DECODING
THE CONSUMERS
OF THE 21ST CENTURY

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Decoding the Consumers of the 21st Century

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PREFACE

The success of any marketing endeavour depends strongly on how well the company has understood the behaviour of consumers. Knowing how consumers make decisions is critical in decoding their behaviour. Marketing practitioners and consumer researchers are trying not only to understand the consumers' behavior but also ways to influence it. Understanding and influencing the behaviour of consumers requires knowledge of various fields like cognitive psychology, behavioural economics, social psychology, and neuromarketing. Consumers of the 21st Century are exposed to such fast-paced environmental changes that make decoding their behaviour even more challenging. These changes in the environment include a variety of new technologies like AR, VR, AI bots (chatbots and voice bots), and Metaverse. Other changes in the environment are the availability of almost unlimited choices faced by consumers in almost all categories. This book covers some of these crucial aspects of consumers. This book is divided into two parts. The first part helps readers understand the various aspects of consumers through the lens of different areas of behavioural sciences: consumer psychology, behavioural economics, neuromarketing, and social psychology. The second part of the book discusses how consumers interact and adopt new technologies and other changes in the environment.

Chapter 1 highlights how consumers make decisions through the lens of System 1 and System 2 theory. Understanding the brain processes through dual modes of System 1 and System 2 is a crucial way to understand consumer decision-making, popularized by Nobel Laureate Daniel Kahneman in his international bestselling book "Thinking Fast and Slow". Chapter 2 makes a distinction between consumption and the choice made to make this consumption decision. The decision-making processes are further classified as choices for self, choices for others, and choices made jointly. Chapter 3 bridges the gap between neuroscience and marketing. It highlights how the neuromarketing is changing the face of marketing. Chapter 4 covers a very important concept of behavioural nudging developed by Nobel laureate Richard

Thaler and Cass Sunstein in the international bestseller book "Nudge". This chapter highlights how behavioural nudging can influence consumers' behaviour. Chapter 5 covers a very important aspect of homophily and consumers in the digital world. Chapter 6 highlights the impact of new-age technologies on consumer behaviour, especially the Chatbots & AR/VR. Chapter 7 highlights how Metaverse is bridging the gap between virtual and real worlds and its implications for consumers. Chapter 8 highlights how Augmented Reality (AR) and Virtual Reality (VR) enhance customer Experience. Chapter 9 presents an empirical study of Consumers' Intention to Use Contactless Payment Systems (CPS). Chapter 10 explains how consumers make food choices when bombarded with many options. This chapter also highlights the role of heuristics and biases in consumer food choices and how consumers can be nudged towards healthy choices. Chapter 11 presents an empirical study on Customer expectations of EV charging stations. It helps understand drivers of customer experience for electric vehicle users in the highway segment.

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PART-1

Decoding the Decision of the Consumers

CONSUMER DECISION MAKING THROUGH THE LENS OF SYSTEM 1 AND SYSTEM 2 THEORY

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Abstract:

Individual has a bundle of "needs", and because of the lack of resources one needs to make choices to satisfy the most prior needs. The priority of needs is different for each and every individual. To select and make the choices from the available resources, one can take the decision by thinking fast and slow. So, as per the 2 systems theory, there are two different ways in which brain forms the thoughts to make the decision; system-1 is more related with fast, automatic, sub conscious and emotional and illusion driven decisions while system-2 is more related with the logical, calculative, effortful (compare to System-1), and more conscious decisions. Basically, 2-systems theory is originally from the school of cognitive psychology, developed in behavioral economics and eventually it is having an empirically use in several other fields. The present chapter aims to study consumer decision making through the lens of system 1 and system 2 theory. The chapter presents a view on how mind operates in cognitive and social psychology in making the decision".

Introduction System 1 and 2 theory:

System 1 can also be known as "fast system" or "fast thinking" or even referred as an automatic system. System 1 is the primary process with a very

short duration. In a fraction of second, it starts processing. Syestem-1 generally deals with "sub-conscious" mind of individuals. Innate skills, association between ideas, skills and expertise and knowledge are considered as important features of System-1(Kahneman, 2011). The features are mentioned in detail as below;

Firstly, "innate skills"; for e.g. when you keep something around the lips of a new born baby, the infant will start sucking irrespective of things. Secondly, "Association between ideas"; for example; when you are asked to answer the financial and entertainment capital of India, along with Mumbai, one can think about BSE or Bulls image (Bombay stock exchange) and Bollywood respectively. Then comes "Skills and Expertise"; a chess move or a software programming can only successfully have performed by chess player and technocrat respectively. The 4th feature of System-1 is; "Knowledge". Knowledge is primarily associated with memory. In the case of language and culture; if it is asked that what is the meaning of "Hello!" in India? The instant thought comes in one's mind i.e. "Namaste" similar to that, if it is asked that who were the ancient citizens of India or specifically southern India? The answer to that is "Dravidians". This is nothing but an outcome of the knowledge possessed by a person who knows Hindi and History of India.

System 2 is long and comparatively more analytical than system 1. It is long and time consuming process in nature. It generally deals with conscious mind. There are several features of system 2. The features are; firstly, System-2 happens when several ideas and logical thoughts arise in "Order". It is more related to "Memory" as knowledge is associated with its thought process. In addition to that, it works in "Low effort mode". And it is more related to "Problem solving" approach. Compare to system-1, system-2 is "Effortful" in nature. It requires intellectuality to make the rational decisions. The only common and the preliminary feature in system-1 and system-2 is "Attention" or "Observation". Without giving any attention or doing any observation, one can't think impulsively or effortfully (Kahneman, 2011).

Capabilities:

System-1:

Firstly, it is more like a routine decision or usual practice. The visualization and orientalization are fully depended on attention. Secondly, it is mechanical in nature. It occurs hurriedly with almost negligible efforts and doesn't require any rationality or intentional control. And that's why it happens subconsciously.

System-2:

system-2 works as a "Self control" in order to defeat the impulse of System-1. For example; a shopper gets attracted towards the package of recently launched chocolate and about to go for the purchase and soon after he realized that, before couple of weeks his teeth were paining as the septic happened in it, and as a result he was advised to not to have chocolate till the treatment ends. And this is how he changed his mind from purchasing a newly released attractive packaged chocolate. It sometimes also works as a "cognitive illusion" which directs and diverts the mind not to work in the direction which is earlier suggested by System-1 approach.

Interaction of System-1 & 2:

The main occurrence of this theory is interaction of system 1 and 2. Basically, system 1 & 2 both run in parallel. The only difference between the two is that system 1 works "robotically" while system 2 works with considerable low efforts by using only a fraction of its capacity (Kahneman and Frederick 2001).

The common feature of the 2 systems is "attention" or observation; it is the preliminary step for both systems. System 1 commonly provides the recommendations for system-2 by making Impressions/ Intuitions/ Intentions / Feelings. It normally works in the following way;

System-1: Impulses ------> Voluntary Actions
System-2: Impressions & Intuitions ------> Beliefs

If System-1 runs adversely, then system-2 takes the command. So, as discussed earlier, System-2 works as a problem solving agent. The cognitive

illusion of system-2 advises not to believe or act on something which will create danger for the future. Hence, it is will act as a controlling unit.

Review of Literature:

The preliminary idea of 2 system theory or cognitive processes has come from 2 ways. First one from the "intuition" and second one from the "reason". And the combination of intuition and reason has been used to develop the "dual process theories" (Sloman, 1996). Dual process theory is widely applicable in various areas. But, as a part of application, one thing is common that, all the cognitive decisions taken over here are more quick and associative in nature compare to the decision which are slow in nature and abide by official procedure (Gilbert, 1999).

The categorization of 2 systems i.e. system-1 and system-2 has been derived from individual differences in reasoning. According to that, systems are nothing but the collection of processes distinguished on the basis of their content, controllability and speed (Stanovich and West 2000).

The decisions can be categorized into 2 parts; 'memory based' and 'stimulus based' on the basis of the dual processing theories of mental processing. Here, memory based decisions are being considered under System-1 which favors higher affect, hedonic options, while stimuli based decision are being considered under System-2 which favors more sensible or appropriate options such as product detailing on labels or packaging, warrantee & guarantee etc. In addition to stimulate the decision more analytically, the monitory factor will be useful to achieve the desired goal. For the same, companies are incorporating performance based payment strategies in their regular operations. For e.g. incentive scheme, bonus, commission etc. are the example of performance based payment strategies. These examples are an evidence of focusing on System-2 (Shiv, Baba and Fedorikhin (1999); Rottenstreich, Sood and Brenner 2007).

Significance and Applications

The present theory is based on the foundation of 2 Systems theory and

Kahneman and Tversky's preliminary work, which suggests; "decision makers are consistently risk averse in the domain of gains and risk seeking in the domain of losses". Humans are more likely to get the high probability of gain which is "certain" in nature and won't generally prefer to take higher amount of risk (Randall Kiser and Springer, 2010). This is the reason why investors tend to invest more into the mutual funds compare to equity markets. As it is relatively safe and provides consistent and assured 2 systems theory is the primary theory which has been used to devise human judgments and decision-making with biases and heuristics. In the area of marketing research, this theory is very useful. For example; at the time of data collection, respondents are asked to respond a set of questions, if the respondents do not prefer to answer the difficult questions and only answering the questions which are easy in nature. In such cases, it is a clear indication that researcher needs to either re-work on framing the questionnaire or it won't make sense to carry out research further (Kahneman, 2011).

To get a maximum footfall of the customers, 2 systems theory is used. It studies the shopping behavior of consumers and based on that it helps to perform various activities such as; to develop more attractive and successful packaging, to formulate product awareness and promotion campaigns, shelf management, brand awareness etc. Hence, we can say that 2 systems theory has massive implications in the area of marketing as well as behavioral economics (Young, 2016).

Dual system theory and generation Y

According to Weingarten (2009) the individuals who were born between 1980-2000 were called generation Y. This generation is also denoted as millennials as well as gen next (Howe and Strauss, 2003; Martin, 2005). This generation is surrounded by a secured and objective oriented setting (Howe and Strauss, 2003); 1 or 2 siblings (Alsop, 2008). This has led non-competitiveness within the family (Strutton et al., 2011). If we look at the key characteristics of the generation then this generation has gain various achievements (Alsop, 2008) with the help of efficient team work (Berkowitz and Schewe, 2011); and a combination of organized as well as integrated skills (Jerrard, 2002). However, they seek the continuous feedback in the short time period (Berkowitz and

Schewe, 2011). They believe in developing learning perpetually (Alch, 2000) and are also well-versed with the new technology (Rowh, 2007) for e.g. internet. They use internet for informativeness as well as entertainment (Oblinger, 2003). This generation avoid reading text messages as they consider it as mundane (Gioia, 2004; Perez, 2008). Conversely, verbal and non-verbal communication happen on digital media is preferred by this generation (Carr and Ly, 2009). At this juncture, this generation owns the maximum purchasing power (Waters, 2006). Hence, to aid this generation in making purchasing decisions, usage of dual system approach is essential. It will not only nudge the individuals but also help the marketers in making favorable behavioral actions in terms of purchase.

Discussions and Implications:
As a part of knowledge creation, this theory is the pioneer for prospecting theory and heuristics of judgments. It can also be used as a pioneer in developing the positivist and functionalist theory specifically in the area of Strategic Marketing, Consumer Behavior, Sales promotion and it can also be used in the area of behavioral economics which essentially came from the discipline of psychology. Moreover, it also has industrial applicability. It provides a huge contribution in the area of marketing research, sales & distribution, leadership and helps in consumer decision making.

