisions (Thiel, 2018). A good example of AI in the home appliance industry is LG's customer care which uses AI for a variety of purposes in smart appliances models. It informs the customer home appliance installation has been properly completed through their mobile app. AI will alert users when problems occur before they worsen (Lauren, 2020). Moreover, AI will notify users about errors such as a decrease in the refrigerator's cooling output or a decrease in airflow in a dryer vent thereby ensuring a longer lifespan of the appliances. AI will offer an improved user experience through personalized services through seamless experiences with brands. Saberi and Menes (2020) give an example that smart homes will cool temperatures in a home such as opening a window based on who is home or which room they are in with a persona-based approach that references historical preferences.

The Customer Journey

According to Lemon and Verhoef (2016), the customer journey is the customer's progression in the purchase process, the customer encounters different touchpoints of interaction that affect the experience of the customer and the value proposition. The customer journey is a comprehensive series of touchpoints between the customer and the brand. They suggest four classifications of customer touchpoints namely 1) *brand-owned* touchpoints are controlled by the company and are under the management of the company (for example, media related touchpoints, websites, and marketing-mix touchpoints) 2) the *partner-owned* touchpoints are customer experiences and interactions collectively controlled by the company and its partners (for example, marketing consulting companies, advertising agencies or communication channel partners) 3) *customer-owned* touchpoints are consumer actions that are part of the customer experience, but the company or its partners do not influence or regulate (for example user-generated content), and 4) *social/external* touchpoints include the views and perceptions of other customers, peer influences and third-party reviews on social media. Furthermore, they posit that the customer journey consists of the consideration phase, purchase phase, and prepurchase phase as shown in (Fig.1). The phases are shown as a series of encounters known as touchpoints.

Figure 1

The Process Model for Customer Journey and Experience



Note: Process Model for customer journey and experience. From Lemon, K., & Verhoef, P. (2016). Understanding Customer Experience Throughout the customer journey.

Customer Journey CXPA (2018) summarized the benefits of applying artificial intelligence throughout the customer journey.

- During the *awareness stage*, artificial intelligence predicts customer needs and proposes suggestions for a product or service.
- Artificial intelligence assists in website integration of customer data in *the consideration stage*. Providing customers with valuable information from the website.
- AI learns about customer buying patterns through the analysis of data trends and product or service suggestions are made accordingly in the *purchasing stage*.

- AI may research customer behavior in the *support stage.* Also monitors any signs of displeasure to provide customers with highly tailored customer support.

AI and Customer Journey

Companies are constantly competing for customers' attention from the initial stages of the customer journey. Hence, brands are advised to provide customers with relevant brand content to improve their buyer experience (Siebert et al., 2020). Companies should make the customer journey as "consistent and predictable" as possible (Hyken, 2009, p.55). Conversely, a rise in customer expectations has prompted organizations to devise new strategies that aim to remove customer pain points throughout the customer journey (Mohannad & Smoudy, 2019). They conducted interviews and used structured questionnaires to collect the primary data of the study. The results of their study revealed that there is a positive and significant relationship between AI and customer experience. Moreover, they posit that customer experience has two dimensions; customer service and after-sale support. The study recommends companies offer more personalized services for customers which influences their overall experience with the brand. Evans (2019) adds that advances in AI technology can enhance customer service by increasing the company's understanding of customer needs and shopping patterns. Simplification, personalization, and contextualization are tactics that are aimed to make customers repurchase or consume products and experiences (Edelman & Singer, 2015, p.50). Similarly, a report about mastering the customer journey from Microsoft Advertising (2019) highlights that top marketers apply AI to high-quality data to predict customer intentions and create customized interactions at every step of their journey.

Ameen et al. (2021) concluded that AI-enabled customer experiences can improve the shopping experience for customers in the beauty brand industry. Furthermore, advances in AI are potentially improving customer experience by leveraging customer data and shopping patterns, this implies placing AI technologies at crucial touchpoints in the customer journey is highly beneficial (Evans, 2019). In addition, Morgan (2018) explored three facets of artificial intelligence that have a positive impact on customer experience. She notes that during or after their buying process, customers enjoy talking to a virtual assistant. Second, as customers determine what products to purchase, the use of personalization services has proven successful. Finally, AI provides the organization with customer insights enabling companies to devise strategies as needed. Therefore, this suggests that AI has the capacity to become one of the key tools for retailers to consistently boost the customer experience (Newnman, 2019).

Though previous studies have demonstrated evidence of a positive relationship between artificial intelligence and customer experience, Shank et al. (2019) argues that in as much as the adoption of artificial intelligence presents many opportunities, the lack of human contact or increased technical effort needed by customers may present sacrifices impacting their overall experience. Such impact and other future problems related to AI need to be properly understood. The sacrifices that customers face in adopting AI-enabled services, such as lack of human contact, loss of human interaction, possible loss of privacy, time consumption, and potential negative feelings of frustration all may have a negative influence on perceptions of AI-enabled services (Ameen et al., 2021).

In summary, Edelman, and Singer (2015) recommend removing unnecessary steps by simplifying the customer journey, predicting customer preferences through personalization, and providing support at the right time the customer needs it by contextualization. However, a

quantitative customer experience study conducted by Jeffs (2018, p.4) revealed that although eighty percent of the Chief Executive Officers (CEOs) are convinced that they offer exceptional customer experience, only eight percent of the customers agreed. This depicts a customer experience gap in the buyer's journey and an opportunity for artificial intelligence. Another research study on the changing role of technology in the workplace conducted by Pega (2020) highlights that although business leaders are eager to explore the opportunities that can be delivered by artificial intelligence, they still have a lot to learn. Fifty-one percent of the respondents perceived that senior managers need to expand their understanding of AI business processes and their effects on employee jobs.

Theoretical Framework: Diffusion of Innovation Theory

With the advent of the digital age, many technological innovations are being developed every day globally. The diffusion of innovation theory (DOI) is an important theory because it explains the adoption of technological innovation. It provides an empirical framework to understand the levels of adoption of artificial intelligence. The theory offers valuable insights about the adoption of new technology and a way to evaluate perceptions leading to adoption. The model has been used by various studies from a wide range of disciplines such as communications, education, technology, and health.

The diffusion of innovation theory was introduced by Rogers (1962). Central to this theory is the idea that different types of people and organizations adopt new ideas at different times (Rogers, 2003). The word "innovation" and technology are used interchangeably by Rogers (2003). To operationalize the word innovation, Rogers (1995) defines it as an idea, object, or practice that is recognized as new or a novelty by an individual or unit of adoption

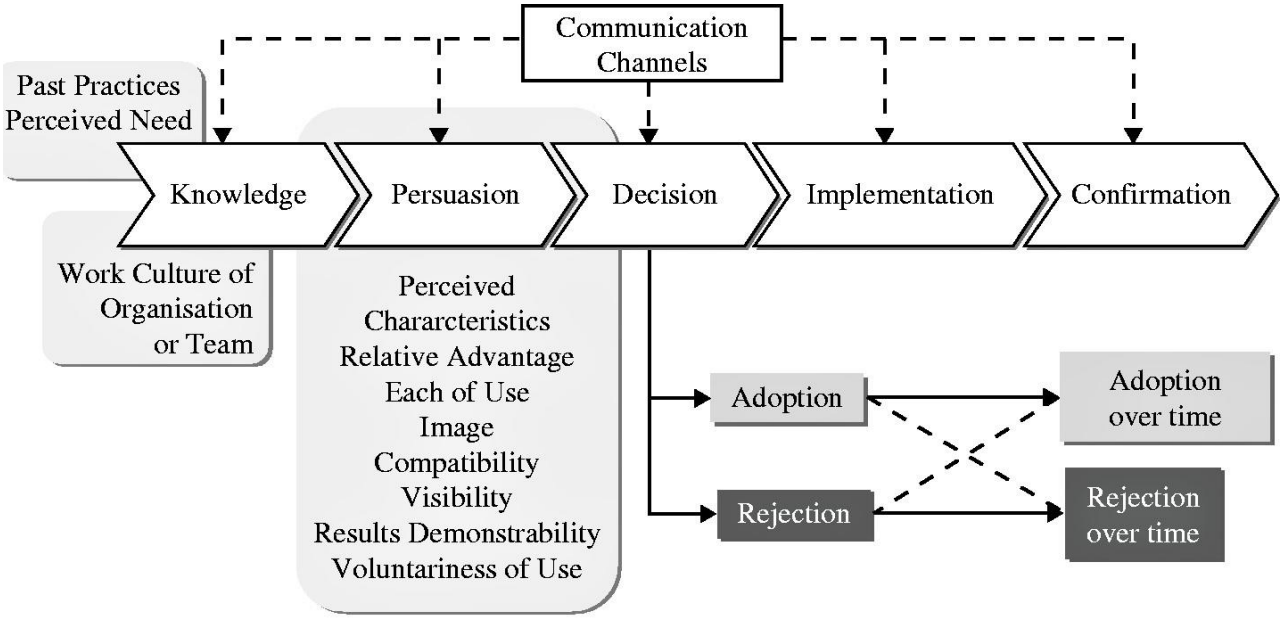
(p.11). Although the newness of the idea, object, or practice may be subjective, it is the perception of newness that matters. Similarly, Davis (1985) on technology acceptance research concludes that there is a higher correlation between perceived usefulness and adoption. Regardless of the usability and ease to learn new technology, individuals will not adopt a technology if they do not view it as valuable to their productivity.

Diffusion is another dimension of the DOI theory. Rogers (1995) stated that diffusion is a gradual process that happens over time. The five stages to diffusion are *knowledge, persuasion, decision, implementation, and confirmation* as shown in Figure 2. The *knowledge stage* in the innovation-decision process is when individuals start learning about the innovation. Individuals start exploring how innovation can be useful to them through awareness information, how-to-knowledge, and principles knowledge. When the individual has a negative or positive attitude towards innovation, *persuasion* occurs, however, the existence of a positive or unfavorable attitude towards the innovation does not necessarily lead to acceptance or rejection (Rogers, 2003, p.176). After he or she knows about the innovation, the individual forms his or her attitude towards innovation. The decision to accept or reject the innovation is made at the *decision stage.* Adoption refers to the "full use of an innovation," while rejection means not adopting the innovation. Nevertheless, rejection can happen at any step of the innovation-decision process. The next stage is the *implementation stage,* an innovation is put into practice at this stage. An innovation, however, brings the novelty that some level of uncertainty is involved in diffusion (p. 6). Moreover, confusion about the effects of innovation can be an issue. Hence, technical assistance may be required by the implementer. The innovation decision is made at the *confirmation stage;* the individual seeks validation for their decision by observing the benefits of

using the innovation. Subsequent acceptance or discontinuance occurs at this point, depending on the support for the adoption of the innovation and the individual's attitude.

Figure 2

The Innovation-Decision Process



Note. Rogers uses data from hundreds of studies on the Diffusion of Innovation to create a five-part business decision-making process on consumer engagement. Adapted from Rogers, E. M. (2003). *Diffusion of Innovations*. Free Press.

In summary, the adopter of innovation needs to have the knowledge to become persuaded or not, thereafter that persuasion leads to a decision that results in implementation, and confirmation of their choice (Surry & Farquahar, 1997). According to Straub (2009), adoption is the integration of innovation by an individual and diffusion is the "collective adoption process over time" (p.62). Furthermore, Rogers (2003) posits that individuals adopt different innovations for different reasons. Rogers (1983) maintains that the process of adoption is indivisible from the

process of diffusion. Therefore, how an individual interacts with each component of innovation helps to explain why an individual adopts or does not adopt an innovation. In addition, Rogers (2003) identifies five factors that affect the adoption of innovation or not: *relative advantage, comparability, complexity, trialability, and observability*. (1) Relative advantage is the extent to which innovation is perceived to be better than current practices; (2) Comparability is the extent to which an innovation is viewed as being consistent with the existing practices; (3) Complexity is how the innovation is viewed as being difficult to comprehend; (4) Trialability is the extent to which innovation can be tested, and (5) Observability is the extent to which an innovation can be seen by the social community, and how easy the benefits can be observed or communicated. Previous research studies highlight that *relative advantage* and c*omparability* are highly prominent factors in innovation adoption of internet-based and mobile technologies (Park & Chen, 2007; Papies & Clement, 2008).

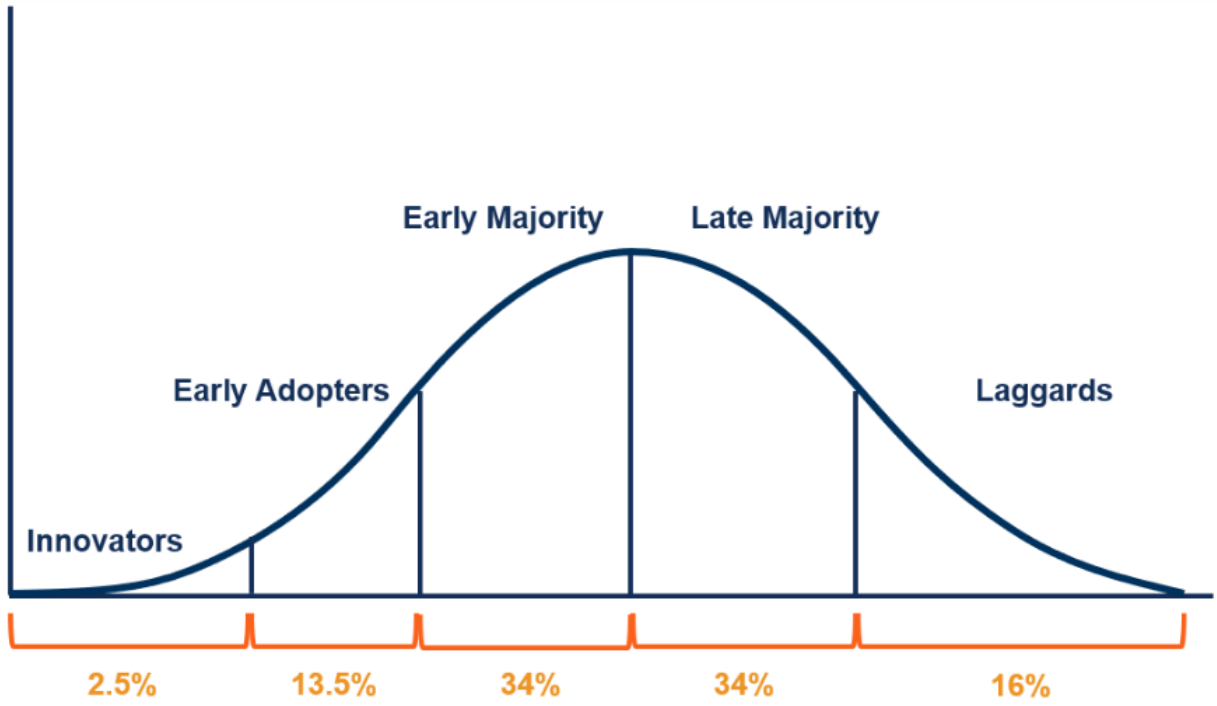
The Stages in the Diffusion of Innovation Theory

The diffusion of innovation theory identifies five stages of adopters based on the level of their adoption rate, namely*: innovators, early adopters, early majority, late majority, and laggards* as shown in (Figure 3) below. Customers who adopt an innovation earlier have different characteristics than late adopters. The ability of an organization to understand these characteristics at each stage is crucial to the adoption of an innovation. According to Rogers (2003), *innovators* are the first to attempt or buy an innovation (product or service). They make up 2.5 percent of the market. They are risk-takers, they are not price-sensitive, but want to be trend-setters. *Early adopters* take 13.5 percent of the market, they are not risk-takers, but they wait until the innovation has some input and reviews before they make a purchase. Rogers refers to early adopters as "influencers" in the social system. The *early majority* group constitutes 34

percent of the market share, they are not risk-takers and wait until the new technology has been tried and tested by a trusted person. Moreover, they wait until there is evidence of the innovation's functionality. The *late majority* is the last customer segment to enter the market. Taking 34 percent of the market, they shy away from emerging technologies. These customers are price sensitive and forced to purchase new technology. Laggards are the last customer group to embrace innovation. They do not like change and rely on more conventional methods until they can no longer use them. Laggards constitute 16 percent of the industry and only embrace innovation because they have no other choice.

Figure 3

Diffusion of Innovation Model



Note. Diffusion of Innovation five adopter categories. From Rogers, E. M. (2003). *Diffusion of innovations*. New York, NY: Free Press.