Limitations of the Theory:
The decisions taken based on system-1 cognitive processing; there are higher chances that decision makers will rely heavily on illusions rather than other analytical or intellectual thought processes. This may negatively affect the financial or economical aspects of the business. For example; in an emergency situation, when one takes decision which is not rational in nature, which is based on some emotional or illusion stimuli, then it may affect adversely in the future (Kahneman, 2011). For example, when one wants to buy term life insurance, it has always been a tradeoff whether to focus on life cover or return on investment. It requires adequate reasoning in order to decide on the vendor or scheme to buy term life insurance policy. Hence, system 1 may not be merely useful. It should be supported by the reasoning of system 2.

According to Kahneman and Frederick (2005) & Kahneman (2011), a psychological therapy it is suggested that it is very difficult to eliminate the dominance of emotional stimuli over decision as emotions are very salient feature in humans and due to the same reason, it is difficult to understand and reduce its impact over decisions.

It is found that, intuitions (system-1) are aligned with deprived act. However, intuitions can be considered to be a very powerful as well as precise in nature. Supremacy in developing intuitive skills can be learnt by extended training, and the enactment of skills is effortless as well as rapid in nature. This can be developed with help of expertise, past history, knowledge and skills (Simon and Chase, 1973)

According to John Clark, be a renowned marketing leader in the industry, System-1 might not be able to help the company as it requires intellectual approach to design the marketing plan. For the same, it is suggested that brands need to focus on neuroscience to plan the creative, effective and invaluable campaigns which help the marketers "to induce the subconscious mind and convince the conscious mind of the consumers (Clark, 2014)".

Moreover, Clark (2014) has also emphasized on "System-1" in his research. System 1 attempts to create biasness and higher level of subjectivity in a research as it is only focuses on easy question to answer than difficult one. Secondly, once the System-1 starts running, it can't be stopped. While in the case of System 2, it is relatively slow as well as incompetent to consider as an alternate when system 1 in any ongoing decision.

Illustration:
A homemaker goes to an organized retail mall to purchase the grocery for the upcoming month and finds massive discount on personal care products and then she determines to purchase the same, this is an example of impulse buying behavior which falls under the system 1 category. Whereas, in the same example, if a homemaker/housewife plans to go organized mall to purchase the grocery along with the predetermined list and after knowing the massive discounts she tries to study the product whether it is near to expiry?

Whether the discounts are applicable to all the variety of products? And that scheme is applicable on pay back cards or what? This is an example of cognitive stimuli which falls under system 2 category. Hence, it can be deduced that system 1 help in satisfying hedonic needs whereas system 2 aids in satisfying utilitarian needs of consumers. System 1 follows peripheral route while system 2 follows central route in consumer decision making process.

Conclusion:

To arrive at a decision, it is required to understand whether to focus upon stimuli or memory settings. Some decisions can be taken in a fraction of time (system-1) while some decisions may require more analytical thinking and intellectuals' investigations (system-2). And this will vary upon several factors. But, this both system 1 and system 2 has the common and preliminary feature i.e. "attention" and from that, the thinking processes. And later to that, system-2 will use as either extension of system-1 or it may the stop the process and will be used as a problem solving exercise. And this will have an implication not only in the area of psychologies but also in behavioral economics and marketing.

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CHAPTER 2

INDIVIDUAL AND JOINT CONSUMPTION: UNDERSTANDING HOW CONSUMERS MAKE DECISIONS

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1. Introduction

Can you imagine going out for dinner with your partner or family, ordering food for your selves and eating it individually? Have you ever wondered why certain food packages are large, for example, a bottle of beer or a tub of ice cream? Consumer decisions are rarely isolated events in today's complex and interconnected world. We are tied by various cultures which have imbibed in us the habit of 'sharing' or 'consuming together.' This behaviour is often termed "joint consumption" or "shared consumption." Decisions made for joint consumption are unlike those you take for yourself or on behalf of another person(persons). Understanding consumer decision-making for joint consumption is an interesting area of study that can be critical for businesses and marketers. However, understanding the dynamics of these decision

processes can be complicated as they involve a plethora of factors. This chapter delves into the complexities of consumer decision-making in joint-consumption scenarios, highlighting what sets it apart from individual consumption. In our investigation of joint consumption, we move from the expanse of individual preferences to the subtle dynamics of collective decisions. This shift is critical in comprehending the complexities of how several individuals interact in making decisions that frequently have far-reaching consequences. We have attempted to clearly distinguish between the two concepts and provide a simplified overview of how consumer choices are made in different contexts and how the decision-making differs for the same.

2. What is Joint Consumption, and how it differs from Individual Consumption?

2.1 Joint Consumption

When we think of 'joint consumption' or 'shared consumption,' two things are really important which must be taken into consideration: (i) People are engaged in the same consumption behaviour, (ii) There is some degree of interaction/ interdependence between them (Liu & Kwon, 2023). For example, consider 4 people eating lunch together in the office canteen. Will you regard this as a joint consumption? The answer is undoubtedly a 'No', especially if they are not concerned about interacting with one another and are just into themselves. Joint consumption involves numerous people, frequently with differing interests and objectives, making consumption decisions together. This can happen in various situations, including family purchases, group vacations, and business procurement. Consuming alongside others has numerous advantages (Ramanathan & McGill, 2007). Companies are aggressively promoting programs and schemes that encourage joint consumption behaviour. The television streaming plans being offered by OTT platforms such as Netflix, Hotstar, and Amazon Prime is one such example where people can sit with their families and watch popular movies and series. Travel businesses provide group trip packages and family vacation packages. These packages offer twin benefits in terms of lower consumer costs and higher business sales.

2.2 Individual Consumption

To understand joint consumption better, we need to distinguish it from individual consumption clearly. Individual consumption, as the name suggests, refers to an individual's usage or consumption of products or services for personal benefit or satisfaction (Weisbrod, 1964). The decision-making process involves the individuals considering the factors that impact their consumption behaviour, including income, tastes and preferences and cultural influences (Flavin, 1981; Holbrook, 1993; Tiu Wright et al., 2001). Several theories and models help in explaining the causes of varied consumer behaviour. The theory of planned behaviour (TPB) is one of the widely used theories that states that intentions and attitudes determine consumer behaviour. TPB considers an individual's perceptions, subjective norms and perceived behavioural control to predict their intentions and, hence, their behaviours (Ajzen, 1991). Other popular theories and models that help us to understand individual consumption behaviour include the theory of Reasoned Action (Ajzen, 1980), the Model of Consumption Values (Sheth et al., 1991), the Consumer Decision-Making Model (Howard, 1994), the Social Cognitive Theory (Bandura, 1986), and behavioural theories such as the Prospect Theory (Kahneman & Tversky, 2013). It is imperative to understand individual consumption behaviour in detail as it contributes to a conscious awareness of how consumers behave and how consumer preferences are interconnected in today's world.

2.3 How they Differ

Besides being made collectively or individually, these types of consumption have differences based on the consequences and dynamics associated with the choice. Consumption of specific items by an individual depends on the individual's autonomy and is an expression of individual tastes and preferences. It allows people to personalize their purchases to match their desires and preferences, allowing them to feel that they are distinct individuals with diverse needs. However, joint consumption highlights social aspects, mutual benefits, and collaborative decision-making. It fosters the feeling of togetherness and helps strengthen relationships by creating shared memories. Understanding the dynamics and distinctions between these consumption modes reveals a plethora of ways in which people relate to goods, services and experiences in either their personal or shared context.

3. Analysing Consumer Choices for Individual and Joint Consumption

The complexities of individual and combined choices of consumers should be considered when analyzing consumer choices for joint and individual consumption. Personal preferences, needs and desires shape every individual's consumption decision. Personal taste, lifestyle and personal motives determine every person's consumption decision. In contrast, joint consumption decisions relate to shared experiences, collaborative decision-making, and collective benefit. These varied ways of consuming require examining the psychological and social factors that propel personal choices and group characteristics. These choices are explored to provide insights into the trade-offs between the consumption of self-pleasing, personalized items and the consumption of socially mediated items. In this chapter, we have divided consumer choices into two main dimensions: choices made for Individual Consumption and choices made for Joint Consumption. Individual consumption choices are further subdivided into Choice by Self, Choice for Others and Choice made Jointly, with Choice for Others also including those made for joint consumption.

Consumer decisions can be made in a multitude of contexts. These decisions include: (i) Choice made by an individual to consume individually, (ii) Choice made by an individual to consume jointly, (iii) Choice made by a group of individuals to consume individually, (iv) Choice made by a group of individuals to consume jointly (Gorlin & Dhar, 2012). Consumer choices for others can be further subdivided into four categories: (a) Choice made for gift-giving, (b) Choice made in case of everyday favours/pickups, (c) Choice made for joint consumption (d) Choice made with the objective of caregiving (P. J. Liu et al., 2019).

These decisions can be further explained as follows:

(i) **The choice made by an individual to consume individually:** Individual choices for the personal utilization of goods and services are largely based on personal tastes, preferences, needs and wants of an individual. These decisions are profoundly based on the individual's characteristics, expectations, and circumstances. Although these choices depend on a number of factors, certain choices are highly

individualistic in nature and are a reflection of the unique personality that one has. For example, the type of clothes a person likes to wear or the genre of movies/ TV shows that one enjoys watching.

(ii) **The choice made by an individual to consume jointly:** It refers to those decisions whose outcomes will be shared with others but are taken by a single decision maker. The decision maker has to transcend personal boundaries, operating with a collective mindset integrating the needs and preferences of people in the group who would be affected by such choices. For example, one partner decides where to go for dinner or which movie to watch on the weekend.

(iii) **The choice made by a group of individuals to consume individually:** Many a time, it happens that a person will consume certain products or services, but the decision for such choices is taken by two or more two groups of people. Think in this manner, our parents play a major role in our lives and make a lot of decisions with us and on our behalf, like the clothes we wear or the school/university that we attend, the food we eat and so on. Although such decisions involve several people, the outcome is only for us.

(iv) **The choice made by a group of individuals to consume jointly:** It refers to those decisions that a collective group of people takes to decide on goods, services or experiences that all would consume. Suppose you have gone out for dinner with your friends, and now you want to decide what things to order. The final list of items chosen will be based on a number of suggestions based on individual preferences but will be consumed by all/ almost all present on the table.

Consumer choices for others are:

(a) **The choice made for gift-giving:** Making conscious choices to present something to someone else as a symbol of appreciation, celebration, thankfulness, or just to mark a special occasion is what gift-giving entails. The choice of a gift can be extremely personal and a reflection of the giver's and the recipient's relationship. The act of gift-giving allows

the giver to show their thoughtfulness and understanding of the recipient's preferences, interests, and needs. Gifts become a medium to create lasting memories with the recipient and deepen the emotional and mental connection between the parties involved. There are several instances where we give gifts. There are gifts for birthdays, anniversaries, special achievements, etc. There is even the latest personalization trend in gift-giving, where people get specially curated gifts for the recipient.

(b) **The choice made in case of everyday favours/pickups:** Such choices refer to those that are made to assist someone or fulfil a task for another in our everyday lives. Such actions are often based on our relationships with others, empathy or a genuine desire to extend our help towards others. Examples of such choices include picking up groceries for our friends or family members who might be too busy or unavailable to do it themselves, buying something at someone's request, etc.

(c) **The choice made for joint consumption:** We have already discussed cases where the choice for joint consumption is made either by a single individual or a group of individuals.

(d) **The choice made with the objective of caregiving:** These choices are guided more by empathy and responsibility towards the other person and are aimed at supporting or providing help to someone in need. Examples of such choices include parents taking care of their children, adults taking care of their dependent parents who might be incapable of deciding for themselves, and so on.

3.1 Choice by Self

Consumer choice is a complex process with a wide range of behavioural consequences (Nanakdewa et al., 2021). The choice made by an individual can be for the individual, i.e., a Choice for self or individual consumption, and it can also be made to consume jointly, i.e., for joint consumption. The choice made for self can be understood through various perspectives pertaining to concepts in psychology, behavioural economics, and consumer behaviour in

marketing. It emphasizes the significance of understanding the psychological processes that drive individual preferences and choices. This concept exemplifies the complex interplay between human motives (Deci & Ryan, 2012), needs (McLeod, 2007), and cognitive biases, all influencing decisions people make for their benefit. The popular theory on Self Determination (Ryan et al., 2002) talks about the three fundamental psychological processes that drive human behaviour, namely: Autonomy (the desire of an individual to make choices independent of others), Competence (the need to feel capable and take effective actions) and Relatedness (the need to make choices that foster social connections).