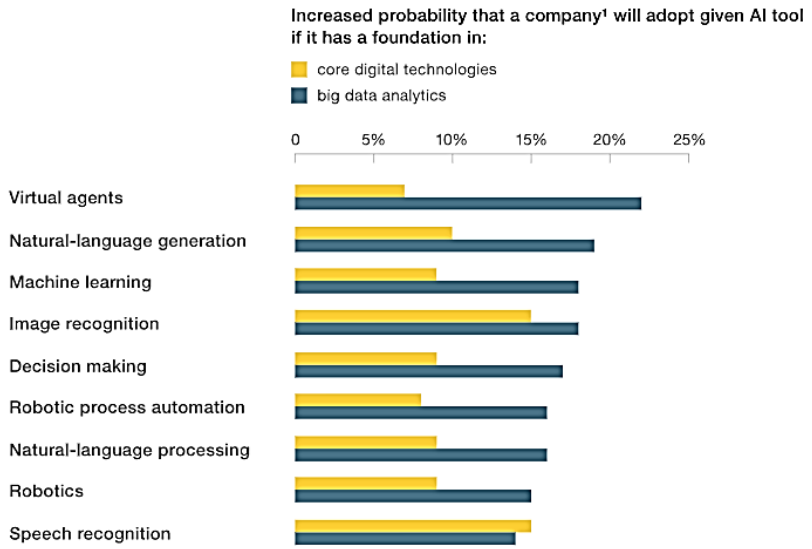
The acceptance of new ideas depends on the setting into which the ideas are introduced. Additionally, Perkins (2011) asserts that adopters pay attention to aspects they deem as important after the innovation has been executed. However, failure to meet these attributes results in abandoning the adoption. While Chalmers et al. (2020) highlight that the diffusion of artificial intelligence will not happen in isolation but as part of a trajectory. A study conducted by Fliegel and Kivlin (1996) on the rate of adoption of agricultural innovations found that innovations have direct economic benefits.

Diffusion of Innovation and Artificial Intelligence

Research conducted by McKinsey (2018) states that 10 percent of organizations have attempted to diffuse AI in their business model. The ability of a company to deploy AI tools relied on underlying core digital technologies such as cloud computing. For example, companies with a strong base in core digital technologies and big data analytics are more likely to adopt a wide array of AI tools as summarized below (Figure 4). In many businesses, this digital substructure is still missing and may hinder the diffusion of artificial intelligence. They conclude by stating that waiting to adopt this technology carries risk, while early adopters are enjoying performance gains in their profit margins.

Figure 4

McKinsey's Core Digital Technologies that Aid AI Adoption



Note: McKinsey 2018 Digital survey of 1,760 companies

Figure 5

Key Barriers to AI adoption in a Smart Home

Area	Key Barriers/Facilitators
Service-related	Interoperability
	Reliability
	Control of the service
	Cost of the service
User-related	Data Privacy
	Value creation for end-user
Context-related	Technical, economical and social drivers of context
	The features of the building (age, value, etc.)
Policy-related	Platform management
	Policy making (the role of the government)

On the other hand, the diffusion of innovation such as artificial intelligence is affected by barriers that prohibit its adoption by companies or individuals. In their study, Zenezini et al. (2016) summarize the key barriers to adoption in a smart home as shown below (Figure 5). They further state that even though AI-powered smart home systems have been around, their proliferation and diffusion are not prevalent and thus their ability is mostly unused. Generally, individuals use information about the innovation to determine whether they will adopt it.

Application of DOI in Marketing Communication

In the context of the diffusion of innovation theory, communication concentrates on message content that is designed to convey a new idea (Rogers, 1995). A previous study by Chang (2011) sheds light on how the diffusion of innovation was used to examine the trend of hashtag adoption on the social media platform Twitter. Since Twitter is a popular social media platform and has become a means of mass communication, hashtag innovation remains widely adopted. Chang discussed how the adoption or non-adoption of the hashtag relies on previous exposure of the hashtag information as associated with the knowledge stage of the innovation-decision stage process. Therefore, these are some of the considerations that assist decision-making or adoption behavior. Consequently, innovators are viewed as initiating adopters and draw influence on other users to embrace the same hashtag. This research provided insights into the complexities of Twitter trending topics with and without hashtags. Which in turn helps to combine marketing-related variables such as advertising with hashtags, the use of influencers, and the effect on product and service acceptance by targeted customers.

The diffusion of innovation theory in marketing emphasizes the potential rate of adoption for new products and how views about innovation will impact its purchase (Rogers, 1995).

Significantly, Bass (1969) suggested the model for predicting the diffusion of new customer products or services. This is useful for managers to forecast the level of adoption of new technologies or product innovations before investing resources. The model was used to shape a long-term sales trajectory for air conditioners and clothes. On the other hand, a previous study as outlined by Kaya (2013) highlights that social media is one of the most renowned innovations of today because it encourages diffusion with its vibrant, collaborative, and customer-centric resources that give customers more power over content and encourage consumers to be creators as well. Moreover, mass media often becomes the primary source of information because of its capability and potential to deliver relevant messages.

In summary, O'Connell (2018) states the diffusion of innovation theory is an important tool to facilitate consumer engagement with products and services. At the knowledge phase, companies put forward efforts for the customer to learn about the product, which increases the likelihood of engagement. Once the customer is aware of the product, they are open to being persuaded. At the decision stage, companies use ads as an essential strategy to aid the process. Implementation can be used to curate information in the post-sale, while a company can utilize user-generated content to assist adoption and encourage customer engagement.

Limitations of Previous Literature

Previous research studies have focused more on artificial intelligence from a technical perspective rather than from the customer experience point of view. For example, previous research has focused on quantitative methods (Surendra, 2001) rather than qualitative research design. While qualitative studies that have been conducted have no explored AI perception and how they affect customer experience along the customer journey. There is a need to connect

what has been done and identify common themes that will serve as a basis for this study. Since artificial intelligence is a growing phenomenon in the digital age, the literature is not exhaustive or extensive and few studies have tied artificial intelligence and the customer journey together. Future studies should aim to address these gaps in empirical research to report comprehensive results. These considerations, therefore, led to the formulation of research questions for this study to analyze in-depth the impact of artificial intelligence in the customer journey while focusing on perceptions, digital tools, inbound and outbound marketing.

Chapter 3. Methodology

The purpose of this research is to investigate how artificial intelligence is impacting the customer journey from an American context and an African context. With reference to previous literature and theories that have been developed, some areas are still open for our understanding and one of those areas open for further investigations is artificial intelligence and the customer journey. Prior research has thoroughly investigated AI use in other fields such as the health sector (Garbuio and Lin, 2018; Bourne, 2019), but there is little empirical evidence for the media and marketing communications industry.

This research is a home appliance case study that analyzed customer views about artificial intelligence and the tools being adopted by Bosch USA and Defy South Africa and their strategic role in the customer journey. Furthermore, I investigated perceptions about this technology from the customers in their buyer's journey. Additionally, I explored ethical and privacy issues related to adopting artificial intelligence by using both primary data and secondary data. AI is a rising phenomenon in media and marketing communications that is revolutionizing customer experience, it was imperative to research its effects and suitability in the customer journey. Young (2018) adds that the digital revolution has upended almost every aspect of the human experience.

To precisely explore the research variables and determine which AI tools are meaningful in this industry, mixed methods qualitative research methodology was used by first conducting in-depth interviews with brand users and then completing a complementary qualitative case study content analysis of Bosch USA and Defy South Africa's websites and social media

accounts. Coding stages (open and axial) were applied to all generated and sourced data as recommended by Glaser and Strauss (1967).

Qualitative research aimed to gather experiences and perspectives of participants by comparing incidents and grouping similar ones to form categories. To address research questions about perception, adoption, and AI tools, in-depth interviews were conducted on Zoom with customers of Bosch USA and Defy South Africa. Moreover, a qualitative content analysis of both companies was also conducted in tandem on brand-owned touchpoints, namely, their website and social media, to explore which artificial intelligence (AI digital marketing tools) they are using for their target customers. An analysis of previous literature helped to map and categorize areas of research focus with the research questions. The case study approach gives an investigation into what AI tools the companies are using, while the user interviews add insight into how their customers then perceive them. A case study is ideal for this research because the researcher explains the case and analyzes the scientific information related to the case. This usually involves reflecting on the perspectives, conceptions, experiences, and understanding of participants in the study (Mills et al., 2010).

Research Questions

1. How is the perception of AI impacting customer experience in the customer journey?
2. How is AI being used in inbound and outbound marketing for the two companies?
3. Are there differences in the rate of adoption of AI-based tools for companies in different geographical locations?
4. Do consumers perceive any ethical issues regarding AI use in the consumer journey?

Design and Procedure

This study used a qualitative mixed-methods design. A mixed-methods approach is suited for this research because it allows to combine or corroborate findings to generate more complete data that enhances insights (Creswell & Clark, 2007). In the first phase of this non-probability research, I conducted in-depth interviews on Zoom with customers of Bosch and Defy. Similarly, Gartz and Lindbrandt (2019) conducted interviews in their research to achieve a better understanding of consumer thoughts and perceptions. Saunders et al. (2009) further suggested various types of interview styles, a mix of semi-structured and in-depth interviews was considered more fitting for this research. A typical source primary of data originates from open-ended interviews. Interviews provide information that is richer and more detailed than survey data, or particularly the closed-ended survey questions (Yin, 2009). Hence this study used both semi-structured and open-ended interview questions to provide valuable insights into the research questions. Thereafter, I probed the participants to inquire about their views and thoughts about the research variables to enable them to share their life experiences with the brands along the customer journey.

Participants for the study were recruited online through social media, referrals, and via the International Students Office, which sent recruitment emails to students. Zoom interviews were recorded with prior permission from the participants, then later transcribed and analyzed. The interview questions fell into four blocks: demographics, perception about AI, rate of adoption, and possible concerns about AI. The interviews aimed to address research questions on customer perceptions about the brand, artificial intelligence, and readiness to adopt new technologies ushered through artificial intelligence in the customer journey. The interviews were framed as a combination (abductive) of inductive and deductive research. Subsequently, audio

transcripts from the interviews were downloaded and analyzed. Qualitative research is often characterized as inductive, without too many preconceived ideas to test, but rather it allows the empirical evidence to decide which questions are worth answering (Brinkmann & Kvale, 2018). Therefore, data were analyzed using this technique to code data, define trends, and seek possible reasons for the participants' patterns. The average size per interview transcription was 10 pages. To limit bias or limiting the effect of the researcher's perception of the subject area interviews were structured to be neutral. Some of the questions from the interview were structured as shown below, details of additional questions can be seen in (Appendix A).

How do you generally perceive the ads you have seen from Bosch /Defy?

- *Have you ever received personalized ads online to your knowledge?*
- *How did you know that the ad was personalized to you?*
- *Do you think the ad was relevant to your search?*

What do you understand by the term artificial intelligence?

What are your views/thoughts on personalized targeted ads that appear when you are online?

Have you used a chatbot or virtual assistant in the purchasing or post-purchase journey as a customer?

To identify potential issues with the research instruments, a pilot study was conducted with five participants to ensure the validity and propriety of the interview questions. Afterward, adjustments were made to questions to make them clearer for the participants. In research, a pilot

study can reduce the risks of ambiguity in an interview, therefore the pilot study reinforces the relationship between the study concerns and the possible existence of evidence (Yin, 2009).

Participants for In-Depth Interviews (Research Phase 1)

The target participants for this research study were customers of home appliance companies Bosch USA and Defy South Africa. To ensure that screening qualifications to participate were met, inclusion and exclusion criteria were set for this study. The inclusion criteria stated that a participant must be a current customer of either Bosch USA or Defy South Africa. Only healthy adults over the age of 18 years were eligible to participate. While the exclusion criteria highlighted that minors under the age of 18 years were not eligible. Also, non-customers of the brands could not participate. A convenience sample was used to recruit customers from both companies. In research, convenience sampling identifies a group of people that are convenient to research for reasons such as geographic location, connection to the topic, or prior assembly (Merriam, 2009). Participants for the study were recruited online, the recruitment message included screening questions to limit participants to only customers of Bosch USA and Defy SA.

Conversely, participation in this study was voluntary, no incentives were offered to participate. Ethical standards for the study were met by securing ethical approval from the Institutional Review Board (IRB) prior to the interviews. IRB approval was obtained in October 2020 and thereafter recruitment for interview participants followed. The interviews were completed in early January 2021. Additionally, informed consent documents were obtained explaining risks, eligibility, and voluntariness from participants before they could take part in the research.

Thereafter, participants were invited to an in-depth Zoom interview to share their experiences with the brand. Since the study was conducted via Zoom, the possible risk of loss of confidentiality was addressed by de-identifying the information after interviews were conducted and only the transcripts were used, stored, and secured to ensure the information was confidential. The Zoom waiting room feature was enabled as a security measure to restrict who can enter the Zoom interview and minimize their risk. The average time duration of an interview was between 30- 45 minutes. Since this research is a case study, I targeted a maximum of five participants and a minimum of three participants per brand by the recruitment deadline to allow a more extensive approach in data collection. A total of five participants from Defy SA and three from Bosch USA were eventually chosen to participate in the interviews. The interview analysis then utilized a total of eight transcripts to uncover responses to the research questions utilizing open and axial coding approaches.

The sampling frame of the home appliance companies was selected because Defy South Africa is one of Southern Africa's largest manufacturers and distributors of home appliances. Bosch USA is also an industry leader in consumer-driven solutions for home appliances in the USA. In the context of cultural norms, the US and SA were selected because research autonomy, consent procedures, recruitment methods, and values are similar. Moreover, both countries use English as their primary professional language. The benefits of selecting these two countries as points of comparison are that both countries are considered to be overall successful in their continents. Hence, this research is an opportunity to identify gaps, similarities, differences and discover patterns in a developing country and a developed country.

In-Depth Interviews and Content Analysis Using Grounded Theory Coding Stages

Strauss and Corbin published their book in 1967 titled *"The Discovery of Grounded Theory*." It is popular for its empirical orientation and provides systematic strategies for analyzing qualitative research data. Instead of being theory-driven, Grounded Theory Methods (GTM) coding methods use empirical materials and samples to move back and forth between observational data and efforts to conceptualize them (Strauss & Corbin, 1994). In this study, semi-structured interviews with open-ended questions were used to collect qualitative insights and a content analysis of the company's website and social media platforms. This research focused on using the traditional GTM coding approaches in the analysis of audio transcripts from previously recorded Zoom interviews with customers of Bosch and Defy, respectively. Brinkmann and Kvale (2018) stated that coding is a key aspect of content analysis, grounded theory, and computer-assisted analysis. The research at hand utilized both open and axial coding procedures to analyze the data from the interviews and social platforms to develop codes that interpret the data from manifest content to latent content. An inductive approach to core concepts was employed to define concepts and to recognize similarities and differences. I transcribed, coded, and analyzed the interviews using open and axial coding stages. Selective coding was not applied, as theory generation was not the main objective of this research endeavor, and open and axial coding methodologically satisfied the research questions posed.

Open Coding

Open coding is the first step to data examination, it focuses on the conceptualization and categorizing phenomena by thorough data analysis According to Strauss and Corbin, the first stage of analysis is open coding. Open coding aims to evaluate the initially identified study materials. This stage incorporates the process of memo writing and then later refining the

concepts (Strauss, 1987). As Gibbs (2018) supports, coding involves the use of code memos whereby the researcher documents the details of the various codes and writes notes about the ideas of the researcher on the code. In light of this, to establish emerging patterns or themes, I analyzed the companies' websites, how they use AI-enabled tools, and how they presented targeted ads online for their customers.

Additionally, open coding allows the researcher to analyze the data line by line or word by word, which was adopted for this research to analyze transcripts from the interviews. Whereas transcription of verbal data from interviews was retrieved from Zoom and coded into concepts. Overall, the constant comparative method was applied to research data to help minimize bias. Glaser and Strauss (1965) add that the comparative qualitative method of data coding is used to categorize and compare qualitative data for analysis. Therefore, explains why this method was applied in this study to examine different perceptions about artificial intelligence by breaking down the interview data into codes based on manifest and latent concepts and themes.

Axial Coding

Axial coding, the second step of GTM coding seeks to establish the differences and relationships between research variables or categories (Strauss & Corbin, 1998). Axial coding defines causal relationships, framework, and interconnection of data. Subsequently, observation of emerging themes or patterns between the study's data sets. Through axial coding, I evaluated and observed what forms of artificial intelligence are being utilized by the companies and which ones are being adopted by the customers. Coding categories were developed through analysis of the research data. Moreover, finding connections and relationships between codes, I examined for causal or consequences between variables. Then looked for strategies and tactics that Bosch and Defy are implementing to target their customers using artificial intelligence in their customer

journey during the axial coding process. To present the data findings I included quotations from participants, Yin (2009) affirms that incorporating data from interviews through quotations or insights from the interviews appearing in the text is recommended. I also removed codes that did not have enough data to support them by reviewing all categories. To ensure the reliability of the study, I used the test-retest approach by analyzing the variables for the second time during data analysis and the coding process.

Qualitative Case Study Content Analysis (Research Phase 2)

The second phase of the research was a case study conducted via qualitative content analysis of both Bosch USA and Defy South Africa. Case studies are commonly used in interpersonal studies and social sciences and there is evidence that suggests that the case study method is gradually being used confidently as a comprehensive research technique (Kohlbacher, 2006). Hartley (2004) concurs that case studies have become "one of the most common ways to conduct a qualitative inquiry" (p.435). This approach to empirical research explores real-life occurrences in specific contexts (Allen, 2017). Thus, case study research makes it possible for a holistic view of a process (Patton & Appelbaum, 2003, p.63). The benefits of this case study research as highlighted by Yin (2003) are (1) use of multiple sources of evidence, (2) creation of a case study database, and (3) maintenance of a chain of evidence that is ideal for comparative analysis of both organization's AI tools.

Qualitative content analysis is commonly used in social sciences such as media and communication studies. Bryman (2004) suggested qualitative content analysis is "probably the most prevalent approach to qualitative analysis" (p.392). Content analysis is a method through which every medium of communication, such as text, and images is subjected to a counting

process centered on the frequency of particular terms or latent content and the use of an existing coding framework intended to produce qualitative material measurements (Schreier, 2019). Konecki (2011) asserts that qualitative research is increasingly engaging in visual data such as images, text, blogs, and video content, therefore qualitative content analysis was implemented to analyze Bosch and Defy's websites and social media content. A case study content analysis approach is most useful for evaluating textual evidence of different types such as interviews, focus groups, papers, and visual content (Mayring, 2002).

Given the framework highlighted above, qualitative content analysis fits this case study research in evaluating Bosch and Defy's artificial intelligence tools and how they relate to the stages of diffusion of innovation. In this phase of the research. Allen (2017) highlights three major steps in the case study research procedure namely, data collection, data analysis, and case study write-ups. Firstly, there is data collection where researchers draw from a variety of different sources. In connection to this, the content analysis analyzed the companies' use of AI by analyzing their websites and social media platforms such as Facebook, Instagram, YouTube, and Twitter. Secondly, in data analysis, I focused on examining artificial intelligence on brand-owned touchpoints (for example, media-related touchpoints, and marketing mix related touchpoints). Qualitative content analysis is versatile to the degree that categories are tailored to the study and information at hand (Schreier, 2019). Yin (2003) further mentions that the data should be grouped into themes, key topics, or central questions and thereafter analyzed to determine how well they match or do not match the anticipated categories. Guided by the research question "how is AI being used in inbound and outbound marketing for the two companies?", I explored manifest content specifically focusing on the presence or the absence of AI tools such as chatbots, virtual reality, voice assistants, or IoT among other AI applications.

Furthermore, I explored the extent to which each company has adopted or diffused artificial intelligence in their business models to improve the customer's journey. Thirdly, the case study write-up is addressed in the next chapter.

Chapter 4. Data Analysis and Results

The research sought to investigate the impact of artificial intelligence in the customer journey for home appliance companies Bosch USA and Defy South Africa. This study used a qualitative mixed-method design of in-depth interviews and a content analysis of both companies' digital tools concerning artificial intelligence. The research results and analysis of the data is presented as it relates to the research questions previously stated.

Interview Results and Analysis

Demographic Profile

A total of eight respondents participated in this research study, three Bosch customers and five Defy customers. Interviewees were current customers of the companies who volunteered to participate in the research study. Male participants represented one individual of the sample, while female participants accounted for seven. The bulk of the respondents from Defy were between 25-34 years while the majority of Bosch respondents were aged between 45-54 years old. In terms of education, six participants have a bachelor's degree, one has a master's degree, and one has a Doctorate. Table 1 shown below presents a summary of the demographic information of the sample of this study.

Table 1

Demographic Information

Gender	**N**
Male	1
Female	7
Total	8
Age	
25-34 years	4
35-44 years	0
45-54 years	3
55- 64 years	0
65 years or older	1
Total	8
Ethnicity	
White	3
Hispanic/Latino	1
Black or African American	4
Total	8
Education	
Bachelor's degree	6
Master's degree	1
Doctorate	1
Total	8

The research findings depict that Bosch customers have an average tenure of ten years as customers while Defy customers have been customers for an average of eight years. All the participants highlighted that they have had a positive experience with the brands overall. Though initially, one participant from Bosch mentioned: “I had negative experiences at first, only because the salespeople did not know their products and I knew more than they did about the products, but I met one who knew the product. So that made a big difference to me.”

The question about how participants perceive their brand and how they got to know about the brand are summarized below (Table 2). Thereby I searched to find categories emerging from

connections in open codes and grouping them later into categories during the axial coding analysis. It was possible to measure how often specific categories or themes were discussed by participants by coding the transcripts into categories and the frequency of these ideas and how they could be contrasted with other measures. By observing through the open coding process, the main reason that participants credited a brand for good customer service in their customer journey was associated with timely resolution of customer queries, good after-sales service, and availability of affordable repair parts.

Table 2

Customer Brand Attributes for Bosch and Defy

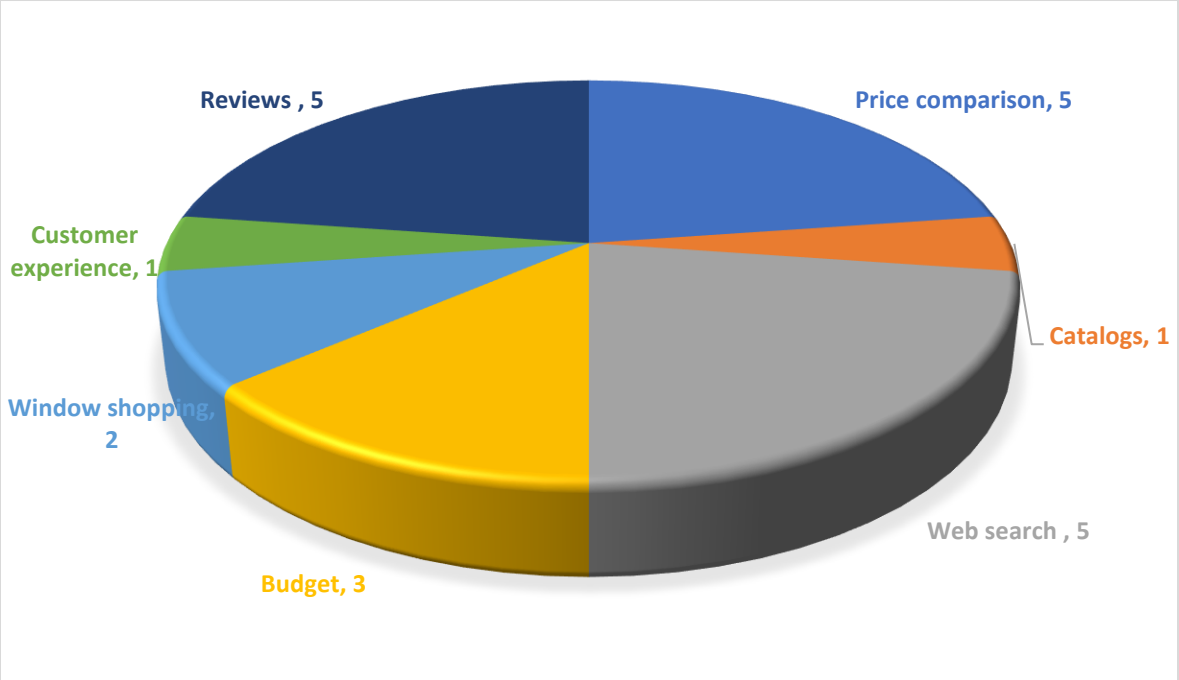
Attributes of the Bosch brand		**Attributes of the Defy brand**	
Perception	**Brand Knowledge**	**Perception**	**Brand Knowledge**
Good reputation Expensive brand Quality products Reliable. Durability	Referral/ Recommendations from friend or family Heard about the brand growing up. Word of mouth	Quality products Durability Reliable Market leader Good reputation Expensive brand Low maintenance	TV adverts Family brand Recommendations Internet search

For the interview question *"Can you walk me through the timeline from the moment you decided you needed this product to when you made the purchase?"* The typical factors and activities considered by participants from pre-purchase to the final purchase as highlighted by Defy interviewees mainly include price comparison, reviews from previous users, and web search on Google as shown below (Figure 6). One participant adds "I use references, for example, I ask if someone has used a Defy microwave and inquire what they think about it, I also ask people within my circle." Another participant also concurs, "I use the company website for

product information and Google search for opinions and reviews. I do not use any of Defy's social media because they are not objective, they are only selling you a product." This shows participant's level of mistrust of branded content. Subsequently, three Defy customers expressed that after searching for product information online they made the final purchase in-person compared to the two participants who ordered their products online. The final purchases were made through Defy's dealers/distributors such as Takealot, Makro, Game, and TV Sales and Home.

Figure 6

Defy Customer's Buying Behavior Along the Customer Journey

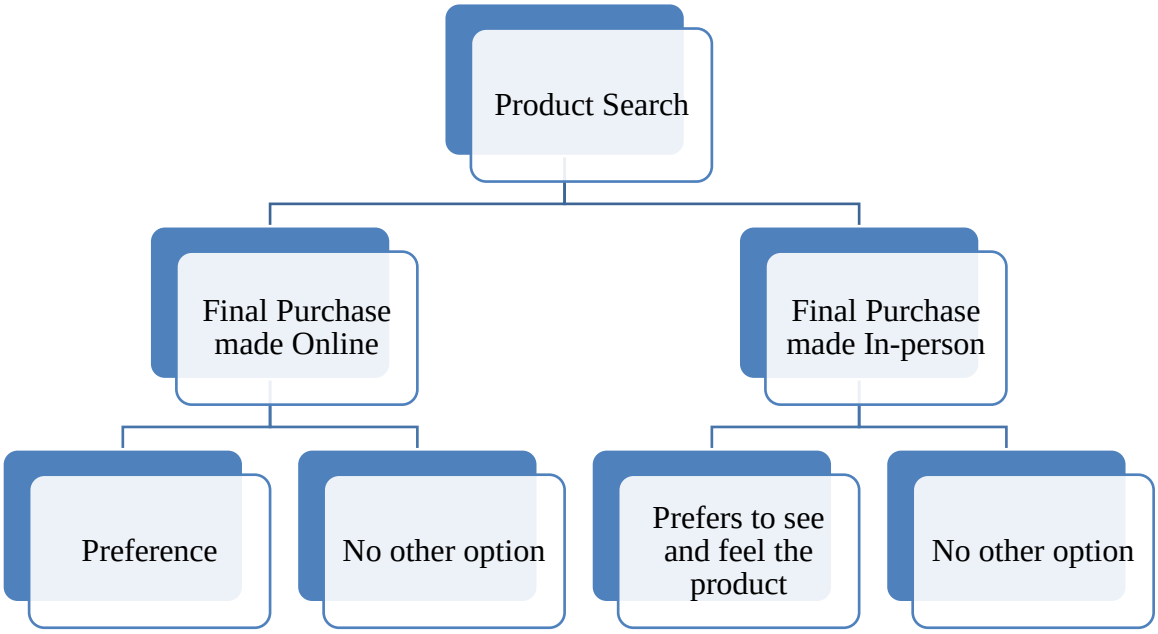


When Defy customers were asked why they made the final purchase in-person as opposed to online one participant responded: "Well, I do not know what is wrong with our minds, that touching or being able to feel the product is better than buying it online." In addition, others

highlight it as a preference as stated by another Defy interviewee, “I always like to see it [the product] and talk to a human, that way it feels more personal.” Overall, more than six participants were assigned to this open code. Figure (7) below shows the pathway taken by the interviewees when deciding to make the final purchase. However, one Bosch and Defy customer mentioned that they had no other option besides buying the product online, although they would have preferred to purchase the products in-person.

Figure 7

Customer’s Buying Preferences Online vs. In-Person



Note: The pathway taken by home appliance customers when purchasing products along their customer journey.

It is interesting that the interviews revealed that Defy does not display prices for products on its website and they do not sell any of their products directly to customers but rather only sell through dealers/distributors. For example, a participant said:

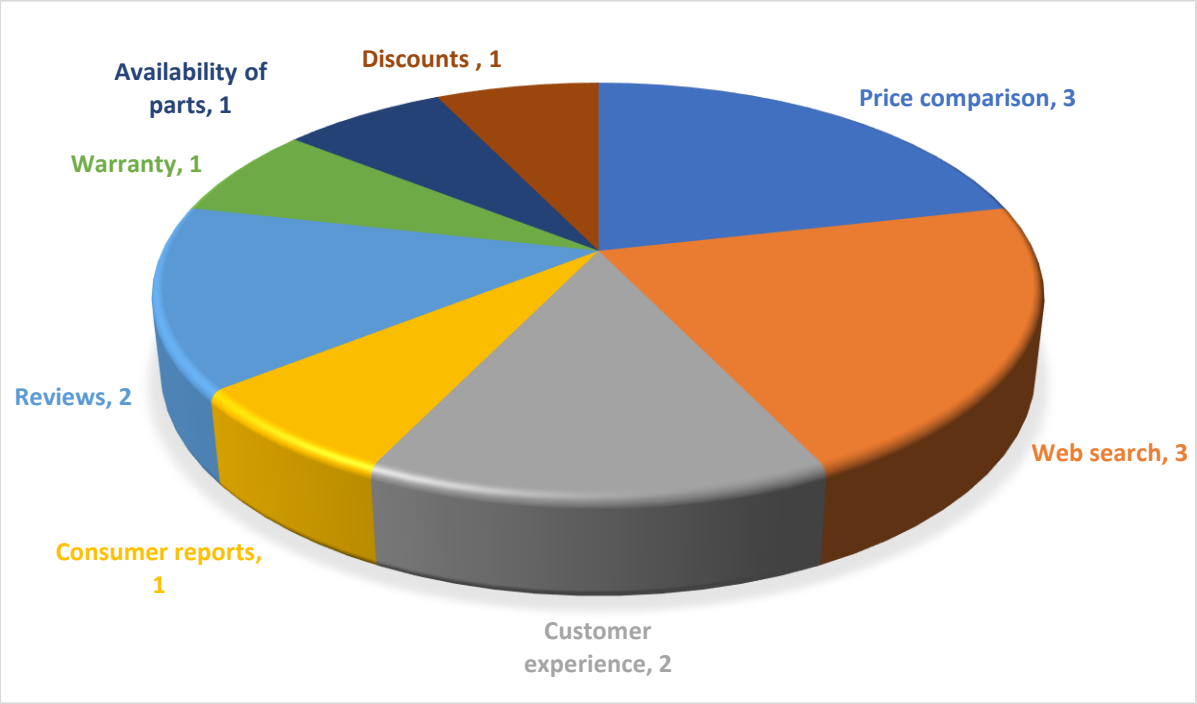
> Defy only sells its products to retailers, you cannot go and buy from them directly… for example, you may need one small item such as a microwave, but they will not sell it to you directly. I had to go directly to the retailer's website. Visit the Game website and Makro website.

As such, this makes it a challenge for Defy to generate personalized ads since most of the touchpoints in the customer journey are handled by their dealers/distributors.

While on the other hand, the main activities which Bosch customers do during the pre-purchase to purchase stage are price comparison, search for objective product reviews, and information search. Figure (8) shows a depiction of the main factors and preferences considered by Bosch participants from pre-purchase to the final purchase.

Figure 8

Bosch Customer's Buying Behavior Along the Customer Journey



Two of the Bosch participants expressed how it is important for them to physically see the product in-person before purchasing for example one participant expressed:

> I spent a lot of time online. I also spent time on Whirlpool, Frigidaire, and Bosch as well. But I also wanted to see the refrigerator in person. I did not want to buy the washing machine online without having seen it.

Similarly, another interviewee added: "I did not want to buy it online without having seen it, I prefer to go to the store and see it in person." The final purchases were made in-person at Lowe's while the remaining one participant made the purchase online. Other important factors highlighted were discounts in the form of price breaks while getting the best quality products as one participant carefully expressed:

> Each time I purchased four appliances; Bosch gave me a price break for more appliances I purchased as a package deal. I also want top of the line from my dollar and I try to get close to top of the line. I do not need all the bells and whistles, but I like bells and whistles.

There was a striking resemblance between Defy customers and Bosch customers buying habits in the customer journey during pre-purchase and post-purchase. The interviews from this research indicate that product search and price comparison is an essential step in the customer journey of the participants. Both customers compare prices, search online, and check objective reviews from other customers before purchase. This affirms that customers depend on heuristics (mental shortcuts) to make decisions about a brand's products. In addition, none of the participants used any of the studied brands' social media platforms during a product search, they generally perceive the platforms as biased and less reliable. Interestingly, for the majority of Defy and Bosch customers is that in-person purchase was done even though a prior investigation was done online as shown below (Figure 9).