Individual preferences are highly significant in influencing consumer behaviour. Several concepts in psychology explain the biases inherent in consumers. For example., confirmation bias is a cognitive bias that encourages people to seek information that confirms their past preferences (Nickerson, 1998). Research has also shown that people are more willing and able to rely on their personal preference weights and create preferences that come with private self-awareness (Goukens et al., 2009). However, because of limited cognitive capacity, consumers frequently lack well-defined existing preferences and must develop them using a variety of tactics based on task needs (Bettman et al., 1998). When customers make decisions for themselves, they consider their personal interests, values, and needs. This self-centred approach to consumption decisions is rooted in the notion of rational choice theory (Scott, 2000) and allows for the development of customer-centric strategies. On the other hand, when they make choices on behalf of others, they try to arrive at a decision that would balance the preferences of others. For example, when someone decides what to eat for dinner, they may only think about what they like or don't like and make the choice accordingly. However, when a mother decides what to cook for dinner, she may have multiple thoughts regarding everyone's likes and dislikes and would end up cooking something that all would like.

3.2 Choice for Others

Choice for others involves decisions made on behalf of another person. These decisions frequently favour the recipient's well-being and preferences (Gino &

Flynn, 2011), stressing collective significance over individual goal fulfilment. The process and outcomes of choosing for others differ significantly from those involved in choosing for the self (Barasz et al., 2016). People are concerned about the implications of the choice for their relationship with the recipient (P. J. Liu et al., 2013). The choice made for others can either be for the independent use of the recipient, as in the case of gift-giving (Gino & Flynn, 2011) or to consume it jointly by the parties into consideration (Gorlin & Dhar, 2012; P. J. Liu et al., 2019). Past research has shown that people often tend to make choices that are more desirable when they choose for others rather than when they choose for themselves, in which case the more feasible choices are made (Lu et al., 2013). Also, while making choices for others, people are more concerned with the number of alternatives that are available in contrast to making choices for the self, where they are more concerned with the number of attributes (Y. Liu et al., 2018). In other words, people tend to seek more variety when choosing for others (Choi et al., 2006). Let us understand this through an example: when we land in a situation where we have to choose the other person, a series of possible options can cross our minds depending on what we best know about someone. Making a choice for ourselves is easy as we are aware of what we want to have. However, the same choice becomes complicated when taken for someone else as we try to calculate the different probabilities in our minds and intend to please the other person. Therefore, we would look for all the alternatives that are available and would assist us towards making an almost perfect decision. Suppose you have gone shopping for an ethnic dress for an upcoming event, and you instantly catch the attention of a beautiful dress that you feel would look good on you. Now imagine the same situation, but this time the dress has to be purchased for your friend, and you do not know the exact category to look for (ethnic, casual, formal); will just one option suffice your choice journey? Certainly not. One would want to look for multiple options across categories and try to make a decision to the best judgment. This is where all the difference arises. There are several other contexts in which choice for others has been studied, such as loss aversion, self-construal, information distortion and choice overload (Polman, 2010, 2012b, 2012a; Wu et al., 2[[019)

3.3 Choice made Jointly

Joint choices are made collectively by two or more individuals (Brick et al., 2022). Again, these choices can be made to consume jointly or independently by one of the parties into consideration (Gorlin & Dhar, 2012) and can include durable material goods (e.g., a car, a refrigerator), household goods (e.g., shampoo, toiletries) or even experiential good (e.g., a movie, a live concert) (P. J. Liu et al., 2019). Imagine a couple deciding which movie to watch the coming weekend or going together to shop for clothes for each other. Even though the decision is taken jointly in both scenarios, the former will result in a joint consumption, whereas the latter will result in individual consumption. Research has shown that people often tend to forgo their most preferred alternative and tend to accommodate the preferences of their partner for joint consumption (Garcia-Rada et al., 2019). Consumer decisions in relationships are often referred to as a 'dyadic framework' of decision-making (Simpson et al., 2012). Since the views and motives of every individual are different, joint consumption choices often warrant the resolution of conflicts (N. Y. J. Kim et al., 2023). Ways for such resolution might be different for example., couples might resort to bargaining, playing on emotions or utilizing compromise strategies (C. Kim & Lee, 1996; Park, 1982). Joint decisions not only build relationships by encouraging trust and cooperation, but they also frequently result in more successful outcomes since various perspectives contribute to more informed decisions. Let us think in this manner. You might have come across this situation many times when you plan a trip with your friends, but sometimes, it takes years to make that turn into a reality. Now, we ask you to delve into the intricacies of the decision-making process and think of all the conversations. Can you see yourself and your friends finding it difficult to land on the same page regarding which place to go, during what time to go, how to go, where to stay, what to explore and so on? Do you now understand the complexities of the joint decision-making process? We have given an overview of the whole concept, and there's still much to be looked at.

4. Conclusion:

Consumer preferences drive both economic activity and individual well-being. Understanding consumer preferences is critical for marketers, policymakers, as well as scientific investigators. Individual consumption

decisions are those that are characterized by autonomy and an emphasis on personal preferences, whereas joint consumption decisions require collaboration and consensus among participants. There are considerable juxtaposes between these two paradigms. Individual purchase decisions are ego-centric, expressing a need for personal fulfilment and well-being, whereas joint consumption decisions emphasize collaboration, shared responsibility and accommodating varied tastes and goals. These distinctions provide insights into the complexities of consumer behaviour and lay the groundwork for understanding how choices are made, both individually and collectively. We develop a better understanding of consumer behaviour and its implications for people, groups, and society as a whole by investigating and evaluating individual and joint consumption decisions. These findings can be used to develop strategies for effective conflict resolution, trust-building, and decision-making processes within groups and communities, resulting in mutually beneficial and well-informed decision-making in our increasingly interconnected world.

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CHAPTER 3

BRIDGING NEUROSCIENCE AND MARKETING: THE POWER OF NEUROMARKETING

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1.1 Introduction

Neuromarketing, an interdisciplinary area that combines marketing and neurology, has grown in popularity in recent years as a way to better understand customer behavior. Researchers are exploring the subconscious mechanisms that influence purchase decisions using advanced techniques and approaches. Ale Smidts introduced the term neuromarketing in 2002. To better understand customer behavior and develop more successful marketing techniques, researchers in the discipline of neuromarketing have combined marketing and neuroscience. Harvard University researchers created the concept of neuromarketing in 1990. The technique is based on the idea that most human thought (more than 90%), including feeling, occurs in the subconscious mind, which is situated under levels of regulated consciousness. Therefore, in the view of the market, technologists have a strong desire to learn the skills required to successfully control the activity of the subconscious mind. The main objective is to elicit the desired response in the person's perception as deeply as possible.

To better understand consumer behavior and enhance marketing strategies, neuromarketing applies neuroscience techniques and principles. Through the

analysis of brain activity and responses, neuromarketing offers important insights into consumers' preferences, feelings, and decision-making processes. With this knowledge, companies may better focus on their advertising, manufacture goods that appeal to consumers' subconscious needs, and enhance their brand's overall perception. Businesses can develop more effective marketing strategies and forge deep connections with their target audience using neuromarketing, which leverages the power of the human brain to uncover deeper insights into customer behavior.(Fauzi, A., & Widyarini, L, 2023).

Employing neuromarketing strategies enables businesses to comprehend consumers' cognitive processes and behavioral responses to marketing stimuli. Neuromarketers can identify subconscious attitudes, inclinations, and driving forces that traditional marketers are unaware of by monitoring neurological brain activity.

1.2 Neuromarketing: Tools and Techniques

Singh, Priyanka. (2015) Eye tracking is one of the primary methods used in neuromarketing. Researchers can determine which aspects of a commercial or product draw the greatest interest by tracking eye movements and gaze patterns. By using this data, marketers can better target their advertising campaigns and ensure that their materials effectively capture consumers' attention and communicate their intended message. This allows companies to appeal to consumers' subconscious desires and motivations. By examining brain activity and reactions, neuromarketing provides firms with a better understanding of the behavior, preferences, and motivations of their customers. This knowledge enables companies to modify their marketing tactics to more effectively connect with customers, which eventually boosts sales and fosters brand loyalty. Furthermore, companies can anticipate customer requirements and aspirations
using neuromarketing tactics.

Neuromarketing research uses a variety of methods in addition to fMRI and eye tracking, including electroencephalography, biometrics, facial decoding, and implicit association testing. Biometrics measures physiological reactions

such as skin conductance and heart rate, whereas electroencephalography measures electrical activity in the brain. Intuitive association testing quantifies the degree to which brands and concepts are implicitly associated, whereas facial decoding examines facial expressions to determine emotional reactions. Businesses can obtain precise and unbiased information on the behavior, interests, and motivations of their customers using these strategies in neuromarketing. Conventional techniques, such as surveys and questionnaires, are prone to biases and subjectivity because respondents may not always express their genuine emotions and views clearly. Understanding the subconscious is made easier and more accurate with the help of neuromarketing.

According to Al-Nafjan et al. (2023), the field of neuromarketing is expanding and employs principles and techniques from neuroscience to comprehend consumer behavior, emotions, and decision-making processes. Neuromarketing measures consumer preferences and emotional reactions to different marketing stimuli using electroencephalography. For instance, neuromarketing research has demonstrated that particular colors and graphic components in commercials can cause viewers to experience particular emotional responses. Neuromarketing can also examine how customers move their eyes and make facial expressions learn more about their attention and level of engagement. Using (functional magnetic resonance imaging) scans to track brain activity while customers make decisions is another example of neuromarketing. Using these data, advertisers can better target their messaging and create campaigns that appeal to the subconscious of their target market.

1. A neuroimaging method called functional magnetic resonance imaging (fMRI) monitors variations in cerebral blood flow. fMRI measures this shift in blood flow, which enables scientists to map brain activity and identify regions of the brain engaged in particular experiences or tasks. Therefore, fMRI is a useful tool in neuromarketing for researching how customers react to marketing stimuli and determining their emotional and cognitive involvement. It reveals emotional responses and identifies the level of engagement.

2. The non-invasive neuroimaging method known as electroencephalography (EEG) captures the electrical activity produced by the brain. This is accomplished by applying electrodes to the scalp, which pick up electrical signals generated by neurons during inter-neuronal communication. With its high temporal resolution, EEG is especially helpful in capturing the temporal dynamics of brain activity. Therefore, it is highly suited for real-time research on processes such as attention, perception, and emotion because it can monitor abrupt changes in brain activity. Neuromarketing research frequently uses EEG to learn more about consumer engagement, attention spans, and emotional reactions.

253. With the aid of eye tracking technology, one can accurately determine the exact location of an individual's gaze. It operates by tracking the position and movement of the eyes using specialized cameras or sensors. With the help of these data, researchers can determine which particular aspects of a stimulus or environment are drawing a person's attention. Eye tracking is a useful technique in neuromarketing for comprehending visual attention patterns. It assists in determining which aspects of a webpage, product packaging, or advertisement appeal to customers the most. Using these data, layouts and designs can be enhanced for optimum impact and interaction.

a. What grabs their attention: Eye tracking reveals the particular components or features within a visual stimulus that capture the viewer's attention the most. For instance, an advertisement can display whether a viewer's eyes are continually drawn to a particular image, headline, or call action.

b. What confuses them Eye tracking can also show whether there are any parts of a visual stimulus that raise doubt or confusion. A person may not know where to focus or may have trouble processing information if their gaze flickers quickly or frequently between various elements.

c. Speed of recognition
Eye tracking can reveal information about how quickly a person recognizes and interprets visual cues. For example, it can demonstrate the duration of

time it takes for a viewer to focus on a crucial message or component of an advertisement, which can be a crucial component of clear communication.

4. One method for measuring variations in a person's pupil diameter is pupillometry. One can infer information about an individual's emotional state or degree of arousal from the size of their pupil. A person's pupils usually enlarge when they are more excited or under more cognitive strain. However, their pupils tend to contract when they are less engaged. In neuromarketing, pupillometry is used to measure how consumers respond to stimuli such as ads or product 4 displays. It can be used to measure cognitive load, emotional reactions, and arousal levels, providing important insights into customer engagement.

5. A method for recognizing and interpreting facial expressions to deduce emotional reactions is called facial coding. It involves watching and classifying how various facial muscles, such as those around the mouth, eyes, and brows, move and express themselves. A person's emotional state and reactions can be inferred from facial expressions. This method is used in neuromarketing to evaluate how customers respond to different stimuli, such as ads or product presentations. Marketers can better target their messaging and images to evoke particular emotional responses from their target audience by analyzing the expressions on people's faces.

1.3 Application of Neuromarketing to Advertising: Leveraging its Power
(Mihajlovic et. al. 2023) Neuromarketing integrates concepts from marketing, psychology, and neuroscience to better understand consumer decision-making and how advertising can affect it. Using neuromarketing's potential can assist companies in developing more captivating and successful advertising campaigns. The following are some methods for incorporating neuromarketing ideas into advertising:

1. Recognizing the Decision-Making
Process in the Brain Emotions have a large impact on decision-making, according to neuromarketing research. Make an effort to produce

advertisements that uplift or speak to the emotional needs of your intended audience.

2. Eye-Catching Images

Use eye-catching images that are relevant to your product. Select images that will appeal to your target audience because the brain is very responsive to visuals.

3. Make Messages Simpler

Because the brain can only process so much information at once, messages should be concise and easy to understand. Do not give your audience too much
 information at once.

4. Use Storytelling

A potent technique in advertising is storytelling. It helps establish a connection with the audience and activates several brain regions. Write stories that
emphasize the advantages of your product or service.

5. Use of familiarity and consistency

 Something familiar and reliable tends to be preferred by the brain. Reaffirm your brand identity using unified branding, messaging, and imagery in various advertising mediums.

6. Considering sensory inputs Implement all your senses when you advertise.

While visuals are important, think about how you can make the experience more immersive by including sound, touch, or even scent (if applicable).

7. Customization

Ensure that your advertisements reflect the particular tastes and passions of your intended audience. Personalized offers and messaging have a higher chance of striking chord and generating conversions.

1.4 Real-world examples of successful neuromarketing campaigns.

1. "Share a Coke" promotion from Coca-Cola
Popular names were added to Coca-Cola bottles and cans as part of their "Share a Coke" campaign. By appealing to the brain's need for social validation and connection, this campaign increased sales and engaged customers.

2. **Nestlé's Neurofocus Study**
To evaluate the performance of their chocolate product packaging, Nestlé collaborated with the neuromarketing research company Neurofocus. By measuring brain activity using electroencephalography (EEG), we discovered that particular color schemes and imagery influenced consumer preference and purchase intent.

3. The "Do Us a Flavor" campaign by Frito-Lay
In a campaign, Frito-Lay asked customers to recommend new flavors of potato chips. Frito-Lay increased brand loyalty by fostering a sense of ownership and engagement among consumers through their involvement in the product development process. This created favorable emotional reactions.

4. **The "Real Beauty" campaign by Dove:**
The Dove campaign embraced various body types and questioned conventional notions of beauty. Customers were emotionally touched by this, which strengthened the brand's connection with them and boosted sales.

5. **One-Click Ordering on Amazon**
The ordering process is made easier by Amazon's one-click ordering system, which satisfies the brain's need for convenience and ease. This simplified method stimulates impulsive purchasing and reduces cognitive load.

1.5 Future trends and innovations
(Cherubino et.al 2023) Anticipating developments in technology, neuroscience, and consumer behavior research is necessary to forecast future trends and innovations in neuromarketing. The following are some

anticipated developments and trends in the field of neuromarketing in the future:

1. Neurotechnology Wearable:
Wearable technology that can track brain activity may make data collection easier to access and continuous, offering insights into how customers behave in real-world situations.

2. Integration of AI and Machine Learning
Large datasets of neurophysiological and behavioral data can be analyzed using AIpowered algorithms to identify patterns, preferences, and predictive indicators of consumer behavior, allowing for more individualized marketing campaigns.

3. Sentiment Analysis and Artificial Emotion:
With the use of voice analysis, facial expressions, and other biometric data, emotion recognition technology will enable the evaluation of customer emotions in real time, enabling more flexible and responsive advertising tactics.

4. Interdisciplinarity Cooperation
Innovation in neuromarketing will continue to be fueled by collaboration among technologists, psychologists, marketers, and neuroscientists. Multidisciplinary
teams are essential for creating thorough and successful strategies.

1.6 Conclusion
The merging of marketing and neuroscience in this rapidly changing environment continues to influence how companies interact with their customers. It is crucial for marketers to embrace the potential advantages of these innovations and their obligation to apply this knowledge in an ethical and responsible manner. By doing this, neuromarketing's future looks to usher in a period of meaningful, personalized, and engaging interactions between consumers and brands.

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CHAPTER 4

THE ROLE OF BEHAVIORAL NUDGING IN CONSUMER BEHAVIOR AND DECISION-MAKING

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Introduction to Nudging

Individual consumption by human beings is dependent on multiple factors, other than price of the product or service in question. Additional factors such as certain systemic barriers, heuristics, situational factors and certain biases also seem to be play a role in decision-making involving purchase of goods and services (Michalek et al,2016)

Interventions involving tools and theories in traditional economics have in some instances, been found to be inadequate – with respect to, rectifying an economic behavior under observation (Shogren,2012; Beckenback,2015) Nudging as part of behavioural economics, has a place to supplement standard or traditional economics, if not completely replace it.

Nudging is a tool to influence people's behavior involving a gentle push or influence being provided by the designer of the nudge. Use of nudges or nudging has been prevalent since times immemorial. However, the formal acceptance of nudging became prominent with the work of Dr. Richard Thaler,

from University of Rochester, USA. He wrote the popular book titled – Nudge: Improving decisions about health, wealth & happiness," in the year 2008 (Thaler and Sunstein,2008). Subsequently, he was awarded the noble prize for his work on the nudge theory in the year 2017. Nudges typically involve the use of "libertarian paternalism" and "choice architecture," to influence the decision making of the target audience in subtle ways (Thaler and Sunstein,2003). Libertarian paternalism implies that the consumer has full freedom to choose from the set of choices or options. However, the consumer herein is being observed and may be influenced in subtle ways to move in the direction, in which the marketer desires them to move. Choice architecture implies that the set of options are designed and made available to the customer in such a way, that the consumer behavior inadvertently leads to a "favorable" outcome. Noteworthy here is that nudging does not involve manipulation or deception. It is about influencing the target audience.

Logic & significance of Nudging

Nudging has gained prominence over the years. The proliferation in its use is explained by its characteristics and benefits. However, Nudging is a behavioral intervention, which digresses from traditional economics. While traditional economics postulates that the decision-making is based on rationality, nudging (behavioral economics) is based on impulse behavior. The proponents of nudging state that there are many situations in life, when a man is influenced by certain cognitive biases and heuristics, and does not necessarily behaves in a rational manner. Here is where, use & application of Nudging comes into effect. The working of the human brain is both simple & complex. The basis of nudging can be understood to be associated with the right brain thinking. Whereas traditional economics is driven by the left brain thinking, nudging (behavioral science/ economics) is based on decisions dominated by the right brain thinking. There is an element of psychology in every aspect of consumerism and more specifically nudging. Psychologists differentiate it as system 1 and system 2 thinking (Thaler and Sunstein,2009). System 1 thinking is driven by automatic thinking, which is uncontrolled, effortless, associative, fast, unconscious and skilled. On the contrary, system 2 thinking is controlled, effortful, deductive, slow, involves self-awareness and rule-following. System 2 thinking is based out of traditional economics.

Nudging has several benefits. It is a cost effective and subtle mechanism to bring about a sustainable change in the way consumers' behavior is altered towards a potentially better scenario for all stakeholders. The use of nudge essentially leads to a better welfare state for multiple stakeholders. But the major focus may be on the two prominent stakeholders namely - the manufacturer or marketer of the product and the end customer or consumer.

Use of Nudging to Influence Consumer Behavior

Since nudging makes use of system 1 thinking, the use of nudging is universal in nature, as it transgresses across differences in nationality, gender, race, age and other demographic and psychographic characteristics. There are multiple examples to prove this statement. When it comes to purchase of organic food items - the use of nudge in most cases, brings a positive outcome. There is a marked difference in the pricing of organic food items as compared to non-organic food products. This may be true in the context of staples and grocery items, fruits and vegetables. Simplification (use of product labels to simplify the complex information) is one way in which the consumers can be nudged to get the product what they are looking for in a super market. (Lehner et al.,2016). The opposite of this may also be true. Companies may intentionally put information in small font size, related to carbon footprint of a product on its packaging and packing. The use of nudging as a strategy is playing a significant role in sustainable consumer behavior across multiple product categories. The reference here is being made to food items available at quick service restaurants (QSR), FMCG, personal care and products associated with health and hygiene. Use of nudging is equally applicable to tangible products as well as intangible products and services.

Nudging & its use in Different Sectors

Nudging seems to be universal in nature. It tends to transgress across differences in nationality, gender, race, ethnicity, age and color of the skin. There are instances that people belonging to same or similar demographic and psychographic background may respond to certain types of Nudges in predictable manner. This implies that to a great extent the designer of the nudge framework can expect the kind of behavior, which one can expect from the target audience.

We will now provide some illustrations of use & application of nudging in different sectors and contextualization.

(a) Nudging in the context of Retail outlets / shopping malls/food delivery apps – Let us have a look at the types of nudging which influences a consumer to visit the shopping mall.
"*Peter England – Diwali Dhamaka offer with multiple freebies on apparels. Many more exciting offers at exclusive stores only. Sale lasts till stocks last.*" The above message sent across to the customer via sms or whatsapp, acts as a reminder to the customer to visit the store and ensure maximum footfall. These repeated reminders act as a type of nudge – with the outcome of increase in the top line and bottom line of the company. Reminders as a type of nudge is also made use of by food delivery apps like Zomato, Swiggy and Blinkit (earlier Grofers)

There are different types of Nudges which can be superimposed on different situations and contextualization, depending upon the suitability of the nudge. (refer to Table no. 1)

The types of nudges may be used either in isolation or in combination with each other. However, one shoe size does not fit all. Implying that different contexts & sectors, may make use of different combination of nudges. This also depends on the functionality of each type of nudge.

Shopping outlets like Centro (earlier Big Bazaar) or Spencer's Plaza or Shoppers's Stop may make use of "making changes in the physical environment," (another type of Nudge) to influence consumer decision-making. For example, making proactive changes in the physical placement of products on the shelves of the shopping malls or outlets, may act as a nudge in itself to enhance the sales of the company. At the same time, it may bring a higher level of satisfaction and welfare to the customer. This aspect of nudge may also be linked with the concept of market basket analysis (MBA) in customer relationship management (CRM). Within MBA, there is an inherent tendency for customers to pick bundle of products in combination, when they are kept together physically in a store/outlet. In some of the other experiments carried out in shopping malls,

putting clear labels on the packaging of organic food items such as a pack of wafers, or a can of soft drink or a tin of soup/ a pack of nutties or a pack of cornflakes, may definitely act as a nudge. The labels put on these packs clearly mention the amount of carbon footprint and the amount of calories intake, involved in the consumption of the product. Herein we are making a reference to another type of nudge which is provision of information. As more and more consumers around the globe, become more conscious in terms of health benefits and reduction of carbon footprint; such type of nudge(s) may bring the desired response from the target audience. Moreover, imagine a situation wherein the two types of nudges, namely making changes in physical environment and provision of information may be used in combination to nudge the consumers. One can expect a multiplier effect of these two nudges being used in combination to bring higher response rate, higher levels of welfare and satisfaction – for multiple stakeholders.