Figure 9

Summary of Defy and Bosch customer's Decision Journey Along the Customer Journey

Personalized Ads

It is important that this research revealed that all Defy customers have not received any personalized ads online to their knowledge from the brand. The research results revealed that participants' view of AI and personalization was limited, they do not fully comprehend the ways that AI may be involved in personalization beyond email. For example, when asked to assess what their perception of personalized ads was, the participants tended to associate personalized ads with email marketing, where a company addresses their name in an email with promotional information or product information usually relevant to the customer's search. One participant explained how they have seen personalized ads on Facebook and Twitter from Defy dealers rather than Defy: "I would see it as a pop-up ad on Facebook from a Defy distributor" and another expressed "Makro (Defy dealer) sends me spam email. I think we must be on their mailing list; however, I do not necessarily receive emails about Defy products but other general

products from the dealer." A total of two participants confirmed to have seen personalized ads from Defy. "I view them as a slightly intrusive, a tad disturbing because it feels as if someone is watching your activity." By contrast, another interviewee shared that Defy's promotional ads are well structured and persuasive, however, they are also uninformative and hard to remember or pay attention to. When it came to general personalized targeted ads that appear online, one participant stated:

> I find it quite creepy on Instagram, but I researched it and it is because of an algorithm that sees my activity through the pages I visit or what I like. I got to understand why it would suggest that and I think it is smart.

Similarly, all the Bosch customers said they have not received any personalized adverts from Bosch, but participants showed they are aware of what personalized ads are. Moreover, it should be mentioned that participants do not pay attention to targeted ads in general. For example, one participant expressed:

> Anytime I start browsing online I will start getting ads about various products on my timeline. I can tell in two seconds, whether I want to buy or not. I am not an easy sell, I am suspicious of certain people, where I feel as though they are just trying to get me to buy something.

When it came to perceptions about personalized targeted ads that appear during browsing online, it seems there is an equal distribution of positive and negative views between Bosch and Defy customers. The research findings may suggest that personalized ads may be pushing away the customers for example a participant stated, "It does not help their case for them to maybe

compliment me on something that I can tell it is just a pitch." While on the other hand another participant contrasted saying that they liked ads in general as indicated, "I get a lot of personalized ads for clothes, and hair products. I like them and I am happy to look. Let me just say that my purchasing has gone way up during COVID-19."

Through open coding, the main recurring words that were associated with a negative view of personalized ads include words such as, intrusiveness, spying, disturbing, untrustworthy, listening in secret, and pitch to make you buy more. Nevertheless, positive associations with personalized targeted ads online were descriptions such as shortens the search cycle, readily available information, saves time, and helps develop interest as summarized in (Table 3).

Table 3

Customer Perceptions About Personalized Ads

Perceptions about personalized ads	
Positive associations	**Negative associations**
Shortens search cycle	Spying/ Intrusive
Readily available information	Disturbing
Helps to develop an interest	Untrustworthy
Saves time	Sales pitch
	Secretly listening

Note: Words that participants associate with personalized ads that appear when they are browsing online.

Perception About Artificial Intelligence

To get a sense of how participants perceive artificial intelligence, the interview focused on asking their views of the technology. This variable examined the various views and thoughts surrounding artificial intelligence and how it possibly impacts the company's inbound and

outbound marketing efforts in the customer journey. The following statements are representative of customers' perception and understanding of the term artificial intelligence:

Defy customers:

- I think of robots.
- I am not sure, what is AI?
- Artificial intelligence is implementing IT systems. AI is making use of information technology to do tasks like marketing and interaction through bots.
- I think of robots, automated systems that work for you and communicate with you.
- Trying to make assumptions on your buying history, that is, a computer-generated assumption based on your browsing history and buying history.

Bosch customers:

- Artificial intelligence is something that has been programmed to try to think or anticipate your customer's actions.
- To tell you the truth, I do not understand artificial intelligence. I do not have Alexa I do not necessarily trust if they [the companies] cannot hear what you say [secretly listening to people's conversations through devices]. I know they can hear what you are saying. In fact, we have kind of had that happen, I am not sure what it is called.
- AI is somewhat likened to the new brain. It somehow mimics the brain. However, it obviously cannot do everything, as far as I have read about it online.

The results show that participants share both a positive and negative perception of AI. Some are well educated about artificial intelligence while others fairly know about it while others do not know much about AI. Repeated words or phrases used to describe AI were identified. As such, arranging relationships across open and axial codes aided in establishing common categories and themes. Participant responses were not connected with demographics, but rather on knowledge and general perceptions about artificial intelligence. Those who favor the development of AI systems explained how it has helped them get information easily about clothing, food, and hiking gear. Nonetheless, it should also be stressed that some participants emphasized their disapproval of AI systems. Most negative remarks centered on artificial intelligence being intrusive, one of the ways participants expressed their view, "I don't want anyone making an assumption about me, someone who has not met me. I do not like an artificial intelligence assumption. You cannot just put me in a box."

In the interview, participants described their views and experiences with artificial intelligence in their customer journey, including thoughts about personalized ads, chatbots, and virtual assistants. All interviewees from Bosch or Defy in the research study stated that they had never used a chatbot or virtual assistant in their purchasing or post-purchase stage of the customer journey. However, others mentioned that they have used such digital tools with other companies in different instances. It could be observed that some participants are unaware that they are already using AI-enabled tools from both Bosch and Defy or other companies. Yet when asked specifically asked about AI, they identify as non-users of the technology. It seems plausible that there is a level of misinformation about artificial intelligence. Participants are not aware that benefits, such as readily finding information about different products, are because of an AI algorithm. Therefore, the participants did not realize AI for what it is.

Participant's AI Adoption and Diffusion

Rogers (1995) asserts the decision to adopt technology depends on the perceived benefits of the innovation, while confirmation represents the extent to which success of the technology creates expectations compatible with previous beliefs. On one hand, four of the Defy participants rated themselves as early adopters while one participant rated themselves as part of the early majority in the adoption of new technology (Figure 9). The major issue mentioned by Defy customers is the tradeoff between wanting an AI-related benefit against giving up personal information to enjoy the benefit is a dilemma for them. On the other hand, there seems to be a mix of how Bosch participants rated their readiness to adopt new technology, one participant said they are laggards, another shared how digital transformation did not give people a choice other than to adapt, and lastly one participant rated themselves as an early majority as illustrated below (Figure 10).

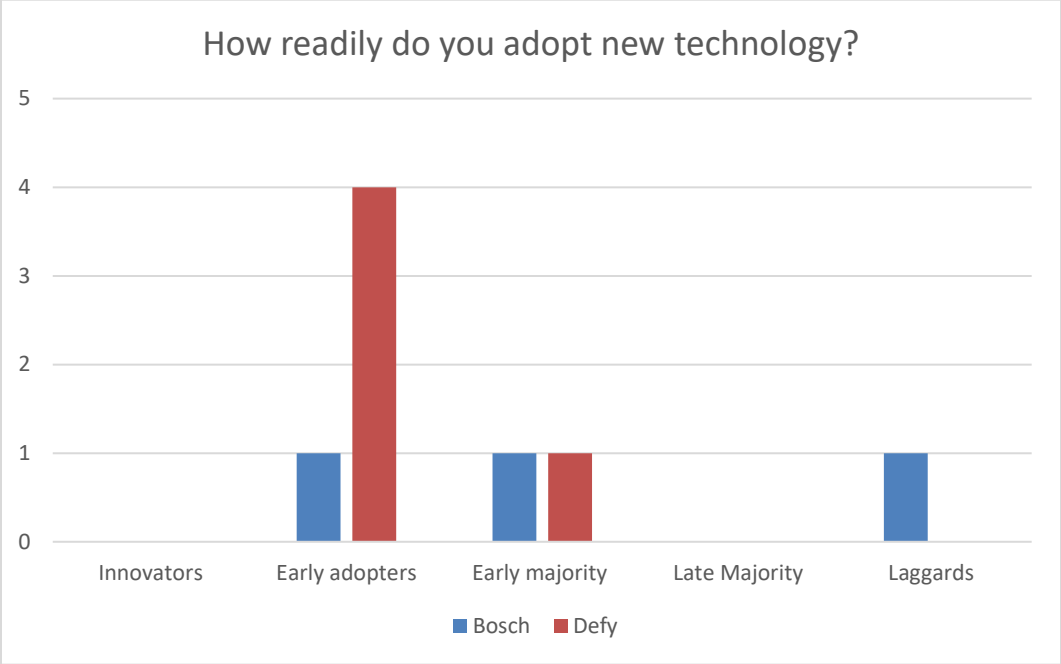
In order to analyze differences in attitudes between different types of adopters as categorized by Roger's (2003) a comparison of the participants' perceptions about artificial intelligence versus how they categorized themselves was conducted. The research results revealed that generally, participants who had classified themselves as early adopters tended to have a positive view towards AI or shared a willingness to learn more about the technology while participants who classified themselves as early majority or laggards have negative views about artificial intelligence and share suspicions about AI.

Other additional variables evaluated were the relationship between demographic factors such as age and geographical location versus adopter levels. Based on manifest data, the findings revealed that regardless of geographic location, the majority of younger participants have a positive view of artificial intelligence and show a willingness to adopt new technology. While

the majority of the older participants have a negative view of AI and show interest to understand it or adopt.

Figure 10

Distribution of Bosch USA and Defy SA Technology Readiness (Rogers' Adopter Categories)



One participant acknowledged a willingness to adopt the technology if the company or the technology does not require giving up too much personal information. Participants' unwillingness to share their personal information such as address or contact number stems from possible consequences that may follow such as problems with stalkers or scammers. Although others shared that they are willing to share email, gender, and city information only. While another participant emphasized being skeptical about their readiness to give personal information online, "I am very skeptical about that. I rarely do that especially if it's online, at times I just put in a random name."

One Defy participant reflected on how they do not see artificial intelligence changing their interactions with companies in the future as stated:

> At the moment, I keep artificial intelligence at arm's length because of the privacy of my information. It is something I am keeping an open eye. At the moment I do not like it, but I will keep an open mind maybe in the future this will change.

On the contrary, others see AI bringing more convenience, promoting impulse purchases because the information is readily available, and AI making life easier. For example, one participant highlighted: “Be on the lookout because artificial intelligence is the future, especially this year. The importance of artificial intelligence was heightened by the COVID-19 pandemic. People are leaning towards online business rather than face to face or in-store.”

Although Bosch manufactures high-tech AI-powered home appliances one participant discussed:

> I already have a phone that is smarter than I am. Also, I am not into artificial intelligence. I guess I would not be a very good customer for the use of artificial intelligence. All I know is Bosch products and services are supposed to be artificially intelligent. But I had not considered any of that artificial intelligence till I got your question. I know they have Bluetooth on the refrigerator I purchased which enables you to tell it what to do with your phone. I guess that is considered artificial intelligence. But I have not connected it to Bluetooth. I do not care to make my refrigerator work through my phone. I guess I am part of the older generation that has not caught on and I am not interested.

Another participant explained how their friend bought a Bosch washing machine with which a person can download cycles from the computer and customize cycles. Nevertheless, the participant stated that they do not like this technology because it is the company's way of being more connected with the customer.

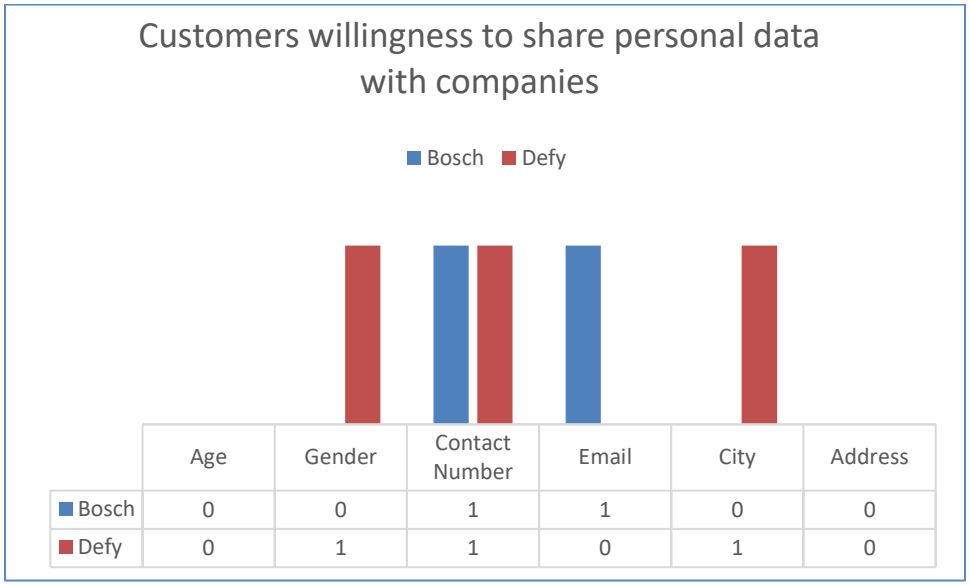
Overall, there were distinctions observed during the axial coding process, participants notably shared that they are more open to adopting AI-enabled tools along their customer journey if they are given enough information to understand and embrace the technology. This explains why participants seem to be aware of what AI technology is, but unaware of its existence in their customer journey.

AI Arising Issues

When asked about concerns they have with artificial intelligence and interactions with companies, manifest content analysis was applied to discover open and axial codes associated with AI concerns. Intriguingly, there was a strong consensus about participants' concerns with artificial intelligence. The major issues highlighted by participants were privacy and confidentiality breach. Although participants are willing to adopt AI technology, they fear the risks associated with the use of such technology. The interviewees stated that giving up information may be a problem since there are stalkers on the internet and scammers which explains why there is a lack of trust in this technology. One participant expressed AI concerns and stated: "You might randomly find a stranger on your doorstep, or you may get a call from someone you do not know, or some organizations call you with promotional ads. That is why I do not give out any of my information." The chart below Figure (11) summarizes how many participants are willing to share personal information with companies in exchange for personalized experiences:

Figure 11

Customer's Willingness to Share Personal Information with Companies



Note: Customer's willingness to share personal data in exchange for personalized experiences.

Another AI concern highlighted was the problem of over-targeting. For example, after a customer shares or likes a post on social media and consequently all sponsored content targeted on their timeline are ads that are related to that product or service only. The participant expressed how this can be daunting and keeps the customer from being targeted on other products, they may be interested in besides products based on their previous browsing history.

Recommendations from Participants to the Companies

All participants stated that they will recommend Bosch or Defy products to others. One participant recommends Defy add video manuals on their website because a video is better to understand than a written manual when setting up home appliances. Another interviewee

suggested that Defy should increase its online presence and use targeted ads on social media. While Bosch customers said they are pleased with how their appliances are working. One participant recommends Bosch retarget their customers to buy smaller appliances “Bosch has small products that I do not have such as small kitchen appliances. Why are they not trying to get me to buy some of those now?”

Case Study Content Analysis

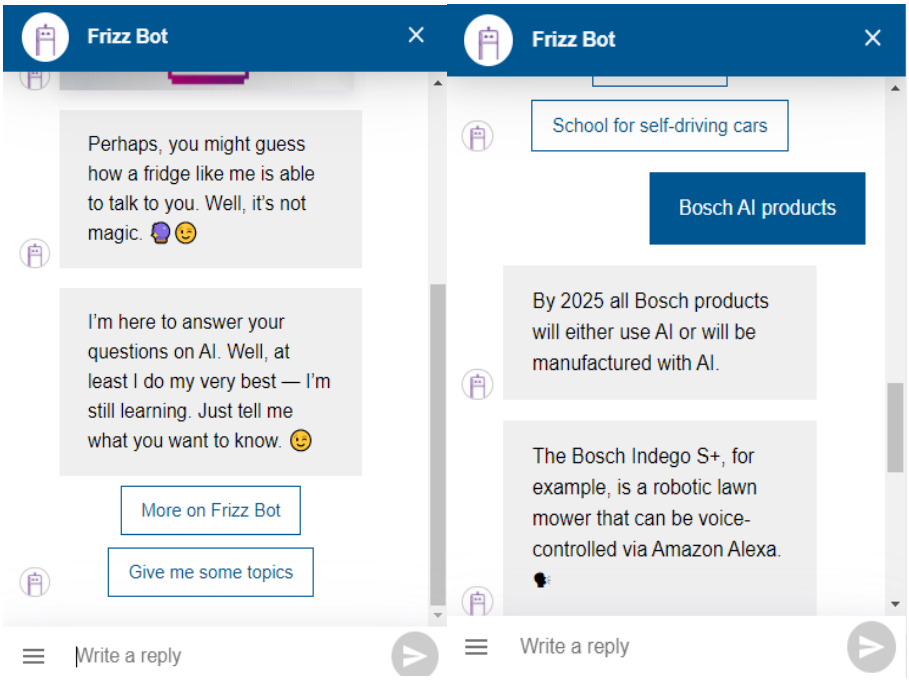
The content analysis focused on examining artificial intelligence on digital tools such as brand-owned touchpoints (websites, media-related touchpoints). With the advent of digital technologies, the customer journey is becoming complex because they have multiple touchpoints (Morgan, 2020). There is a need to build adaptive and user-friendly platforms for customers to interact with the company.