TYPES OF NUDGES & ITS FUNCTIONAL APPLICATION			
SHOPPING MALLS & FMCG SECTOR			
NUDGE (BEHAVIOURAL INTERVENTION)	TYPE OF NUDGE	CONTEXTUALIZATION	END RESULT/ OUTCOME
Making changes in the physical placement of the products on the selves	Making changes in physical environment	Shopping mall or store outlet making changes in the physical composition and layout of the store	Customers are able to identify the products more easliy, as part of increased sales
Fair Labelling & sharing of information on healthy & organic products	Provision of information	The product clearly gives information on calories intake & carbon footprint on packaging	Customers consciousness about health & environment brings the best out of him/ her for both buyer and seller in

			terms of the benefits
Making processes related to the entire shopping experience seamless and simple at the outlet	Simplification	The entire cycle time of experimentation & selection of products is optimized	Customers have a far better experience at the store with better brand recall & RFM indices
Use of music & colour cues inside & outside the store premises	Making changes in Physical environment	Use of different colors going with specific days, events & occasions are timed well to provide the much-needed nudge	More footfalls at the store & understanding consumer behaviour associated with specific colors, which provides significant outcomes
FOOD DELIVERY APPS (SWIGGY/ZOMATO/BLINKIT)			
Communication to target audience regarding offers & deep discounts via SMS & WhatsApp	Reminders	Repeated reminders leads to better recall & higher probability of purchase intention leading to actual purchase	The Apps are also able to understand the past teend of orders and know the customer & its tastes and preferences with greater precision marketing
BANKING FINANCE & INSURANCE (Mahindra Finance)			

Easy process of entry & exit from a fixed deposit (FD)	Simplificatio n	The process of starting & closing the Bank FD can be carried out seamlessly through mobile banking app (ROI -8.04%)	Customers are nudged to join the FD of the Bank (Increased market share)
Table 1. A Typology of Nudges and its functionality (created by the Author)			

Herein a distinction can be brought between a good nudge and a bad nudge. A good nudge is one which is characterized by complete transparency, improved welfare and does not involve coercion. Nudge is not about manipulation or deception in any way. A Nudging framework may have a completely commercial connotation for a firm or organization. However, a good nudge framework can be designed to bring along win-win-win situation for all stakeholders. A special reference may be made to the Save more tomorrow campaign. The multiple advantages of this programme for multiple stakeholders including the employee and employer has been explained beautifully (Thaler and Benartzi,2004). The save more tomorrow programme(401K) was designed to nudge employees, for the first time in the year 1998, in a mid-sized manufacturing firm. The researchers – Thaler and Benartzi, used the "Kitchen sink" strategy to include as many attractive features in this saving plan as possible. It was a savings plan, wherein employees were nudged to progressively increase the rate of savings as well as the allocation of funds in the savings scheme. At the end of a 4-5-year period of experimentation, it was found that this scheme of savings(comprising of automatic enrollment and flexible contribution) was much more effective as compared to the other two traditional categories of saving plan, namely – fixed savings rate plan and a savings plan with easy opt in and opt out option. The effectiveness was witnessed by the researchers, in terms of both – lower rate of default in saving as well as lower rate of exit from the scheme or plan, as compared to the two traditional savings schemes.

Application of Nudging to ensure sustainable consumer behavior
Nudging has been used extensively in combination with marketing function. However, there is lot to be explored in terms of use of nudging to facilitate and influence sustainable behavior from target audience. Sustainable consumption behavior can be explored from the perspective of majorly five types of nudges.

These types are – making changes in physical environment, provision of information, use of social norms, simplification and by default option. Researchers have highlighted the importance of socially responsible consumption (SRC) and environmentally responsible consumption (ERC). While SRC has been in vogue for almost more than 40 years, ERC seems to be more recent phenomenon, especially in the backdrop of climate change issues gaining traction. It has been proven by way of choice framing that nudges can facilitate ERC to a great extent (Chern,2017).

Nudges have been applied in multiple ways, namely – saving energy (Allcott,2011), reusing of towels in hotels (Goldstein, Cialdini & Griskevicius,2008) and reduction in use of private vehicles in cities and towns (Lehner, Mont & Heiskanen,2016).

Conclusion

Nudges are an extremely useful tool and it is going to gain more prominence in the years to come. It is used in profound ways in B2C, B2B and B2G transactions. Both governments and private organizations alike have understood the importance of its application. Nudges provide solutions to socio-economic problems, which cannot be adequately addressed by traditional or standard economics (Loewenstein and Chater,2017) Nudges and nudging has universal application. It is understood that it has the potential of bringing substantial improvement in the welfare of multiple stakeholders. It can be applied to multiple contextualization, situations and functional areas of management. Needless to say, nudges can have an overlapping as well as mutually exclusive relationship with functional areas of marketing, HRM & finance. To the best of our knowledge, it has the potential to bring changes in the positive direction. However, its application and usability in the context of management discipline warrants further exploration. The scope of nudging is enormous and profound, provided the designers of nudge are careful with its designing in the context of the target audience. In the 401K (savings plan) example above, the same has been made applicable in several countries, after its success in some of the developed world countries like USA and in the United Kingdom. However, this does not imply that nudges may be successful in all instances and under all contextualization. It too has its own set of fall outs. A Nudge can backfire as well,

not bringing the expected level of meaningful and positive outcomes. However, these instances are few in number as compared to the real-life success stories. Especially, if they are used in combination with some other tools, to influence the "rational thinking man." The author is of firm opinion that Nudges as part of behavioral economics and science has immense potential to bring a positive change in this world – transgressing across differences in gender, race, ethnicity, color of the skin, country of origin and many other demographic and psychographic characteristics of the target audience.

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CHAPTER 5

HOMOPHILY AND CONSUMERS IN THE DIGITAL WORLD

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Introduction

Aristotle's assertion that "Man is a social animal," underscores the fundamental human need for social interaction to thrive. This observation finds resonance in the common adages such as "Like attracts like," "Similarity breeds connection," and "Birds of a feather flock together." The principle of homophily supports these truisms. The principle of homophily, as defined by Noah Mark, 1998, states that people who are similar in sociodemographic characteristics are more likely to interact with each other than are people who are dissimilar. Homophily has been a consistent and compelling observation in social life. This phenomenon transcends geographical boundaries, manifesting itself both in offline and online social networks (Nicolini et al., 2022). Friends, spouses, colleagues, and associates tend to resemble each other in characteristics such as age, race, gender, socioeconomic status, and education qualification, among others. Recent research even suggests the existence of genotypic homophily, where individuals of similar genotypes tend to forge friendships.

In the contemporary landscape, online social networks (hereafter OSNs) have revolutionized the way individuals build and nurture social relationships. OSNs, by design, transcend spatial constraints and enable users from diverse

geographical locations to establish and maintain social connections. These platforms not only facilitate communication and content sharing but also offer opportunities for active engagement, allowing users to assume social roles akin to those in physical social settings. A striking departure from traditional homophily in offline networks is observed within the digital realm. Geographical proximity, a significant driver of homophily in face-to-face interactions, is rendered obsolete in OSNs. Users connect across vast geographical distances and time zones, challenging the conventional constraints imposed by physical boundaries. This transformation is primarily attributed to the emphasis on shared interests as a prominent factor influencing social connections in online environments. Unlike the often unavailable or unverifiable demographic information such as age, gender, education, and socioeconomic status, individuals on social media readily express their interests, preferences, opinions, perspectives, and thoughts (Fani et al., 2017).

Homophily: Unravelling the Concept

Homophily can be described as a predisposition to form interpersonal relationships with others who are inherently similar to us (McPherson and Smith-Lovin, 1987). Early homophily studies focused on small-group relationships, where the midpoint of attention was on similarities in demographic characteristics, such as race/ethnicity, gender, age, and socioeconomic status. This continues to be the focal point in homophily research. Different authors and researchers identify distinct types of homophily based on various characteristics. Some of the variations are described further below. Lazarsfeld and Merton (1954) differentiate two homophily categories: status homophily, based on formal, informal, or ascribed status, and value homophily, rooted in values, beliefs, and attitudes. Status homophily encompasses major sociodemographic dimensions, encompassing both recognized attributes (e.g., race, ethnicity, sex, age) and acquired traits (e.g., religion, education, occupation, behavior patterns). On the other hand, value homophily pertains to the diverse internal states believed to influence our future behavior (Ertug et al., 2021). In a study by McPherson and Smith-Lovin (1987), two homophily types are identified: induced and choice. Induced homophily suggests that the composition of a group leads to the formation of homophilic pairs. In contrast, choice homophily posits that even within a diverse group, individuals choose to

establish ties primarily with similar members. Although the potential for dissimilar ties exists, choice homophily asserts that people predominantly create homophilic connections (Békés et al., 2022; Klepsch, 2023).

In a 2001 article, "Birds of a Feather: Homophily in Social Networks," McPherson et al. introduced the concept of baseline homophily. It becomes evident that baseline homophily operates across many demographic traits, including race and ethnicity. Baseline homophily stems from the characteristics of the pool in which potential connections are formed, with settings such as workplaces and classrooms frequently giving rise to these effects. Classrooms create homogenous settings due to age and academic ability requirements, while workplaces often exhibit homogeneity in socioeconomic status, educational levels, and gender compositions (Turchi et al., 2007). Inbreeding homophily evaluates the extent of behavioral similarity, exceeding what random pairs would exhibit in the absence of measured ties. Notably, inbreeding homophily encompasses a broader spectrum, encompassing homophily induced by sub-population-level social structures, correlations with other dimensions, and personal preferences. It doesn't necessarily indicate pure choice or agency devoid of structural influences.

Patterns of Homophily in Demographic Dimensions

Homophily can be observed across numerous dimensions, including gender, age, race, ethnicity, education, occupation, and values. An overview of the findings and patterns is provided in the following paragraphs. Race and ethnicity significantly shape social networks, with strong evidence of homophily across various relationship types in the United States. This phenomenon is influenced by the interplay of baseline homophily, group size, and variances in racial/ethnic groups' positions on dimensions like occupation, education, and income. Racial homophily is evident in settings such as marriage, friendships, work relations, and even crime victimization (Shrum et al 1988). Smaller racial and ethnic groups often experience networks dominated by the majority, but African Americans and Hispanics exhibit moderate levels of homophily (Marsden 1987). Inbreeding homophily is prominent among racial/ethnic categories, with African Americans individuals displaying added inbreeding homophily than Anglos. This phenomenon underscores the enduring influence of race and ethnicity in shaping

social connections and networks. For example, in the US in 2020, 56 percent of black Americans had social networks composed entirely of people who are also black (Cox et al., 2020). Gender homophily differs from race and ethnicity. Previous research shows that it's influenced by inbreeding due to an equal distribution of men and women in households and kinship networks. However, in gender-segregated settings like workplaces, baseline homophily emerges, with men often having more gender-homophilous networks, especially in instrumental ties. Both men and women across cultures use men as network routes to achieve tasks and access information (Ibarra et al., 1992; Levinson et al., 2022). Age homophily varies by relationship type. Research postulates that close friendships often exhibit strong age homophily, similar to marriage. Superficial ties, like hobbies, tend to be age-homophilous, but close confiding relationships may reduce age homophily. Educational systems and age-homogeneous settings contribute to age homophily in networks. Age-homophilous connections are often closer, longer-lasting, and more personal. Age-similar dyads may have fewer multiplex relations, and age patterns vary across different age groups including stronger outbreeding in the over-60 age category (Bonini et al., 2022).