Chatbots and Virtual Assistants

Bosch deploys AI-based systems to help customers with information or queries using a chatbot. Bosch introduced their chatbot named Frizz that answers key questions about artificial intelligence. The FAQ chatbot is also a smart refrigerator that “grew up with digitalization and is becoming more intelligent through customer engagement and machine learning” (Bosch, 2021, para.2). Frizz's brand voice is fun and friendly to ensure the customer’s experience is personalized and seamless. Frizz responds to questions such as, what ethical principles has Bosch adopted? The history of AI, the school for self-driving cars, and Bosch AI products. Figure (12) below shows an example of inquiry with the Frizz chatbot:

Figure 12

Bosch AI chatbot Frizz



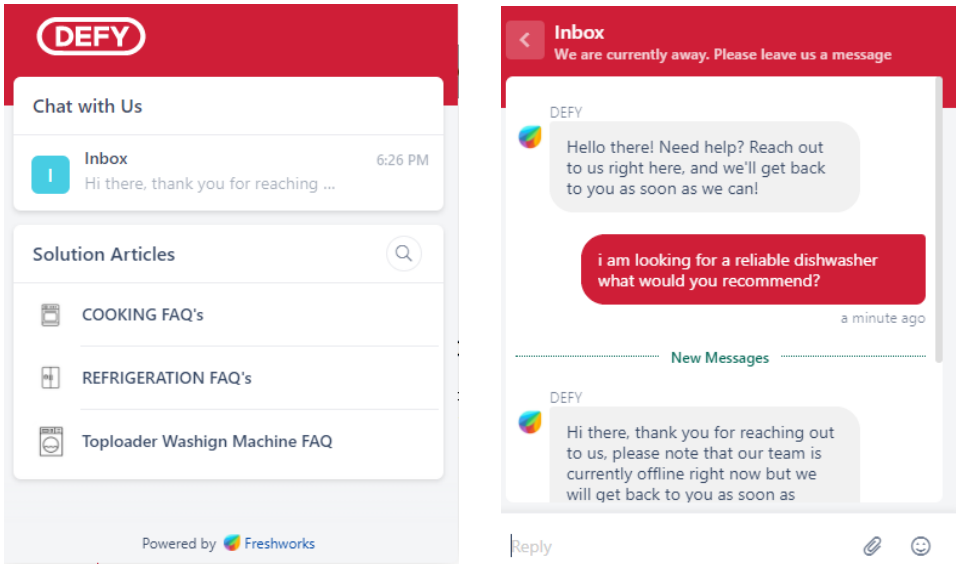
Note: a screenshot of a conversation with Bosch's AI chatbot called Frizz

However, none of the respondents from the interviews mentioned ever using this chatbot or showed awareness of this digital tool in their customer journey. Besides FAQs, Bosch uses a virtual assistant capable of comprehending the various ways that customers ask questions making troubleshooting easy via its website. Moreover, the website has a search option where they can tell the customer to find a dealer nearest to them from the website easily by using geolocation AI tools by simply entering an address, city, or zip code. In addition, every product has downloadable manuals and videos, and accessories.

Defy's website has a chatbot that is available 24/7 for customer service which helps to manage customer queries online, unless if it is a live chat question, then you are prompted to wait for a response once the team is back online. The message prompt mentions that they typically respond within 51 hours and notifies you that their team is offline and will get back as soon as possible. There are no specified times highlighted when the team will be available. Nonetheless, Defy has comprehensive and informative questions and troubleshooting responses on their FAQs from cooking, refrigeration, and Toploader washing machine as shown below (Figure 13). It is important to also note that Defy does not have virtual assistant AI technology available for customers in their customer journey.

Figure 13

Defy's Chatbot



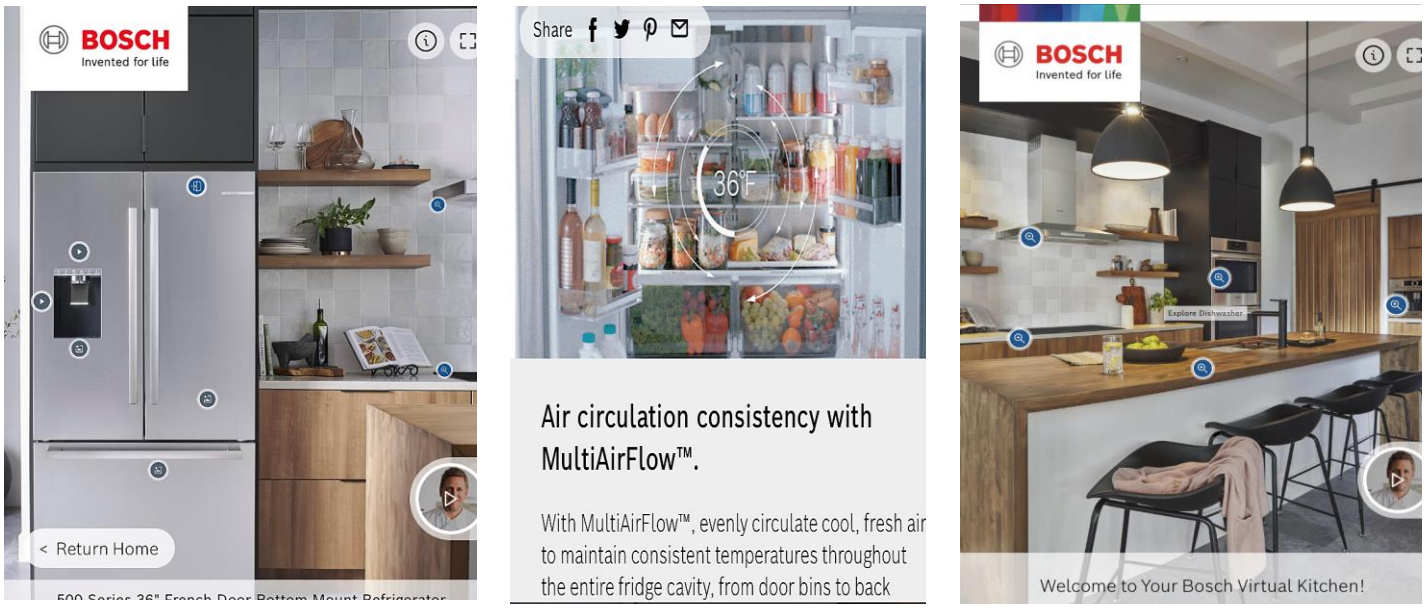
Note: a screenshot of Defy's chatbot and live chat.

Virtual Reality and IoT

On the Bosch home appliances website, there is an option to "Virtually tour your dream kitchen." A customer can discover the quality, innovation, and how timeless design that can suit their home upon entering the Bosch Virtual kitchen. Upon entering the virtual kitchen, it is an interactive experience whereby you can click or drag to explore various products in the kitchen as shown below (Figure 14). For example, when you click the refrigerator, it opens while chef Curtis Stone (influencer) gives audio transcribed pro-tips along the virtual tour about what kind of products to look for. There are videos about technical information related to the product and special IoT-enabled features.

Figure 14

Screenshots from the Bosch Virtual Kitchen



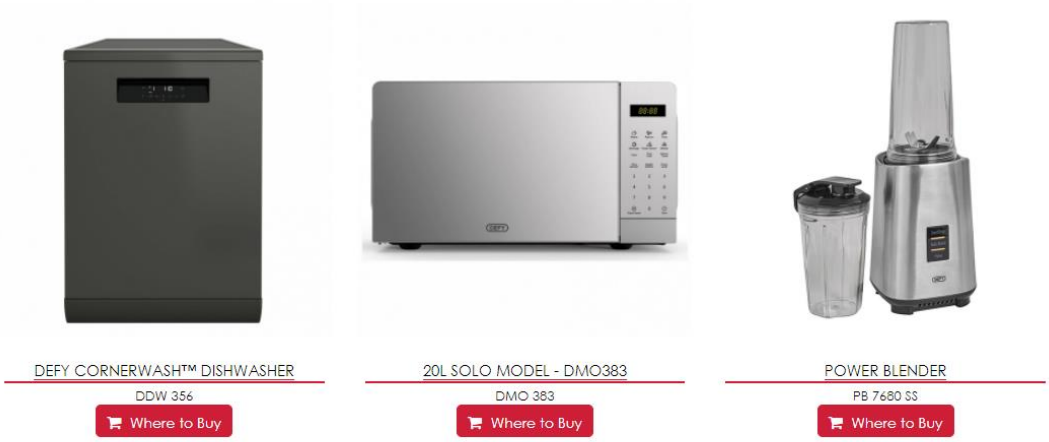
Chef Curtis Stone is there to make sure you are asking the right questions about your products for instance when considering buying a dishwasher "you want to look for something

clean, dry, and quiet" he suggests. He mentions product features that make Bosch products stand out from their competitors, for example, dishwashers that come with 18 unique sound-reducing technologies or refrigerators that can create shopping lists by themselves. While the washer and dryer come with the IoT-enabled Home Connect app which features smart remote controls and cycle monitoring from your phone as soon as your laundry is complete you get a notification. You can also brew your coffee from anywhere using your smartphone (create a coffee playlist).

Defy does not have these AI tools. Though, Defy's parent company has since mentioned that they are slowly planning on establishing a machine learning program powered by Amazon Web Services to transform its appliance business into a data-driven area of the organization. In addition, Defy's website shows products available and features with a link that shows customers where to buy the products. Unlike Bosch, Defy products are entirely sold through dealers such that the website only shows products and not the prices for the home appliances (Figure 15). The only products that can be bought from the website are spare parts as previously mentioned by participants during the interviews.

Figure 15

Defy Products



Note: Defy products are exclusively distributed by dealers.

Voice Assistants and IoT

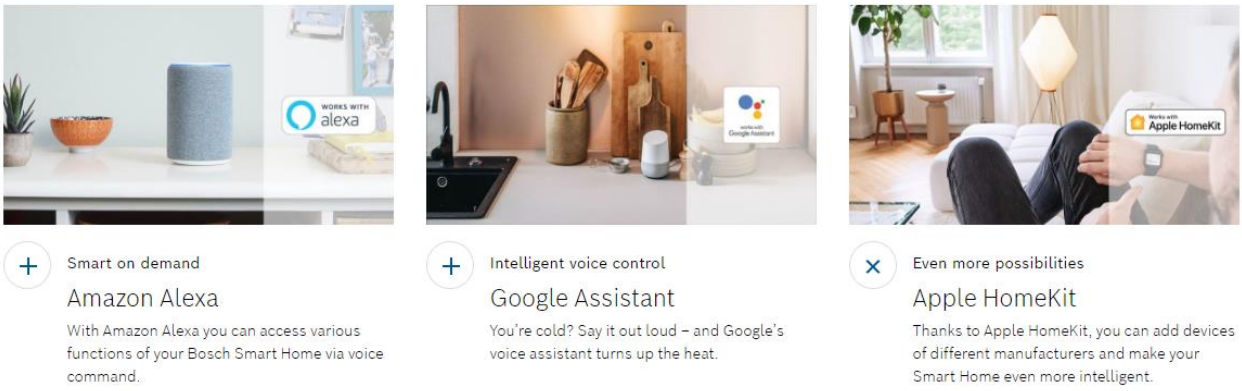
Bosch's smart Home Connect helps customers to stay connected. The Home Connect app allows various smart home appliances to be controlled with a single app, in other words, it was designed to make life easier for users. It also allows devices to be interconnected and communicate with each other for example, connected dishwashers, connected cooking, connected coffee, and connected laundry. The Bosch Smart Home Connect is powered by a series of partnerships that make it possible for IoT to flourish as shown in Figure (16) below.

- Smart on-demand is a partnership with Amazon Alexa where you can access various functions of smart home via voice command such as answering a doorbell.
- Google assistant ensures constant temperature throughout the house, the voice assistant continuously keeps learning.

- Apple HomeKit allows you to integrate smart Home Connect products from other manufacturers into your Bosch Smart Home system.
- MBUX Mercedes allows you to control your Bosch home using natural speech from your Mercedes car voice assistant.

Figure 16

Bosch Smart Home Voice Assistants



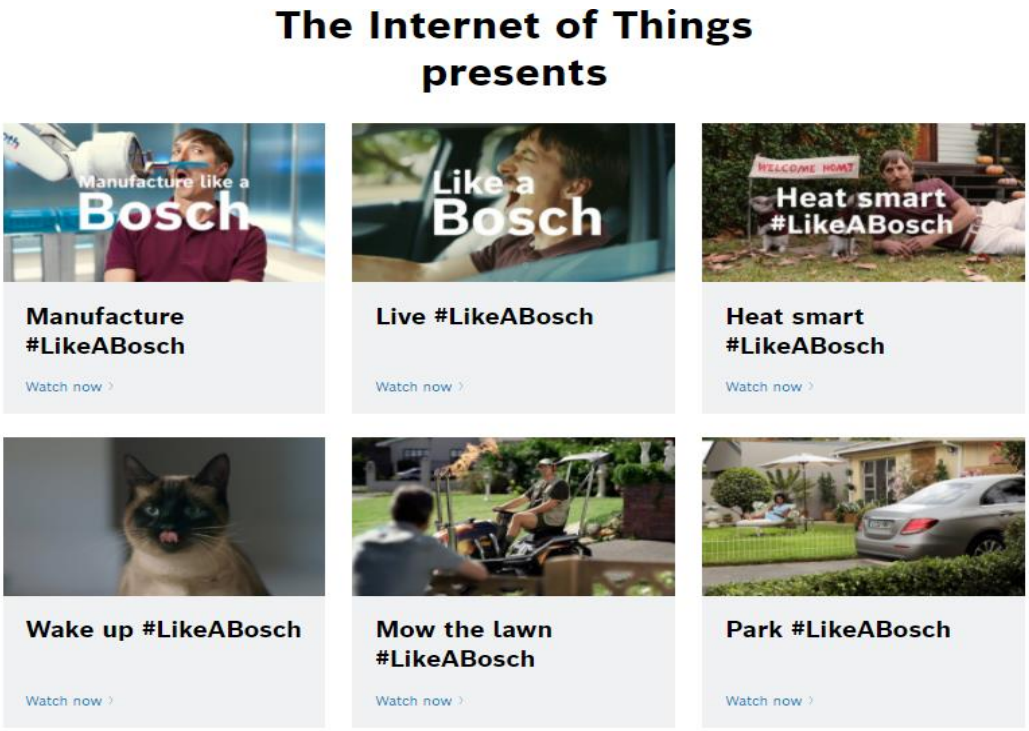
Marketing and Technical Information

One of its notable AI campaigns is the #LikeABosch campaign Figure (17) below which shows a series of videos on their website and social media platforms about automated IoT and augmented reality. This sparked a viral IoT movement, the videos show how everyday people can incorporate AI-connected solutions through a smartphone, an autonomous lawnmower to self-parking cars. On the other hand, their website has an "All about DIY" option which displays technical content on ways to start different projects such as a DIY bathroom, and football goal among many other home projects. The website gives information about materials required and specific measurements and links to their tools such as a hammer drill, how it works and also provides technical information such as its voltage and functionality. Their technical

communication focuses on providing enough technical details on how to use a product and provide information in a helpful format. Bosch's website shows assembly guidelines, tutorials, how-tos, datasheets, technical mechanisms, and downloadable user PDF documents.

Figure 17

Bosch's #LikeABosch Campaign



Note: a screenshot of Bosch's #LikeABosch campaign series

Defy provides its customers with both marketing communication and technical communication on both social media pages and websites. They advertise their products by emphasizing the design, multi-function operating system, and unmatched design and quality. Their website has FAQs for different products and frequently asked questions. Moreover, a blog tab that shows images of the how-to troubleshooting tips for example "steps for cleaning your

washing machine." Their Instagram features new products and quality elements that promote the durability of the products. However, one participant from the interview expressed how it was challenging to find video-branded content from Defy to help set up a product such as a washer they bought.

Lead Generation and Retargeting

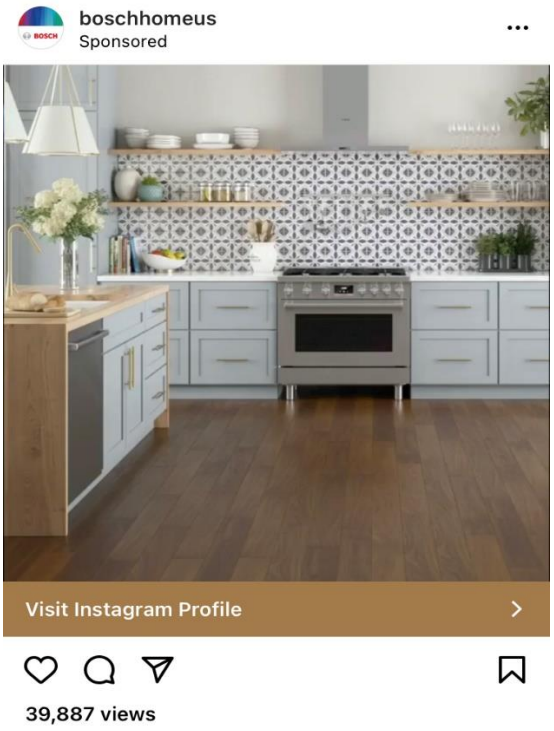
Scott (2013) defines lead-generation marketing as asking customers to "raise their hands and say they are interested in buying, or learning more about your product, in other words, actionable leads" (p.17). From a lead generation point of view, online research was conducted for brands. The process of generating leads and retargeting information for the two brands involved browsing on search engines such as Google about the brand and home appliance products. Thereafter, accepted cookies and shared geo location in an effort to get suggestions for products related to browsing history. Besides cookies, another effort to generate these targeted ads for the companies was browsing social media content on Instagram, Facebook, and YouTube. Then engaging with the company's online content, for example, clicking the call-to-action (CTA) links and blogs. Both companies had different landing pages on their website, for example, Bosch showed their dream kitchen designs while Defy displayed their quality dishwasher.