Social networks reflect both family background and individual achievements, with social class, education, and occupation contributing to homophily. Marsden (1987) reported significant educational homophily in personal networks, with around 30% of networks displaying it. Educational homophily leads to inbreeding based on educational statuses, fostering greater educational similarity within networks. Occupational structures play a role in shaping friendships, with rigid property boundaries often limiting friendships. While strong homophily is observed in close relationships, it may have less impact in more distant network ties, as Verbrugge (1977) found weaker occupational homophily in best friendships. Overall, educational and occupational factors are essential in shaping social networks. In adolescent social networks, behavioral homophily has traditionally been associated with the idea of peer influence, where persons tend to associate with others who share their behavioral patterns, be it in accomplishment or delinquency. However, a shift in interpretation occurred in the 1970s, driven by longitudinal data. Previous studies demonstrated that homophily in both positive and negative behaviors was primarily due to choice into relationships with similar individuals rather than peer influence. Moreover,

friendships that lacked behavioral similarity tended to dissolve. In adult networks, behavioral homophily manifests across dimensions. Verbrugge (1977) observed that residential stability was a strong predictor of friendship formation, akin to characteristics like sex, nationality, or religion. Other research found that shared political orientations within voluntary associations led to increased behavioral involvement. These findings highlight the role of selection over influence in shaping behavioral homophily in social networks (Knoke, 1990; Amlani et al., 2023). In summary, social networks exhibit prominent homophily across various dimensions. Race and ethnicity significantly shape relationships, influenced by baseline homophily and inbreeding. Gender homophily differs, with men often displaying more homophilous networks, particularly in gender-segregated settings. Age homophily varies across relationship types, with stronger age similarity in close friendships and more superficial ties. Educational, occupational, and social class factors contribute to homophily, influencing the composition of personal networks. Adolescent and adult networks display behavioral homophily, driven more by selection into relationships with similar individuals than by peer influence. This rich tapestry of homophily underscores the complex interplay of individual backgrounds and societal structures in shaping social connections (M Jackson et al., 2023).

Modern and Digital Homophily

The dynamics of social ties and their activation extend beyond the confines of physical presence, especially in the digital age. One could argue that with the advent of the internet and new media, our society has transitioned into a networked one. This transformation has become all the more evident during times of lockdowns and social restrictions when in-person interactions were limited. Individuals turned to digital communication, leading to a 20% surge in the usage of social media in the United States as reported by Dixon in 2022. The proliferation of these novel communication channels has not only reshaped our patterns of social interaction but has also reconfigured our core social networks (Lee et al., 2022). These channels rely less on spatial proximity, offering effective means to maintain and expand relationships over long distances. The impact of this shift is multifaceted. On one hand, core networks may not necessarily contract in size; in fact, individuals may have rekindled dormant relationships, potentially leading to an expansion in network size, as suggested by Chen et al.

in 2022. On the other hand, the utilization of remote communication channels accentuates individual preferences in forming connections. Given that people naturally gravitate towards others who share similar characteristics, the use of remote channels may result in increased homophily within core relationships. This phenomenon is particularly noteworthy during a pandemic when traditional institutional constraints are disrupted, enabling individuals to selectively engage with relationships that align with their preferences while potentially distancing themselves from more challenging or demanding connections with non-kin (Cho et al., 2023).

Homophily and Social Media platforms

Social Networking Sites (hereafter SNSs), like Instagram, Twitter, Facebook, etc.) offer users a digital space where they actively curate their connections, fostering a platform for choice homophily to complement and potentially amplify baseline homophily. As emphasized by McPherson et al. (2001), the similarity of individuals within personal networks may restrict the information flow among members, impacting their attitudes and interactions. This potentially leads to the development of echo chambers, a concept discussed in detail later in this section. Prior studies discovered that information gathered from like-minded sources online held more influence in shaping consumer decisions compared to information from dissimilar sources (Steffes and Burgee, 2008). Exploring the existence of homophily in social media, it was found that shared interests were not a decisive factor in the formation of new connections. In contrast, further research identified that homophily did exist among users, particularly emphasizing that the intensity of relationships played a significant role (De Salve et al., 2018). This emphasizes that user interactions on SNSs can shape preferences and information consumption, with a blend of choice homophily and information impact reflected in the relationships formed.

Homophily and Behavioural Dynamics

Exploring the impact of personality homophily, where individuals tend to bond with those who share similar personalities, on consumer well-being is an intriguing yet relatively underexplored area of study. A significant step in understanding this concept was taken by Noë, Whitaker, and Allen (2016), who provided empirical evidence in support of personality homophily within social

networks. Their research revealed that individuals who exhibited greater similarity in personality traits, specifically Agreeableness, Conscientiousness, and Extroversion, tended to form stronger connections. Building upon this foundational work, a recent study conducted by Rosa Lavelle-Hill and colleagues in 2020 delved into the subject by employing the widely recognized Big Five personality model. This model encompasses Openness to Experience, Conscientiousness, Extroversion, Agreeableness, and Neuroticism as its key dimensions. The researchers hypothesized that individuals displaying personality homophily in a consumer context of shopping in accordance with others of similar personality traits would experience heightened well-being.

To assess the degree of personality alignment (PA), Lavelle-Hill et al. presented the concept of a product or brand's Expected Personality of Purchase (EPP). PA is determined by computing the difference between the expected score and a person's reported personality. This metric enables researchers to explore whether homophily effectively foretells greater well-being within a consumer context. Furthermore, the study scrutinizes interactions between PA and the Big Five personality traits to detect whether PA differentially influences well-being based on personality types. The study findings shed light on the relationship between personality homophily and well-being in consumer settings. Remarkably, the results suggest that personality homophily exerts a positive influence on well-being, particularly when homophily occurs in the personality traits of Agreeableness, Extroversion, and Neuroticism. Interestingly, in a consumer context, the traits of Conscientiousness and Openness do not seem to significantly impact well-being. Crucially, the effect of PA on well-being concerning Extroversion, Agreeableness, and Neuroticism remained statistically significant even after accounting for variables like average monthly spending. This further underscores the notion that consumer happiness is not solely determined by the amount of money spent but rather by the alignment of spending patterns with one's personality traits. This study illuminates the presence of personality homophily within consumer contexts, demonstrating its measurable impact through transaction data and highlighting its association with increased well-being.

A comparative analysis by K Z Khanam et al. investigates the dynamics of social media behavior, particularly in response to a Cause-Related Marketing (hereafter CRM) campaign, such as Gillette's "The Best Men Can Be" initiative, which aimed to address gender inequality and bullying issues. The study sought to ascertain whether homophily was prevalent within this marketing context. To analyze these patterns, the study employed topic modeling and Exponential Random Graph Models (hereafter ERGMs) on a dataset comprising 100,000 original tweets related to the CRM campaign. The analysis revealed an increased inclination toward homophily, with users engaging more with those who shared common perspectives, particularly in the usage of hashtags. Ideological hashtags, such as #BlackLivesMatter or #AllLivesMatter, played a crucial role in indicating users' social and ideological positions, fostering homophily among like-minded individuals in the online community. These findings suggest that social media platforms serve as hubs for discussions on vital societal issues, with users gravitating toward those who share their beliefs. Influential and popular users wield significant influence over online discussions, contributing to the overall homophily observed. The research underscores the role of social media in facilitating interactions among users with similar views, often shaped by influential figures in these digital spaces.

Conclusion

Homophily, or the tendency for people to associate with other indiviuals who have similar features or behaviors, is still a fundamental and persistent element in both offline and online social networks. The purpose of this chapter was to thoroughly investigate the evolution of homophily, its numerous varieties, and its multidimensional impact on human interactions, business, and society, particularly in the context of digital transitions. The notion of homophily verifies this by implying that people with similar socioeconomic features are more inclined to interact with one another. Homophily crosses geographical boundaries and effects the creation of friendships, marriages, work connections, and more. It can be influenced by race, gender, age, social level, education, or even genotypic features.

While traditional homophily is generally driven by demographic reasons, OSNs have added a new dimension by stressing common interests. The lack of

geographical boundaries in OSNs has reshaped the nature of homophily, allowing people from all over the world to connect based on shared tastes, interests, beliefs, and viewpoints. This change has been especially noticeable in recent years when lockdowns and physical separation have resulted in an unprecedented surge in the usage of social media for remote social engagement. This shift has two consequences: core networks may increase as dormant relationships are reignited, and remote communication routes amplify individual preferences, potentially enhancing homophily within core partnerships.

The rise of SNSs has revolutionized homophily in digital spaces. These platforms empower users to actively curate their connections, fostering choice homophily that complements and amplifies baseline homophily. The model of echo chambers, where users are exposed to information that reinforces their present beliefs, becomes increasingly relevant in this context. This chapter also highlights the understudied area of personality homophily in consumer behavior, building upon prior research by Noë, Whitaker, and Allen (2016). Rosa Lavelle-Hill's recent study used the Big Five personality model to explore the impact of personality alignment on customer behavior. They used the Expected Personality of Purchase (EPP) to assess personality alignment and discovered that homophily in Extroversion, Agreeableness, and Neuroticism influenced customer choices even after accounting for purchasing patterns. Surprisingly, Openness and Conscientiousness had less of an impact. The study underlines that customers who share personality qualities tend to behave similarly, emphasizing the critical significance of homophily in predicting consumer decisions, particularly in the Extroversion, Agreeableness, and Neuroticism dimensions. This demonstrates that consumer behavior isn't only about money; it's also about matching spending habits to personality attributes.

In conclusion, whether online or offline, the concept of homophily remains a potent force affecting our connections and interactions. Understanding its mechanics, motivations, and repercussions is critical as it continues to change the dynamics of human connections and influence many elements of business and society in a world that is becoming increasingly interconnected. Recognizing and using the subtleties of homophily can lead to more meaningful and productive relationships as we move forward in our networked society.

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PART-2

CONSUMER INTERACTION AND ADOPTION OF NEW TECHNOLOGIES AND OTHER CHANGES IN THE ENVIRONMENT

CHAPTER 6

IMPACT OF NEW AGE TECHNOLOGIES ON CONSUMER BEHAVIOUR

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1. Introduction

In today's internet era, smartphones, connected devices, and computers continually beep and bombard the customer with a lot of information (Nayal and Pandey, 2020). Although it helps customers to be informed and make better decisions, it creates clutter in the minds of consumers due to information overload at the same time (Eslami and Ghasemaghaei, 2018). Due to this information burst, customer attention spans have become much shorter and they typically have just a few seconds to pay attention to any type of information (Forbes, 2018). In such a scenario, making one's products or services get noticed is crucial to stand out. As per Accenture report, 91% of customers claimed that they would like to prefer brands that offer personalized recommendations. Amazon, Netflix, and Starbucks are offering best-in-class personalized services to their customers (Tong et al., 2020). With the evolution of machine learning and artificial intelligence tools, it's become easy for companies to track and analyze customer's online behaviour. Capturing the online behavior of the users and accordingly sending them product recommendations helps personalization reach the next level which is called hyper-personalization (Jain et al., 2021). The promotional messages have only a few seconds to get noticed by customers, hyper-personalization helps to stand out and clear the clutter (Grewal et al.,

2016). Companies claim that they can increase return on investment by implementing hyper-personalization (Jain et al., 2021) and augmented reality or virtual reality technologies. Above all is possible due to the rising usage of new-age technologies such as artificial intelligence, machine learning algorithms, and metaverse.

Amazon, which started its business with an online bookstore has turned into a multibillion-dollar company and is considered one of the top brands worldwide. Advanced technologies such as virtual assistants, augmented reality, the internet of things, artificial intelligence, machine learning algorithms, and metaverse are being used by Amazon to world-class customer experience.