Looking from an individual case study view, I could see Bosch's remarketing efforts assuming they are using AI to target customers and retargeting efforts. For example, I could see Bosch branded content related to home appliances such as washers, dryers, IoT related content for home appliance products on social media channels such as Instagram (Figure 18). In the case of Defy, this does not seem to be the case. Defy does not necessarily use lead generation or retarget content using AI digital marketing. This is mainly because of their business distribution

model (B2B) which directs customers to interact with their dealers/distributors. This explains why Defy did avail any brand messages directly in all lead generation and retargeting efforts. Nevertheless, Defy's dealers such as Markro and Game showed retargeted ads. However, these ads were not necessarily Defy's home appliance recommendations, but a mix of all the dealers/distributor's products and promotions.

Figure 18

Bosch's Retargeting Efforts on Instagram



AI Diffusion

Compared to other companies in the industry, Bosch has managed to diffuse AI tools and technology in its business model in an attempt to make the customer experience seamless. Though, it appears that Bosch's AI technology advancement is not mainly focused on their home

appliance business sector. Diffusion of innovation seems to be happening in silos within the organization's subsidiaries. In some areas of the organization, AI is being incorporated more heavily, but not as much home appliances sector.

Adoption appears to be occurring earlier in their automotive field compared to other departments. AI-driven technologies such as driver assistance systems supported by AI, self-parking cars for community-based parking that help a person to locate parking space in the street based on an algorithm that can detect empty parking spaces to enhance convenience in the customer journey. Another AI technology is the Bosch Common Augmented Reality Platform (CAP) a solution that allows AR testing and service scenarios for new vehicle advancements enabling workshop trainees to keep-to-date with the latest innovations. Overall, Bosch can be classified as an *early adopter* of innovation with reference to Roger's five adopter stages.

On the other hand, Defy South Africa does not have much of the AI tools incorporated in their business model yet. Within the investigation, the evidence discovered supports that Defy can be classified as *laggards* in Roger's adopter stages. However, it was discovered that Defy is targeting more of a B2B marketing approach. Therefore, consumers may not be their targeted audience for the marketing practices that were explored in this study. Based on this evidence, there is a significant difference in levels of diffusion at the geographical level between Bosch and Defy.

AI Ethics Code

Since technology will allow autonomous decision decision-making and machine action, concerns about its ethics are more urgent as opposed to other technologies. There is a need for more transparency about ethics and data usage (MIT Technology Review, 2020). Bosch

emphasizes their AI code of ethics. One of their main objectives is to create AI products that customers can trust (Bosch, 2020). They highlight that the ethos for all Bosch AI products should be reflective of their "invented for life" tagline which incorporates innovation as well as social responsibility. Bosch adopts 3 approaches to AI decision making namely, (1) Human-in-command, the AI product is used purely as a tool in this approach. People determine to decide when and how to use results presented by the tool, (2) Human-in-the-loop, in this approach people can directly influence or change decisions made by an AI product, and (3) Human-on-the-loop, this approach considers cases in with which parameters relevant for decisions are defined by people during the design process (Bosch, 2021).

After a careful analysis of Defy's digital tools, it can be argued if they are ready for an AI-powered technology. To optimize current AI capabilities within the corporate context in South Africa, companies require high-quality data and information-rich data sources (Sithole, 2018). The rate of AI technology adoption by companies varies with geographical locations as shown by Bosch and Defy.

Summary of Answers to Research Questions

In summary, the findings of this study relate to the research questions and show the relationship of the analysis with the open, and axial coding processes applied to the in-depth interviews and the case study content analysis. The combination of interviews and qualitative case study analysis as methods in this study complemented each other well to address the research questions.

RQ1: How is the Perception of AI Impacting Customer Experience in their Customer Journey?

Based on the in-depth interview analysis, we see certain themes associated with AI being highlighted by interviewees. For example, major categories associated with AI interview discussions were (1) perceived usefulness, (2) personalized ads, (3) levels of AI adoption, and (4) privacy concerns. The findings of this research indicate that attitude differences between adopter categories affect readiness to adopt AI technology. This is evident when we see early adopters are more open to AI while the early majority and laggards are not willing to adopt AI-enabled technology along their customer journey. Moreover, lack of knowledge about AI affects adoption as indicated by participants.

RQ2: How is AI Being Used in Inbound and Outbound Marketing for the Two Companies?

In comparison to Defy, Bosch has managed to diffuse AI tools and technology more throughout its business model to make the customer experience seamless. The case study content analysis analyzed Bosch and Defy's websites and social media content to identify AI digital tools adopted by both companies. This is summarized below:

Table 4

Comparison of Bosch and Defy's AI Digital Tools

AI Digital Marketing Tools	Bosch	Defy
Virtual Reality (VR)	✓	x
Augmented Reality (AR)	✓	x
Internet of Things (IoT)	✓	x
Voice Assistant (VA)	✓	x
Lead generation / Retargeting	✓	x
Chatbots	✓	✓

Note: a comparison of Bosch and Defy available AI Digital Tools.

RQ3: Are There Differences in the Rate of Adoption of AI-based Tools for Companies in Different Geographical Locations?

The case study content analysis comparison of Bosch and Defy's digital tools suggests the rate of AI technology adoption by companies varies with geographical locations, as exemplified by Bosch and Defy. Bosch can be categorized as an early adopter, while the evidence discovered supports Defy to be categorized as a laggard, based on the AI tools available within the organization as summarized above (Table 4). Of note, the study was limited to two organizations as representative examples from these countries, and also the conducting the research in the USA may have resulted in the researcher falling out of scope for geo-location targeted ads which is a limitation when discussing generalizability. This will be further discussed in the limitation section of this manuscript.

RQ4: Do Consumers Perceive any Ethical Issues Regarding AI Use in the Consumer Journey?

To summarize, the open and axial coding steps were applied, and they indicate that the most common theme associated with AI concerns is the fear of risks related to privacy breaches outweighs the participant's desire for personalized services powered by AI. Other issues highlighted by participants are the fear of being tracked, the intrusiveness of AI technology, and over targeting as a flaw of AI algorithms.

Chapter 5. Discussion and Recommendations

Interviewees Demographics

Looking at the interview participants, only one male was included in the research sample, all other participants identified as female. This disparity between male and female participants may indicate differences in gender roles when shopping for home appliances. According to TraQline's (2016) market data and insights, 53 percent of the time women are primary decision-makers of furniture and home appliances while 27 percent are joint decisions.

The bulk of Defy participants were between 25- 34 years old while the majority of Bosch participants were aged between 45-54 years. It could be argued that there is a relationship between disposable income and customer demographics. Since Bosch is considered to becoming a high-end appliance brand, customers within the 45- 54 age range are considered to have higher disposable income.

Customer Buying Patterns in the Customer Journey

The results indicate that rather than relying on targeted ads, Bosch and Defy customers tend to rely on reviews or recommendations from family and friends about products versus branded content. This suggests that consumer's willingness to adopt new technology or new products will be significantly influenced by their social group. Verhoef et al. (2009) support, customers depend on social elements of the customer experience or refer to the recommendations of other people such as family, friends, and customer's wider network. This is consistent with prior research findings indicated by Lu et al. (2005) who stated that social influence impacts the decision-making process of individuals because it eliminates or reduces ambiguity by providing

people with knowledge. Moreover, social influence plays a pivotal role in the adoption of products. Social influence represents the degree to which members of a reference group influence each other's actions or behavior. Customers depend on social elements of the customer experience to refer to the recommendations of other people such as family, friends, and customer's wider network (Verhoef et al., 2009).

Consumer AI Perceptions

The findings indicate that the participants have misconceptions or are unaware they are already using AI-enabled tools from both Bosch and Defy. Yet when asked specifically asked about AI, they shared negative views that suggest a level of misinformation and distrust. Participants were not aware that benefits such as finding information and getting recommendations about different products at the consideration stage of their customer journey are because of an AI algorithm. Therefore, it seems plausible that most participants did not understand AI for what it is.

Therefore, this raises questions about artificial intelligence and cognitive dissonance. We can see from the research findings that AI has been presented in our cultural narrative from a dystopian view which has in turn affected diffusion of this innovation and willingness to adopt or accept it. Previous literature supports, consumers may feel manipulated in data capture interactions, considering AI's ability to anticipate and fulfill expectations, largely because they do not grasp the operational requirements of AI (Puntoni et al., 2021). Therefore, future studies would be beneficial to the field can investigate the role of cognitive dissonance in artificial intelligence technology adoption by customers.

Both Bosch and Defy customers are suspicious about audience targeting tools being used to target them in their customer journey. Although prediction algorithms suggest that they are accurately targeting customers, these forms of targeting are perceived as suspicious and invasive to privacy. It seems logical that trust in AI is one fundamental role that adoption plays in technology-mediated interactions between customers and these companies. While previous studies demonstrate a positive relationship between customer experience and efficiency, AI's acceptance depends on the level of sacrifice customers make to use that technology.

Customer AI Adoption and Diffusion

The study challenged and helped to identify the gap between AI perceptions and the likelihood of adoption at an individual level. There is no specific data collected from the research to suggest that adoption rates are reliant on geographical locations. The majority of both Bosch and Defy customers are unwilling to give up their personal information such as age, gender, contact number, and address to experience personalized services.

The distribution of participants over Roger's (2003) DOI adopter categories leans more towards the early adopters. Five participants indicated that they are early adopters. The findings of this research indicate that early adopters have fulfilled the knowledge and awareness step of Roger's innovation-decision process and thereby are more open to AI adoption. While the other participants view AI as uncanny. Roger's (2003) on the adoption of innovation also states that *complexity* is how innovation is viewed as being difficult to comprehend. This is in agreement with this research as depicted by customer's reluctance to use AI technology because they view it as being difficult to understand.

Looking back at Roger's (2003) factors that affect the adoption of innovation, *relative advantage* is the extent to which innovation is perceived to be better than current practices. This implies that individuals acquire an innovation because of its perceived benefits. Contrary to this research, the results revealed that two Bosch customers who categorized themselves as early majority and laggard also mentioned their reluctance to use AI features available on their Bosch products and AI tools within their customer journey. Regardless of the negative perceptions about AI, these participants purchased Bosch's high-tech products merely because of their durability, quality, and brand reputation, as opposed to the AI, features available. In essence, these customers are classified as early adopters under Roger's DOI categories they because purchased the innovation during its prime, but this also gives rise to questions related to the actual use of the technology once adoption takes place since the participants' highlighted that they are not interested in the technology. Moreover, the late majority in DOI are price-sensitive, this is not the case for these customers.

The *knowledge stage* in the diffusion of the innovation-decision process is when individuals start learning about the innovation. Individuals start exploring how innovation can be useful to them and in this case how it can be useful to the field of media and marketing communications through awareness information, how-to-knowledge, and principles knowledge (Rogers, 1995). The research indicates that there is a knowledge gap about what artificial intelligence is, one respondent, states: "We need a bit of convincing, more advertising and marketing so that we understand what that is how it works." The rate of adoption is tied to perception and knowledge about the innovation. The findings of this research indicate customers need more information; this is an opportunity for household appliance companies to add more technical information about their digital marketing tools in the customer journey. Bosch's

technical content on how to use a product, assembly guidelines, and how artificial intelligence tools such as the internet of things (IoT) integrates into the product functionality is a good example in the pre-sales stage of the customer journey. The pre-sales content is progressively focusing on technical details so that buyers can make an informed decision across the various touchpoints in the customer journey. A previous study affirms that technical and functional service quality affect the way consumers evaluate brands (Eisingerich & Bell, 2008).

Customer AI Concerns

Participants highlighted that privacy invasion is their top AI concern, and this is affecting the adoption of AI technology. As stated previously Zenezini et al. (2016) state that data privacy and value creation are some of the key adoption barriers for smart home innovation. Participants fear robots will manipulate their personal information through data collection. Bentley et al. (2018) assert that individuals fear that machines are becoming super intelligent and will possibly exceed human intelligence because AI systems are continuously improving themselves. Moreover, in popular culture, the lack of possession of personal data has been associated with loss of personal autonomy resulting from the threatening ability of technologies to allow human activity to be tracked. Implications for the future are for policymakers to ensure consumer rights and privacy are safeguard and not violated in the name of innovation. The value of the sacrifice is not worth the "risk" of their privacy being compromised. Khalifa (2004) states that what customers value varies between people, products, and timing and there are several meanings of what customers truly value.

Over targeting was an important concern highlighted by one participant whereby customers continue to be targeted for the same type of products based on their previous search

history. However, this can be identified as a disadvantage of AI-enabled tools or a pain point in the customer's pre-purchase customer journey stage because it prohibits customers from being targeted for other products that they may also be interested in. Although personalized ads allow companies to attract customers using geographic or demographic factors, there is a need to balance this content, because it can be easily frustrating to customers or prohibits them from seeing other unrelated products which they may potentially buy.

Organizational AI Adoption and Diffusion

At the organizational level, the results indicate that there is a significant difference in the rate of adoption of AI-based tools for companies situated in different geographical locations. Based on Roger's (2003) DOI adopter categories, Bosch is classified as an early adopter, the case study revealed how they have incorporated AI tools in their overall business model. While from a consumer perspective, it can be said that the evidence supports Defy to be classified as a laggard because the findings indicate that they have not invested in AI tools to benefit their customers in the customer journey. Defy does not have a strong base in AI digital technologies. However, from a B2B perspective, they may be classified higher toward early adopters or early majority in the diffusion of innovation categories. This is a study area for future researchers to conduct in-depth interviews with marketing practitioners within the organization to better understand detailed practices within the organization and targeting efforts as they relate to AI digital marketing tools.

As learned from the research, there is AI incorporation in Bosch's products which is different than AI incorporated in marketing communications which is the focus of this research for example autonomous lawnmower that can be managed remotely from an app. It seems AI

adoption is higher within the product functions and operational functions. Defy, on the other hand, is not ready for AI-powered technology because of infrastructural barriers.

As far as AI and inbound and outbound marketing are concerned, the results show that Defy is not making any retargeting or lead generation efforts to give their customers personalized ads or targeted ads. This is mainly because their business model is main B2B (business to business) and all their distribution is done by dealers which brings an important question as to how artificial may be relevant in their customer touchpoints. As such, this makes it difficult for Defy to generate personalized ads since most of the touchpoints in the customer journey are handled by their dealers/distributors. It seems reasonable that their B2C (business to consumer) efforts could be stronger even if they are not pursuing a sales approach, they can pursue a marketing approach by adopting AI tools in support of their customers throughout their customer journey. This also represents an opportunity for Defy to embrace AI and enjoy the benefits of marketing efforts such as lead generation and retargeting efforts. This is beneficial to both the customer and the company because it raises brand awareness and potential conversions. Additionally, the goal is for companies to reduce the number of pain-points a customer encounters along their customer journey by trying to ensure that their experience is seamless. Thus, to increase the customer lifetime value with the brand it is imperative to adopt AI digital marketing tools.

Defy does not have AR/VR tools available for their customers during pre-purchase and their post-purchase journey. Whereas Bosch has AR/VR tools available in their home appliance and automotive subsidiary. This a major gap and opportunity identified by this study, the majority of customers for both companies researched the product online, read reviews on user-generated content but still had to go in-person to see and feel the dishwasher or washing

machine. The research indicated that six out of eight participants made the final purchase in-person. This is an opportunity for the companies to encourage their customers to use AR/VR specifically AR as a game-changer in this industry. AR/VR adoption will enrich the user experience and increase engagement while reducing pain points in the customer journey. AR technology is still limited to the gaming industry. In the meantime, AR is finding its way to most households through smartphones and mobile devices (Newman & McClimans, 2019). Their study highlighted that this is an opportunity for brands to engage with customers and enhance the value of their products and services.

AI and the Future

In connection with knowledge and implementation of diffusion of innovation, the *knowledge stage* is the diffusion of the innovation-decision process. This research revealed that there is a knowledge gap about AI which affects the rate of adoption. In accordance with an MIT Technology Review (2020) study of 2200 companies, highlighted that the biggest obstacle in embracing new technology such as artificial intelligence is finding staff with the right expertise. Additionally, owing to the digital transformation of companies, the growth rate in media and marketing communication is high, however, employees are failing to meet staffing demands due to a shortage of qualified applicants (Richards & Marshall, 2019).

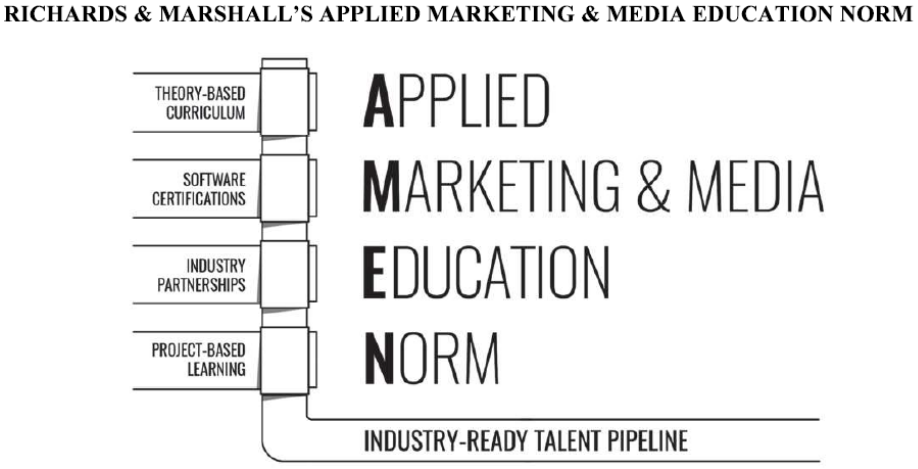
To address this gap, the Applied Marketing and Media Education Norm (AMEN) is an incumbent catalyst to adding AI-related knowledge and software knowledge in the academic curriculum for higher education learning both in America and South Africa. This study recommends the application of artificial intelligence to higher education learning space into the curriculum. Richards and Marshall (2019) developed the AMEN model (Figure 18) where a school partners with digital marketing companies to create opportunities for practical learning to

equip students for future job opportunities. Their model is a comprehensive approach to marketing that equips students to apply what they have learned to real-world business situations.

Aspects of AMEN include theory-based curriculum, software certifications, industry partnerships, and project-based learning. These aspects are crucial in equipping students in AI knowledge and practical skills of AI digital marketing tools discussed earlier such as content curation, predictive analytics, and search engine optimization. Richards and Marshall (2019) state examples such as academic partnerships with Adobe Experience Manager, a content management system that is used to control and update digital content. Other examples include Adobe Analytics which is used to monitor behaviors which also empowers AI predictive analytics and retargeting efforts to provide personalized experiences.

Figure 19

The AMEN Model



Note: Richards, M. B., & Marshall, S. W. (2019). Experiential Learning Theory in Digital Marketing Communication: Application and Outcomes of the Applied Marketing & Media Education Norm (AMEN).

Chapter 6. Limitations and Conclusion

Limitations of the Research

Some limitations to the research exist due to the methodology and design of the research. Limitations associated with research include that this research sample size was small because it was a case study analysis of only two organizations from the representative countries, the USA and South Africa. Although coding frames were developed based on frequencies, the sample and scope of this study cannot be generalized to the whole population. Future research can be conducted with a larger sample size for data results to be generalized to the whole population. The research utilized a convenience sample to recruit participants for the interviews based on willingness to participate which resulted in an overrepresentation of female participates as opposed to male participants because its home appliance purchases are primarily a woman-driven purchase. The classification system participants to Roger's five adopter categories were based on self-assessment for the participants, an individual's self-assessment may not always be accurate. While the classification of Roger's five adopter categories from an organizational level supports Defy as a laggard. It can be argued Defy is targeting more B2B consumers therefore B2C may not be their target audience.

Conclusion

This mixed methods research aimed to explore the impact of AI in marketing by investigating customer experience perspectives in the customer journey for home appliance customers. Moreover, to determine how different perceptions about AI affect the level of adoption of this technology in relation to digital tools the companies are putting in place for

customers along their customer journey. The study conducted offered answers to the research questions. The results provide insights into customer behavior when they search for information about products online. The contributions from data analysis and findings from this research study are perceptive and add meaning concerning the current literature and overall study goals.

The study found that perceptions about AI vary among customers. Moreover, how an individual perceives AI affects their adoption of innovation. The DOI adopter categories for individuals were characterized by more early adopters. While the results further revealed that Bosch is an early majority and Defy is a laggard. This study confirms that in the context of diffusion of innovation adoption varies at the geographical level. Therefore, DOI was shown to be an effective theory to assess AI adoption for organizations and individuals.

After comparing the research data, several factors affect AI adoption, for example, perceptions, usability, knowledge, risks, barriers to adoption, social factors, and infrastructure. Privacy invasion is an important factor when customers determine whether to adopt or not an innovation, therefore there are implications for the future for policymakers to make sure consumer rights and privacy are protected and not violated in the name of innovation.

References

Agrawal, A., Gans, J., & Goldfarb, A. (2018). *Prediction machines: The simple economics of artificial intelligence*. Harvard Business Review Press.

Al-Jabri, I., & Sohail, M. S. (2012). Mobile Banking Adoption: Application of Diffusion of Innovation Theory. *Journal of Electronic Commerce Research, 13*(4), 379-391. https://proquest.com/docview/1266226380?accountid=10771

Allen, M. (2017). *The sage encyclopedia of communication research methods* (Vols. 1-4). Thousand Oaks, CA: SAGE Publications, Inc.

Ameen, N., Tarhini, A., Reppel, A., Anand, A. (2021). Customer experiences in the age of artificial intelligence. *Computers in human behavior*, *114*, 106548. https://doi.org/10.1016/j.chb.2020.106548

An, M. (2019, December 11). *Artificial Intelligence Is Here - People Just Don't Realize It.* Hubspot. https://blog.hubspot.com/marketing/artificial-intelligence-is-here?_ga=2.256097995.1337449534.1572265043-1116662741.1568624619&__hstc=197451760.b950af910429f9cff356d5aaa2318c70.1610985957602.1611338818866.1611503805427.3&__hssc=197451760.1.1611503805427&__hsfp=2873996859

Bass, F. (1969). A New Product Growth for Model Consumer Durables. Management Science, 15(5), 215–227. https://doi.org/10.1287/mnsc.15.5.215

Batra, M. M. (2019). Strengthening Customer Experience through Artificial Intelligence: An upcoming Trend. *Competition Forum, 17*(2), 223-231.https://login.iris.etsu.edu:3443/login?url=https://www.proquest.com/docview/2343014949?accountid=10771

Bjorkman, J. M. (2019). A mixed methods case study in communicating change. In *SAGE Research Methods Cases.* https://doi-org.iris.etsu.edu:3443/10.4135/9781526489289

Bosch. (2021). *Home Appliances.* Bosch Invented for Life. https://www.bosch-home.com/us/

Boyd, R., Holton, R. J. (2018). Technology, innovation, employment and power: Does robotics and artificial intelligence really mean social transformation? Journal of Sociology, 54(3), 331–345. https://doi.org/10.1177/1440783317726591

Bourne, C. (2019). AI cheerleaders: Public relations, neoliberalism and artificial intelligence. Public Relations Inquiry, 8(2), 109–125. https://doi.org/10.1177/2046147X19835250

Brinkmann, S., & Kvale, S. (2018). *Doing interviews* (Second ed.). SAGE Publications Ltd https://doi-org./10.4135/9781529716665

Brock, J. K.-U., von Wangenheim, F. (2019). Demystifying AI: What Digital Transformation Leaders Can Teach You about Realistic Artificial Intelligence. California Management Review, 61(4), 110–134. https://doi.org/10.1177/1536504219865226

Brock, J. K.-U., & von Wangenheim, F. (2019). Demystifying AI: What Digital Transformation Leaders Can Teach You about Realistic Artificial Intelligence. *California Management Review*, *61*(4), 110–134. https://doi.org/10.1177/1536504219865226

Byrne, D. (2017). What is content analysis?. *Project Planner*. 10.4135/9781526408570.

Chalmers, D., MacKenzie, N. G., Carter, S. (2020). Artificial Intelligence and Entrepreneurship: Implications for Venture Creation in the Fourth Industrial Revolution. Entrepreneurship Theory and Practice. https://doi.org/10.1177/1042258720934581

Chang, H. (2011). A new perspective on Twitter hashtag use: Diffusion of innovation theory. *Proceedings Of The American Society For Information Science And Technology*, *47*(1), 1-4. doi: https://doi.org/10.1002/meet.14504701295

Chen, H. (2019). *Success factors impacting artificial intelligence adoption: Perspective from the telecom industry in china* (Order No. 22615508). Available from ProQuest One Academic. (2302014868). Retrieved from https://search.proquest.com/dissertations-theses/success-factors-impacting-artificial-intelligence/docview/2302014868/se-2?accountid=10771

Cho, J. Y., & Lee, E.-H. (2014). Reducing Confusion about Grounded Theory and Qualitative Content Analysis: Similarities and Differences. *The Qualitative Report, 19*, 1–20.

Choudhury, P., Starr, E., & Agarwal, R. (2018). *Machine learning and human capital: experimental evidence on productivity complementarities*. Harvard Business School.

Clark, S. (2020, Oct 5). *4 Ways That AI Is Improving the Customer Experience.* CMS Wire. https://www.cmswire.com/customer-experience/4-ways-that-ai-is-improving-the-customer-experience/

Cockburn, I. M., Henderson, R., & Stern, S. (2018). *The impact of artificial intelligence on innovation*. National Bureau of Economic Research.

Cohen, M. F. (2015). *Testing Theories of Innovation Diffusion: Analysis of Physicians' Adoption of Electronic Health Records* (Order No. 3720667). Available from ProQuest One Academic. (1726031260). https://login.iris.etsu.edu:3443/login?url=https://www.proquest.com/docview/1726031260?accountid=10771

Colgate, E., Wannasuphoprasit, W., & Peshkin, M. (1996). Cobots: Robots for collaboration with human operators. *In Proceedings of the ASME Dynamic Systems and Control Division,* New York, 58, 433-439.

Compunnel Digital. (2020 Jan 27). *How AI Drives Customer Experience.*

https://www.compunneldigital.com/blog/how-ai-drives-customer-experience/#gref

CXPA. (2018), Artificial Intelligence (AI) An Introduction: What Every Customer Experience Professional Should Know [White Paper]. https://www.cxpa.org/home

Damerji, H. (2020). *Technology Readiness Impact on Artificial Intelligence Technology Adoption by Accounting Students* (Order No. 27547476). Available from ProQuest Central. (2318672479). https://login.iris.etsu.edu:3443/login?url=https://www.proquest.com/docview/2318672479?accountid=10771

Davenport, T., Abhijit, G., Dhruv, G., & Timna, B. (2020). How artificial intelligence will change the future of marketing. *Journal of the Academy of Marketing Science, 48*(1), 24-42. http://dx.doi.org/10.1007/s11747-019-00696-0

Dearing, J. W., Cox, J. G. (2018). Diffusion Of Innovations Theory, Principles, And Practice. *Health Affairs, 37*(2), 183-190. http://dx.doi.org/10.1377/hlthaff.2017.1104

Defy. (2021). Defy world-class kitchen appliances. Defy. https://www.defy.co.za/appliances

Deloitte Insights. (2020). *Tech Trends 2020* [White Paper]. Deloitte. https://www2.deloitte.com/content/dam/Deloitte/pt/Documents/tech-trends/TechTrends2020.pdf

Dignum V (2018) What we talk about when we talk about Artificial Intelligence. Available at: https://medium.com/@virginiadignum/what-we-talk-about-when-we-talk -about-artificial-intelligence-13423a294160

Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., & Crick, T. (2019). Artificial

Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice, and policy. *International Journal of Information Management*. https://doi.org/10.1016/j.ijinfomgt.2019.08.002.

Edelman, David C. and Marc Singer (2015), "Competing on Customer Journeys," *Harvard Business Review* (November), 88–100.

Eisingerich, A. B., & Bell, S. J. (2008). Perceived service quality and customer trust: Does enhancing customers' service knowledge matter? *Journal of Service Research, 10*(3), 256–268.

Evans, M. (2019). *Build A 5-star customer experience with artificial intelligence*. https://www.forbes.com/sites/allbusiness/2019/02/17/customer-experience-artificialintelligence/#1a30ebd415bd

Federal Trade Commission. (2018). Retrieved from https://www.ftc.gov/system/files/documents/reports/privacy-data-security-update-2018/2018-privacy-data-security-report-508.pdf

Følstad, A., Kvale, K., & Halvorsrud, R. (2013). *Customer journey measures – State of the art research and best practice*. Report A24488, Oslo, Norway: SINTEF.

Franceschinis, C., Thiene, M., Scarpa, R., Rose, J., Moretto, M., & Cavalli, R. (2017). Adoption of renewable heating systems: An empirical test of the diffusion of innovation theory. Energy (Oxford), 125, 313–326. https://doi.org/10.1016/j.energy.2017.02.060

Gacanin, H., Wagner, M. (2019). Artificial Intelligence Paradigm for Customer Experience Management in Next-Generation Networks: Challenges and Perspectives. *IEEE Network, 33*(2), 188-194. http://dx.doi.org/10.1109/MNET.2019.1800015

Garbuio, M., & Lin, N. (2018). Artificial Intelligence as a Growth Engine for Health Care

Startups: Emerging Business Models. *California Management Review*, *61*(2), 59-83. doi: 10.1177/0008125618811931

Gartner. (2020 Nov 11). *Drive growth in times of disruption*. Gartner. https://www.gartner.com/en.

Gartner. (2017 Mar 27). *Gartner Survey Shows Connected Home Solutions Adoption Remains Limited to Early Adopters*. Gartner. https://www.gartner.com/en/newsroom/press-releases/2017-03-06-gartner-survey-shows-connected-home-solutions-adoption-remains-limited-to-early-adopters

Gartz, M., & Linderbrandt, I. (2019). *Smart Home Adoption Diffusion Prospects of the Smart Home and Voice as a Mean of Control in Sweden*. KTH Royal Institute of Technology School of Industrial Engineering and Management.

Gibbs, G.R. (2018). *Analyzing Qualitative Data* (Book 6 of *The SAGE Qualitative Research Kit*, 2nd ed.). London: Sage.

Glaser, B. G., & Strauss, A. L. (1965). Awareness of dying. Chicago: Aldine.

Glaser, B. G., & Strauss, A. L. (1967). The discovery of grounded theory. Chicago: Aldine.

Grewal, D., & Roggeveen, A. (2020). Understanding Retail Experiences and Customer Journey Management. Journal of Retailing, 96(1), 3–8. https://doi.org/10.1016/j.jretai.2020.02.002

Gupta, A., Deokar, A., Iyer, L., Sharda, R., & Schrader, D. (2018). Big data & analytics for societal impact: Recent research and trends. Information Systems Frontiers, 20, 185–194.

Hah, H. Y. (2010). *The value creation of artificial intelligence customer service in E-self*

service (Order No. 1489613). Available from ABI/INFORM Collection. (858613779). https://login.iris.etsu.edu:3443/login?url=https://www.proquest.com/docview/858613779?accountid=10771

Huang, M.-H., Rust, R. T. (2018). Artificial Intelligence in Service. Journal of Service Research, 21(2), 155–172. https://doi.org/10.1177/1094670517752459

Hyken, Shep (2009), *The Cult of the Customer. Hoboken*, NJ: John Wiley & Sons

Kaya, S. (2013). Social Media From the Perspective of Diffusion of Innovation Approach. The Macrotheme Review. 2.

Keiningham, T., Ball, J., Benoit (née Moeller), S., Bruce, H. L., Buoye, A., Dzenkovska, J., Nasr, L., Ou, Y.-C., & Zaki, M. (2017). The interplay of customer experience and commitment. *Journal of Services Marketing*, *31*(2), 148–160. https://doi.org/10.1108/jsm-09-2016-0337

Khokhale. (2018 Oct 5). *Digitizing Homes: Making Everyday Appliances Smarter with IoT and AI.* Einfochips. https://www.einfochips.com/blog/digitizing-homes-making-everyday-appliances-smarter-with-iot-and-ai/

Kirkpatrick, K. (2017). AI in contact centers: Artificial intelligence technologies are being deployed to improve the customer service experience. *Communications of the ACM*, 60(8), 1819. https://doi.org/10.1145/3105442

Kietzmann, J., Paschen, J., & Treen, E. (2018). Artificial Intelligence in Advertising: How Marketers Can Leverage Artificial Intelligence Along the Consumer Journey. Journal of Advertising Research, 58(3), 263–267. https://doi.org/10.2501/JAR-2018-035

Kietzmann, J.,Pitt, L. (2020). Artificial intelligence and machine learning: What managers

need to know. Business Horizons, 63(2), 131–133. https://doi.org/10.1016/j.bushor.2019.11.005

Kohlbacher, F. (2006). The Use of Qualitative Content Analysis in Case Study Research. Forum, qualitative social research, 7(1).

Konecki, Krzysztof. (2011). Visual Grounded Theory: A Methodological Outline and Examples from Empirical Work. Revija za sociologiju. 41. 131-160. 10.5613/rzs.41.2.1.