Amazon is one of the epic examples that has optimized the usage of advanced technologies to enhance customer experience (Kumar, 2021). According to a 2021 global survey 84 % of firms have shown their consent to spend on new-age technologies as compared to 63 % companies that showed interest one year ago (Pulse, 2021). Moreover, the households in USA have on average 25 connected devices like tablets, smartphones, smart home devices, bots, etc as per the 2021 Connectivity and Mobile Trends Survey by Deloitte. Thus, it can be concluded that consumers are now well-equipped with digital devices to explore the experience of new-age technologies that companies can leverage to deliver customer experience.

While new-age technologies have various benefits for organizations and consumers, there are certain negative aspects associated with them. Researchers have reported that consumers feel challenges with artificial intelligence-related technologies. The challenges are loss of privacy, data surveillance, and technostress. Cheng et al., (2022) discussed the dark side of artificial intelligence on consumers and organizations. Bouhia et al., (2022) also found that interacting with artificial technologies like chatbots creates negative feelings like creepiness in the context of financial services. Additionally, Correia et al. (2020) demonstrated negative effect of virtual assistants on consumer responses given the advantages associated with it. In the context of AR, Hilken et al., (2017), and in the context of VR, Harz et al., (2022) explored negative consequences of technologies on consumer responses toward the brand.

Considering the growing attention of researchers and academicians on new-age technologies, it is crucial to discuss it from both positive and negative experiences.

2. Literature Review on New-age Technologies

Please refer to Table 1 for the summary of new-age technologies studied by past researchers.

2.1   Chatbots

The usage intention of chatbots depends on various variables and a few are listed below: -

2.1.1 Perceived anthropomorphism

Anthropomorphism assists consumers in predicting human-like emotions in the chatbots, therefore influencing their attitude towards chabot in usage for various activities like shopping, information search, and as a service robot (Mara & Appel, 2015; Murphy et al., 2017). For instance, the usage of service robots by old age people was found to reduce the loneliness in them (Giger et al., 2019). Wirtz et al., (2018) also argued that the level of human-like personality in chatbots increases the level of intimacy while interacting with chatbots. In the context of hotel and service industry also anthropomorphism was found one of the significant variables that impact user's adoption of chatbots (Alsaad, 2023).

Interestingly, there is another stream of research that has argued that anthropomorphism may induce the feeling of adverse reactions (Giger et al., 2019). People may encounter the feeling of creepiness or discomfort while interacting with humans like chatbots (Bouhia et al., 2022). It has been argued in the literature that people may be feeling a high level of creepiness in situations where bots are more human-like as compared to a lower level of anthropomorphism (Bouhia et al., 2022).

2.1.2 Perceived usefulness

Perceived usefulness refers to the individual feeling that their task can be improved using an invention (Saade & Bahli 2005). Perceived usefulness of chatbots helps users to enhance task performance. This variable has been studied

heavily in the context of technology adoption. In the context of service robots also, perceived usefulness has been described as helping users with everyday tasks and saving user's time (Li and Wang, 2022). In the context of digital coupons, perceived usefulness has been established as the crucial variable that impacts digital coupon redemption (Nayal and Pandey, 2022). Kasilingam, (2021) also stated that perceived usefulness is a crucial variable in the context of chatbots as it helps in the adoption of chatbots among users.

2.1.3 Privacy Risk

Perceived risk is defined as consumer's perception of the possible harms of adopting new technology (Mitchell 1999). Although internet shopping offers various kinds of benefits to consumers it also comes with certain risks. Nayal and Pandey, (2022) stated that consumers redeem the digital coupon when they feel the benefits exceed the risks associated with it. Ha & Im (2015) also found that perceived risk negatively influences the coupon redemption process. In the context of banking, Akturan and Tezcan, (2012) also mentioned risk as the major factor that influences mobile banking adoption. Similarly, a company requires the personal information of the users if they want to personalize chatbot services, therefore users may feel the risk of privacy invasion while sharing that information.

2.1.4 Perceived Convenience

Perceived convenience is identified as one of the key dimensions in digital marketing and mobile marketing activities (Nayal and Pandey, 2020). In the context of mobile commerce, convenience has touched new dimensions. For example, with the help of smartphones, marketers can send promotional messages at the right time and right place. Marketers can target the right consumer at the right time and at the right place as smartphones have a facility for location-based targeting with the help of GPS (Nayal and Pandey, 2022). Shankar and Rishi, (2020) demonstrated that the convenience provided by mobile banking increases the adoption of it among consumers. The convenience offered by chatbots is a crucial factor in the diffusion of it among consumers (Malik et al., 2021).

2.2 *Augmented Reality/Virtual Reality*

The usage intention of augmented reality/virtual reality depends on various variables and a few are listed below: -

2.2.1 **Perceived innovativeness**

Personal innovativeness has been defined as a curiosity to innovate with new technology (Agarwal and Prasad, 1998). Roger, (2003) stated that personal innovativeness influences consumer's attitudes toward adoption of technology. In the context of mobile commerce adoption, individuals with high innovativeness tend to adopt new technology faster than individuals with low innovativeness (Jayasingh and Eze, 2010). Liu et al., (2015) stated that personal innovativeness plays a crucial role in building mobile adoption behaviour. Moreover, Nayal and Pandey (2020) proposed that personal innovativeness influences mobile coupon redemption. AR and VR are known as immersive new-age technologies that offer a novel experience to the users. Previous literature has established personal innovativeness is crucial in the AR context (Rauschnabel and Ro, 2016). User desire to seek novel experiences motivates them to try AR tools (Yaoyuneyong et al.,2014). Therefore, innovative consumer tends to use AR technologies as compared to normal consumers (Huang and Liao, 2015). Moreover, AR tool provides user comfort as consumers do not have to visit the store all the time to feel the product (Huang and Liao, 2015).

2.2.2 *Perceived Playfulness*

Previous research on social media marketing has demonstrated that playfulness influences the intention to use social media and actual usage (Sledgianowski and Kulviwat, 2009). Past research has found that playfulness is derived from user enjoyment-related emotions (Kaur et al., 2017). In the context of retailing, few researchers have reported that pleasantness and playfulness are the features available in the AR apps, that draw attention of users to use this technology (Dacko, 2017; Park and Yoo, 2020).

2.2.3 *Perceived personalization*

Personalization is one of the cores of Netflix by offering each of its members preferred content (Amatriain, 2013). As a result, personalized suggestion helps consumer to make decision more quickly and easily (Kim, Song and Lee, 2019).

Emerging technologies such as analytics and machine learning are used to tailor the products and services to the needs of the customer (Smink et al., 2020). For example, personalized experience can be in the form of personalized messages with name, birthday, etc., or offering personalized recommendations based on web history (Ahn and Bailenson, 2011). The key goal of personalized communication is to engage with customers at individual levels and interest.

Extant literature stated that personalized experience enhances the engagement level of the customer towards the product or service (Baek and Yoo, 2018). Personalized experience also enhances the attitude toward the promotional offer (Jung, 2017). Personalized recommendations from trusted companies also enhance the click-through rate (Sahni, Wheeler, and Chintagunta 2018) and purchase intention (Kalaignanam, Kushwaha, and Rajavi, 2018). Personalized experience also increases the perception that consumer is in control over the promotional messages as personalized experience reduces the fear of risk factors as only personalized messages get communicated by the marketers thereby reducing the clutter (Gironda and Korgaonkar 2014). In the context of AR, technology enables people to use AR apps in personal settings. For example, people can visualize products on their own face and body (Smink et al., 2020).

2.2.4 Interactivity and Vividness
In the literature, interactivity is defined as the capability of technology to enable users to comfortably interact with a particular content (Yim et al., 2017). In the context of virtual reality, interactivity is the extent to which users can modify the content in a real-time setting (Loureiro et al., 2019). Kim et al., (2020) stated that interactivity is a subjective perception of the user that is decided by their experience while interacting with online content.

Vividness is the media richness of the content provided by a firm in a real setting. The rich sensory experience of the content decides the quality of the brand's content (Kim et al., 2020). In the context of e-commerce, vividness refers to the quality of the product presentation by the firms (Yim et al., 2017). Good images with rich presentation decide the quality of the vividness.

Interactivity and vividness play crucial roles in the diffusion of AR/VR technology among users. The high level of interactivity and vividness enhance the engagement among consumers with brands. This engagement helps the company to build long-term relationships with the consumers.

Table1: Study on the impact of new age technologies on consumer behaviour

Study	New-age technologies studied	Nature of study	Key Summary
Moriuchi, 2019	Voice Assistant	Empirical, SEM	Perceived ease of use and perceived usefulness positively influences attitude and engagement toward voice bots. Localization plays a role of moderator between perceived usefulness and consumer engagement.
Rhee and Choi, 2020	Voice Assistant	Empirical, ANOVA	Analysed the impact of personalization and socialization in the shopping of low and high-involvement products through voice assistants. Additionally, there is the significant impact of a friend's role in forming an attitude towards the product purchase.
Cheng-Xi Aw et al., 2022	Digital voice assistants	Empirical, SEM	Perceived anthropomorphism, perceived intelligence and perceived animacy (human-like

			attributes), performance expectancy, perceived security and effort expectancy (technical features), and social influence and facilitating condition (contextual attributes) are examined in the context of consumer experience with voice assistants.
Klaus and Zaichkowsky, 2020	Voice bots	Conceptual	The level of convenience provided by voice bots has taken service marketing to new heights. Authors argued that for the low involvement products bots are more beneficial but for the high involvement product there is a long way to go.
Rajaobelina et al., 2020	Chatbot	Empirical, SEM	This study examined the various antecedents of creepiness 1) privacy concerns and, chatbot usability (chatbot user perception) and 2) technology anxiety and need for human interaction (individual characteristics) and its influence on loyalty.
Jiménez-Barreto et al.,	Chatbot	Qualitative, grounded	The paper has used self-determination theory to

2021		theory	understand the customer motivational experience with chatbots.
Sung et al., 2021	Augmented reality via mobile app	Empirical, SEM	The study examined the role of escapism by exploring its antecedents and consequences.AR app control has a significant impact on AR app design. And AR app design has a significant impact on escapism. Additionally, escapism has a significant impact on social media sharing and purchase intentions.
Mishra et al., 2021	Virtual Reality/Augmented reality	Empirical, ANOVA	The results demonstrated that consumers find AR more useful when purchasing hedonic products. Moreover, multisensory technologies result in higher emotional appeals, visual appeal, and purchase intentions.
Kim et al., 2021	Virtual Reality	Empirical, SEM	Vividness positively influences perceived usefulness and enjoyment and usefulness and enjoyment positively influence attitude towards VR and behavioral intention of users.
Qin et al.,	Augmented Reality	Empirical,	The study examines how

2021		SEM	mobile augmented reality impacts consumer attitude towards shopping. The results showed that gratification and informativeness are positively associated with mobile app usage.

3.0 Conclusion

New-age technologies like chatbots, AR, and VR are likely to transform various industries. The adoption of new-age technologies is a critical part of the firms. Their incorporation can even lead to profitability as consumer satisfaction increases with the integration of new-age technologies. These technologies are evolving rapidly, and their applications have increased over the years. Consumers have become more connected to firms with the rise of new-age technologies. As these technologies mature, we may see more immersive experiences. Research on new-age technologies is still at a nascent stage but firms and researchers have realized the potential of new-age technologies. And researchers have acknowledged the potential of new-age technologies on positive customer experience. Therefore, marketers are spending huge budgets to be well-equipped with new-age technologies.

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CHAPTER 7

METAVERSE- BRIDGING THE VIRTUAL & REAL WORLDS

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Abstract

The era of digital innovation has ushered in the concept of the metaverse, which is a shared virtual realm combining augmented reality, virtual reality, and the internet. Although it is still in its early stages, the metaverse has the potential to transform our online interactions and communication. Metaverse, an emerging virtual environment, has captivated the imagination of scholars, industry experts, and enthusiasts alike. As consumers gradually adapt to this new realm, marketers are also keen to understand how the metaverse alters traditional consumer behaviours, particularly in terms of product and brand information processing. This chapter aims to unravel the dynamics of the metaverse, how consumers interact within this novel space, and examine the nuances that set it apart from interactions in traditional environments.