Kumar, V., Rajan, B., Venkatesan, R., & Lecinski, J. (2019). Understanding the Role of Artificial Intelligence in Personalized Engagement Marketing. California Management Review, 61(4), 135–155. https://doi.org/10.1177/0008125619859317

Lauren, A. (2020, Jan 20). *How LG Is Using AI To Change How Consumers Use Appliances, Improve Sustainability And Do Our Laundry Better*. Forbes. https://www.forbes.com/sites/amandalauren/2020/01/20/how-lgs-artificial-intelligence-is-changing-how-consumers-use-appliances-improving-sustainability-and-doing-our-laundry-better/?sh=1d22f0d64c42

LaVoulle, C. (2015). Above the drum: A study of visual imagery used to represent the changes in hip-hop.In *SAGE Research Methods Cases.* https://www-doi-org.iris.etsu.edu:3443/10.4135/978144627305014536125

Lemon, K., & Verhoef, P. (2016). Understanding Customer Experience Throughout the Customer Journey. *Journal Of Marketing*, *80*(6), 69-96. doi: 10.1509/jm.15.0420

Lichtenthaler, U. (2019). An Intelligence-Based View of Firm Performance: Profiting from Artificial Intelligence. *Journal of Innovation Management, 7*(1), 7-20. http://dx.doi.org/10.24840/2183-0606_007.001_0002

Lu, J., Yao, J. E., & Yu, C.-S. (2005). Personal innovativeness, social influences and adoption of

wireless Internet services via mobile technology. *The Journal of Strategic Information Systems*, 14(3), 245–268.

Lund, B., Omame, I., Tijani, S., & Agbaji, D. (2020). Perceptions toward Artificial Intelligence among Academic Library Employees and Alignment with the Diffusion of Innovations' Adopter Categories. *College & Research Libraries*, 865. doi: 10.5860/crl.81.5.865

Lwin, M. O., Wirtz, J., & Stanaland, A. J. S. (2016). The privacy dyad. *Internet Research, 26*(4), 919-941. doi:http://dx.doi.org/10.1108/IntR-05-2014-0134

Lyytinen K., Damsgaard J. (2001) What's Wrong with the Diffusion of Innovation Theory?. In: Ardis M.A., Marcolin B.L. (eds) Diffusing Software Product and Process Innovations. TDIT 2001. IFIP — The International Federation for Information Processing, vol 59. Springer, Boston, MA. https://doi.org/10.1007/978-0-387-35404-0_11

Marikyan, D., Papagiannidis, S. & Alamanos, E. (2020). Cognitive Dissonance in Technology Adoption: A Study of Smart Home Users. *Inf Syst Front*. https://doi.org/10.1007/s10796-020-10042-3

McFeely, A. (2017). *Grade Currency and the Diffusion of Innovation Theory: Communication about Grades in Higher Education* (Order No. 10269837). Available from ProQuest One Academic. (1939129271). https://login.iris.etsu.edu:3443/login?url=https://www-proquest-com.iris.etsu.edu:3443/docview/1939129271?accountid=10771

McKinsey & Company. (2018 July 26). *Artificial intelligence: Why a digital base is critical.* McKinsey Quarterly. https://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/artificial-intelligence-why-a-digital-base-is-critical#

Mende,M., Scott, M. L., van Doorn, J., Grewal, D., & Shanks, I. (2019). Service robots rising:

How humanoid robots influence service experiences and elicit compensatory consumer responses. *Journal of Marketing Research,* 56(4), 535–556

Merriam, S. (1998). *Qualitative research and case study applications in education*. San Francisco, CA: Jossey-Bass.

Micheaux, A., Bosio, B. (2019). Customer Journey Mapping as a New Way to Teach Data-Driven Marketing as a Service. Journal of Marketing Education, 41(2), 127–140. https://doi.org/10.1177/0273475318812551

Microsoft Advertising. (2019). *Mastering the customer journey: applying the predictive power of Artificial Intelligence* [White Paper] Microsoft. https://advertiseonbing-blob.azureedge.net/blob/bingads/media/insight/ebook/2019/10-october/cdj-chapter-2/cdj_mini_ebook_uk.pdf

Mills, A. J., Durepos, G., & Wiebe, E. (2010). *Encyclopedia of case study research* (Vols. 1-0). Thousand Oaks, CA: SAGE Publications, Inc. doi: 10.4135/9781412957397

Milman, N. B. (2018). Defining and Conceptualizing Mixed Reality, Augmented Reality, and Virtual Reality. *Distance Learning, 15*(2), 55-58.

Hui, H., & Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science, 49*(1), 30-50.

Mohannad AM, A. D., Smoudy, A. K. A. (2019). The Role of Artificial Intelligence on Enhancing Customer Experience. *International Review of Management and Marketing*, *9*(4), 22-31. https://login.iris.etsu.edu:3443/login?url=https://www.proquest.com/docview/2288760601?accountid=10771

Morgan, B. (2018), *3 Use Cases of Artificial Intelligence for Customer Experience*. Forbes.

https://www.forbes.com/sites/ blakemorgan/2018/08/01/3-use-cases-of-artificial-intelligence-for-customer-experience/#1f084b6e5e34.

Nagy, S., & Hajdú, N. (2021). Consumer Acceptance of the Use of Artificial Intelligence in Online Shopping: Evidence from Hungary. *Amfiteatru Economic*, *23*(56), 155-173. doi:http://dx.doi.org/10.24818/EA/2021/56/155

Neff, G., and Nagy, P. (2016) Talking to bots: Symbiotic agency and the case of Tay. *International Journal of Communication* 10: 4915–4931.

Newman, D., & McClimans, F. (2019). *EXPERIENCE 2030: The Future of Customer Experience is … NOW!* [White Paper]. Futurum. file:///C:/Users/tmtyp/OneDrive/2nd%20Year%20Fall/Thesis/Articles%20Journals/futurum-experience-2030-110966.pdf

Nimrod, G. (2008). In support of innovation theory: innovation in activity patterns and life satisfaction among recently retired individuals. *Ageing and Society*, *28*(6), 831-846.http://dx.doi.org/10.1017/S0144686X0800706X

Nutall, L. (2019, November 18). *Inbound & Artificial Intelligence: The Future of Inbound Marketing.* Axon Garside. https://www.axongarside.com/blog/inbound-artificial-intelligence-the-future-of-marketing

O'Connell, B. (2018, Dec 11). What Is Diffusion of Innovation and Why Is It Important in 2019? https://www.thestreet.com/technology/what-is-diffusion-of-innovation-14804157

Overgoor, G., Chica, M., Rand, W., Weishampel, A. (2019). Letting the Computers Take Over: Using AI to Solve Marketing Problems. California Management Review, 61(4), 156–185. https://doi.org/10.1177/0008125619859318

Panda, G., Upadhyay, A. K., Khandelwal, K. (2019). Artificial Intelligence: A Strategic

Disruption in Public Relations. Journal of Creative Communications, 14(3), 196–213. https://doi.org/10.1177/0973258619866585

Papies, D., & Clement, M. (2008). Adoption of New Movie Distribution Services on the Internet. Journal of Media Economics, 21(3), 131–157. https://doi.org/10.1080/08997760802300530

PARADISO, C. (2016). Artificial Intelligence in Digital Marketing. *Insurance Advocate*, *127*(14), 12–14

Park, Y., & Chen, J. (2007). Acceptance and adoption of the innovative use of smartphone. Industrial Management + Data Systems, 107(9), 1349–1365. https://doi.org/10.1108/02635570710834009

Paul, A. K., & Schaefer, M. (2020). Safeguards for the use of artificial intelligence and machine learning in global health. *Bulletin of the World Health Organization*, *98*(4), 282–284. https://doi.org/10.2471/BLT.19.237099

Pelau, C., Ene, I., & Pop, M. (2021). The Impact of Artificial Intelligence on Consumers' Identity and Human Skills. *Amfiteatru Economic, 23*(56), 33-45. doi:http://dx.doi.org/10.24818/EA/2021/56/33

Poole, J. R. (2016). *Lucy: IBM Watson Analytics meets Madison Avenue—Considering Cognitive Computing Artificial Intelligence Tools Employed for Advertising Media Planning and Buying* (Order No. 10125992). Available from ProQuest Central. (1808419103). https://login.iris.etsu.edu:3443/login?url=https://www.proquest.com/docview/1808419103?accountid=10771

Paschen, U., Pitt, C., & Kietzmann, J. (2020). Artificial intelligence: Building blocks and an

innovation typology. *Business Horizons*, *63*(2), 147-155. doi:10.1016/j.bushor.2019.10.004

Patel, Sumit, Bramhecha, Amit, Mahale, Santos, Mainz, Anant and Sanghavi, Mahesh. (2013) *Speech Recognition System for Windows Command.* International Journal of Computer Applications (0975-8887)

Puntoni, S., Reczek, R. W., Giesler, M., & Botti, S. (2021). Consumers and Artificial Intelligence: An Experiential Perspective. Journal of Marketing, 85(1), 131–151. https://doi.org/10.1177/0022242920953847

Ringel, Laidi, & Djenouri. (2019). Multiple Benefits through Smart Home Energy Management Solutions—A Simulation-Based Case Study of a Single-Family-House in Algeria and Germany. *Energies*, *12*(8), 1537. doi: 10.3390/en12081537

Richards, M. B., & Marshall, S. W. (2019). Experiential Learning Theory in Digital Marketing Communication: Application and Outcomes of the Applied Marketing & Media Education Norm (AMEN). *Journal of Marketing Development and Competitiveness, 13*(1), 86-98. https://search.proquest.com/scholarly-journals/experiential-learning-theory-digital-marketing/docview/2199791159/se-2?accountid=10771

Rogers, E. (1995). Diffusion of innovations (4th ed.). Free Press.

Saunders, Mark, Lewis, Philip and Thornhill, Adrian. (2009) *Research methods for business students.* 5th edition. Harlow, CA: Pearson Education Limited.

Schreier, M. (2019). Content Analysis, Qualitative. In P. Atkinson, S. Delamont, A. Cernat, J.W. Sakshaug, & R.A. Williams (Eds.), *SAGE Research Methods Foundations.* https://doi-org.iris.etsu.edu:3443/10.4135/9781526421036753373

Scott, D. (2013). *The New Rules of Lead Generation : Proven Strategies to Maximize Marketing Roi*. AMACOM.

Siebert, A., Gopaldas, A., Lindridge, A., Simões, C. (2020). Customer Experience Journeys: Loyalty Loops Versus Involvement Spirals. Journal of Marketing, 84(4), 45–66. https://doi.org/10.1177/0022242920920262

Silverio-Fernández, M., Renukappa, S., & Suresh, S. (2018). What is a smart device? – a conceptualisation within the paradigm of the internet of things. *Visualization In Engineering*, *6*(1). doi: 10.1186/s40327-018-0063-8

Sinofsky, Steven. (2019, January 14) *CES 2019: A Show Report.* Medium. https://medium.learningbyshipping.com/ces-85ca9f07c08a

Shank, D. B., Graves, C., Gott, A., Gamez, P., & Rodriguez, S. (2019). Feeling our way to machine minds: people's emotions when perceiving mind in artificial intelligence. *Computers in Human Behavior, 98*, 256–266, 2019.

Shih, W. (2020). Chapter 4. Future Actions. *Library Technology Reports, 56*(4), 34-40. https://login.iris.etsu.edu:3443/login?url=https://www.proquest.com/docview/2441557697?accountid=10771

Solis, B. (2017). *Extreme personalization is the new personalization: How to use AI to personalize consumer engagement*. https://www.forbes.com/sites/briansolis/2017/11/30/extreme-personalization-is-the-newpersonalization-how-to-use-ai-to-personalize-consumer-engagement/#ef3c32e829ad

Somang Min, Kevin Kam Fung So., Miyoung Jeong (2019). Consumer adoption of the Uber

mobile application: Insights from diffusion of innovation theory and technology acceptance model, *Journal of Travel & Tourism Marketing*, 36:7, 770-783, DOI: 10.1080/10548408.2018.1507

Stark, B. F. (2018). *Using Diffusion of Innovation Theory to Examine the Perceived Attributes of Blended Learning: A Survey of Teachers and Administrators in PreK–12 Schools* (Order No. 13425588). Available from ProQuest Central. (2407282293). https://login.iris.etsu.edu:3443/login?url=https://www.proquest.com/docview/2407282293?accountid=10771

Straub, E. T. (2009). Understanding Technology Adoption: Theory and Future Directions for Informal Learning. *Review of Educational Research, 79*(2), 625-649. https://login.iris.etsu.edu:3443/login?url=https://www.proquest.com/docview/214121884?accountid=10771

Surendra, S.S. (2001). Acceptance of Web technology-based education by professors and administrators of a college of applied arts and technology in Ontario (Doctoral dissertation, University of Toronto, 2001). *ProQuest DigitalDissertations*. (UMI No. AAT NQ58603).

Surry, D. W., & Farquhar, J. D. (1997). Diffusion theory and instructional technology. *Journal of Instructional Science and Technology*, *2*(1), 24-36.

Sutherland, J. (2018). The sharing economy and digital platforms: A review and research agenda. International Journal of Information Management, 43, 328–341. https://doi.org/10.1016/j.ijinfomgt.2018.07.004

Taddy, M. (2018). *The technological elements of artificial intelligence*. National Bureau of Economic Researcho.

Van Rijmenam, M. (2020). *The organisation of tomorrow* (1st ed.). New York: Routledge Taylor and Francis Group.

Verhoef, P. C., Lemon, K. N., Parasuraman, A., Roggeveen, A., Tsiros, M., & Schlesinger, L. A. (2009). Customer experience creation: Determinants, dynamics and management strategies. *Journal of Retailing, 85*(1), 31e41.

Voicebot. (2019, March) *Smart Speaker Consumer Adoption Report U.S.* https://voicebot.ai/smart-speaker-consumer-adoption-report-2019/

Wirth, N. (2018). Hello marketing, what can artificial intelligence help you with? International Journal of Market Research, 60(5), 435–438. https://doi.org/10.1177/1470785318776841

Xu, Y., Shieh, C., van Esch, P., & Ling, I. (2020). AI customer service: Task complexity, problem-solving ability, and usage intention. Australasian Marketing Journal, 28(4), 189–199. https://doi.org/10.1016/j.ausmj.2020.03.005

Yin, R. K. (2009). How to do better case studies: (with illustrations from 20 exemplary case studies). In *The SAGE handbook of applied social research methods* (pp. 254-282). SAGE Publications, Inc., https://doi-org.iris.etsu.edu:3443/10.4135/9781483348858

Young, M. (2018). *Ogilvy on advertising in the digital age* (First U.S. edition.). New York: Bloomsbury.

Yuniarthe., Y. (2017) Application of Artificial Intelligence (AI) in Search Engine Optimization (SEO). 2017 International Conference on Soft Computing, Intelligent System and Information Technology (ICSIIT), 96-101

Zafeer, M., & Li, S. (2019). Impact of Artificial Intelligence in Marketing: A Perspective of Marketing Professionals of Pakistan. *Impact of Artificial Intelligence in Marketing: A Perspective of Marketing Professionals of Pakistan, 19*(2).

Zenezini, G., & Ghajargar, M., & Fiore, E., & De Marco, A. (2016). The Smart Home Services Diffusion Process: A System Dynamics Model.

APPENDIX: Interview Guide

Introduction

Thank you for agreeing to speak with me about your customer journey experience with (company) and artificial intelligence. This interview should take 30-45 minutes to complete. Please remember that everything you share in this interview is strictly confidential. In this interview there are no right or wrong answers, I am interested in knowing your opinions and experiences with the brand. For any subject area that you do not understand, please let me know. Also, if you wish to skip any questions you may do so. If you have any questions I will be happy to answer them.

Customer journey and AI

1. How long have you been a customer at Bosch USA/Defy SA?
    - Tell me about your general perception of the company?
2. Can you tell me how you got to know about the brand or product?
    - Which products have you purchased?
    - How would you describe your experience with the company?
3. Walk me through the timeline from the moment you decided you needed this product to when you actually made the purchase?
    - How do you search for information before your purchase?
    - Which applications or social media platforms did you use?
    - Did you make the purchase online or in-person?
4. How do you generally perceive the ads you have seen from Bosch /Defy?
    - Have you ever received personalized ads online to your knowledge?
    - How did you know that ad was personalized to you?
    - Do you think the ad was relevant to your search?
5. What do you understand by the term artificial intelligence?
6. What are your views/thoughts on personalized targeted ads that appear when you are online?
7. Have you used a chatbot or virtual assistant in purchasing or post-purchase journey as a customer?
8. How readily do you give your information such as contact numbers, email, age online?
9. What improvements can you suggest, and what concerns do you have with the brand?
10. How do you see artificial intelligence changing your interactions with companies in the future?
    - How do you see it possibly improving your experience?
    - What concerns do you have?
11. Would rate yourself as an early adopter of new technology?
12. How likely are you to recommend the brand's products to someone?

Demographic Information

The information will be aggregated or not personally connected to you.

What is your Age …….

Gender……

Highest level of education…….

Ethnicity……..

Questions?

Thank you for taking the time to participate in this interview!

VITA

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Education:	M.A. Brand and Media Strategy, East Tennessee State University, Johnson City, Tennessee, 2021
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