Introduction

Metaverse is not just a digital space; it is a convergence of technology and human interaction that offers unique possibilities for engagement, collaboration, and connection. The Metaverse represents a new reality beyond our physical world, an everlasting and continuous space where multiple users can blend the real and the digital. This idea stems from the fusion of technologies that enable immersive

interactions with virtual worlds, digital elements, and people, encompassing both virtual reality (VR) and augmented reality (AR). Consequently, the Metaverse functions as a connected network of persistent, multi-user immersive spaces. It facilitates seamless communication between users in real-time and dynamic interactions with digital objects. Its initial form was a collection of virtual worlds that allowed avatars to move between them. Today's version of the Metaverse includes social, immersive VR platforms that are compatible with massive multiplayer online games, open virtual realms, and collaborative AR spaces (Mystakidis, 2022; Collins, 2008; MacCallum & Parsons, 2019). The metaverse, while not in complete existence, does have some components that function in specific genres like video games, and these provide the current closest baseline to what the metaverse may have to offer. It stands as a virtual realm that combines both business-to-consumer (B2C) and consumer-to-consumer (C2C) interactions, and can be accessed through specific technologies, facilitating real-time user engagement.

The Metaverse is a digitally mediated network of spaces that offer shared, real-time experiences. This conceptualisation outlines five key attributes: digital facilitation, spatial dimension, immersive quality, sharedness, and real-time interaction. These attributes collectively distinguish the Metaverse as a unique platform, even though individual elements might be present in other contexts. Firstly, the Metaverse's digitally mediated nature means user interactions occur through and with digital technology, utilising a variety of hardware and software. The technology allows for boundless creative expression, enabling fantastical experiences beyond the constraints of the physical world. Secondly, the Metaverse is spatial, consisting of 3D virtual worlds where users interact with each other. This spatial aspect parallels the physical world in influencing behaviour, with concepts like distance and proximity shaping interactions and experiences. Real estate dynamics also extend into the Metaverse, mirroring aspects of the physical real estate market. Thirdly, the Metaverse is immersive due to its ability to create realistic experiences that generate a sense of presence. Visual, auditory, and tactile cues contribute to this immersion, enhancing users' feeling of being in the environment. Avatars, embodying users in the virtual space, play a significant role in improving immersion. Fourthly, the Metaverse is inherently shared, with users coexisting in these digital spaces. Interactions are

influenced by the presence and actions of other users, and platforms can facilitate collaborative creation. The degree of social feelings experienced within the Metaverse is debatable; it may be influenced by sensory richness and technological advancements. Lastly, the Metaverse operates in real-time, ensuring synchronised and ephemeral experiences. Temporal synchronicity enhances social presence and immediate interaction, while temporal persistence contributes to the immersive nature of the platform (Nah et al., 2022). This dynamic interplay between spatial, immersive, shared, and real-time elements characterises the distinctive character of the Metaverse.

Metaverse & Virtual Reality

Few contemporary concepts have garnered as much widespread attention in such a short span as the Metaverse. The term has quickly become a focal point for industry professionals, academics, and consumers, evoking a range of emotions from excitement to confusion. Despite differing interpretations, Metaverse has garnered significant investment from tech giants like Google, Microsoft, Nvidia, and Meta. The market's potential is staggering, with projections of a trillion-dollar GDP in the coming years. According to data from Emergen Research, the global metaverse market is expected to grow and reach USD 1607 billion by 2030 at an impressive 43.3% CAGR (Djulich & Djulich, 2023). Metaverse is recognised as a new type of virtual computer-mediated environment. Back in the 1990s, 2D internet-linked computers allowed digital interactions. The limitations of social interactions in 2D internet environments have paved the way for the metaverse, accessible through advanced virtual reality (VR) headsets, offering richer and more immersive real-time experiences. VR has transformed from a distant idea to a thriving industry projected to reach a market size of $252.16 billion by 2028. It aims to make unreal things feel real using computer-generated imagery and immersive hardware. The roots of VR trace back to the 1960s, and recent technological progress has made it more feasible, enabling natural movements and interactions in virtual environments (Diaz et al., 2020). Avatars can now engage in real-time social interactions in VR settings, resembling real-world interactions.

Metaverse consists of virtual "worlds" where people use avatars to communicate and interact. This entails specific hardware such as headsets, exclusive operating

systems like Oculus, and Meta; and unique applications that provide virtual environments, for example, Horizon, Altspace (Hennig-Thurau, et al., 2023).

Marketing Opportunities in the Metaverse: Leveraging Consumer Interactions
The metaverse provides a transformative platform for businesses to engage consumers in fresh ways. By embracing immersive encounters, personalisation, real-time insights, and sensory connections, marketers can unlock the metaverse's potential and establish enduring affiliations with their target audiences. The dynamic realm of the metaverse introduces unparalleled openings for inventive marketing approaches and heightened customer involvement. Expert perspectives underline the transformative possibilities that marketers can leverage within this emerging digital domain.

- **Enhanced Brand Engagement:** Gucci, a renowned luxury fashion brand, embraced the Metaverse to redefine the traditional fashion show experience, showcasing its commitment to innovation and digital engagement. Gucci created a captivating virtual runway within the Metaverse, allowing users to attend the fashion show from the comfort of their homes. The virtual environment replicated the grandeur of a physical runway, complete with elaborate stages and lighting effects. In conjunction with the fashion show, Gucci established a virtual boutique where users could explore and purchase the showcased items directly within the Metaverse. This seamless integration of the shopping experience heightened user engagement. Gucci collaborated with celebrities and influencers to create virtual avatars, showcasing the latest fashion pieces. Users had the opportunity to interact with these avatars, attend virtual meet-and-greets, and gain insights into the fashion inspirations behind the designs. Gucci introduced limited edition digital collectibles, such as virtual accessories and wearables, available exclusively within the Metaverse. This strategy created a sense of scarcity and exclusivity, driving user participation. The virtual fashion show expanded Gucci's audience reach beyond geographical constraints. Fashion enthusiasts from around the world could attend the event simultaneously, democratizing access to high-end fashion experiences. Gucci's presence in the Metaverse elevated its brand perception,

positioning it as a forward-thinking and technologically innovative luxury brand. This resonated with a younger, tech-savvy demographic while maintaining its traditional luxury appeal. By integrating the virtual boutique and AR try-ons, Gucci enabled direct engagement between the brand and consumers. This direct interaction facilitated a more personalized and immersive brand experience.

- **Tailored Marketing via Avatars:** The deep immersion provided by the metaverse results in a wealth of interaction data, which makes it easier to develop extremely customised marketing tactics. Insights derived from interactions between avatars and users, along with the formulation of digital personas, open avenues for customising brand engagements and promotions. Businesses can employ this data to construct individualised experiences resonating with distinct preferences and behaviours.

- **Instantaneous Interaction Insights:** Metaverse's capability to capture and decipher real-time interaction data distinguishes it from the physical world. Marketers can promptly access insights into consumer reactions, sensory associations with avatars, and pioneering segmentation opportunities. This data-rich milieu empowers enterprises to refine their tactics based on immediate feedback and swiftly adapt to evolving consumer tastes.

- **Multisensory Brand Engagements:** Metaverse introduces sensory involvement beyond the confines of the physical sphere. Researchers have explored sensory feedback via avatar interactions, underscoring the potential for immersive brand encounters. Businesses can tap into these sensory interplays to collect invaluable customer insights and foster enduring sensory bonds with their brands.

- **Strategic Adaptation and Value Generation:** Confronting Metaverse marketing challenges strategically, guided by design-thinking principles, presents immense potential for businesses. Ensuring alignment of brand tenets across digital and physical realms is imperative. Additionally, recognising the sociometric configuration of the metaverse emphasises the significance of all-encompassing stakeholder participation and responsible

governance, ensuring the cumulative progression of value establishment within the evolving metaverse ecosystem.

The metaverse brings forth potential outcomes, both advantageous and detrimental, for both consumers and marketers. On the one hand, marketers can harness the metaverse to enhance consumer experiences by offering enriched narrative immersion and designing consumer journeys enriched with augmented reality (AR) elements. Conversely, they must address potential hurdles such as managing information overload, mitigating the fear of missing out, ensuring data security and privacy, and resolving issues related to trust. Moreover, the metaverse presents a unique avenue for data collection. Companies can leverage the insights derived from user interactions within the metaverse to facilitate data-informed insights, foster collaborative knowledge creation, and drive innovation. This data can also be harnessed to formulate tailored recommendations for consumers, ultimately augmenting their engagement and retention. Teams functioning within virtual world technology (VWT) environments tend to generate concepts that are more distinct and find the experience more enjoyable compared to those in chat-based settings.

Brands need to prioritise building immersive and ethical experiences in the metaverse, paying special attention to avatar interactions, sustainability, and data privacy. Understanding the unique dynamics of the metaverse, such as the role of AI, NeuroMarketing, and social interactions, can inform targeted and effective marketing campaigns. Brands should harness gamification, personalisation, and the potential of the metaverse for deeper consumer engagement. Looking towards Consumer Behavior Evolution, the Metaverse provides a new context to test and extend existing consumer behaviour theories. How traditional models apply or evolve in this novel environment can be a rich area for exploration.

Ethical Considerations

The Metaverse's development prompts a critical examination of ethical considerations as it becomes integral to daily life. Key ethical concerns include:

i.   Data Security: Stringent measures are necessary to safeguard user information from unauthorised access and misuse due to extensive data collection in the Metaverse.

ii. User Consent: Obtaining clear and informed consent from users regarding the collection and use of personal data is crucial. Users should retain control over shared information, and understanding potential consequences.

iii. Equitable Access: Efforts are needed to prevent the exacerbation of inequalities, ensuring universal access to the Metaverse irrespective of socio-economic status, location, or physical abilities.

iv. Accessibility Standards: Designing the Metaverse with accessibility in mind is imperative, catering to individuals with disabilities to enable full participation and navigation in virtual spaces.

v.   Combatting Misinformation and Harmful Content: Implementing effective content moderation mechanisms and guidelines is crucial in the Metaverse to counter misinformation, hate speech, and harmful content and maintain a safe and inclusive environment.

vi. Digital Property Rights: Establishing clear and enforceable digital property rights is essential in the Metaverse to prevent disputes and protect users' investments in virtual goods and assets.

vii. Economic Disparities: Ethical considerations should address potential economic disparities within the virtual economy, emphasising the fair distribution of resources, wealth, and opportunities.

viii. Authenticity and Deepfakes: Concerns about trust and authenticity in the Metaverse, exacerbated by the blurring of reality and virtual existence, necessitate the establishment of ethical guidelines to mitigate the misuse of technologies like deepfakes.

ix. Cultural Sensitivity: Developers must be mindful of cultural representation in the Metaverse to avoid perpetuating stereotypes or engaging in cultural appropriation.

x.   Balancing Engagement: The immersive nature of the Metaverse may contribute to addictive behaviours, requiring ethical considerations that promote a healthy balance between virtual and real-world engagement.

xi.   Compliance: Adherence to comprehensive regulatory and legal frameworks is essential to govern Metaverse activities, addressing issues such as intellectual property rights, taxation, and user rights.

Tackling the Ethical Concerns

- Modular Architecture for Adaptability: The metaverse is envisioned as a versatile virtual space constructed using a modular architecture, allowing it to cater to different needs and standards. This approach involves key contributors such as developers, users, content creators, and regulators.

- Transparency and User Involvement: Transparency and user participation are highlighted as crucial factors in shaping the metaverse. Modules like decision-making involve stakeholders like members, regulators, and developers. Decentralised Autonomous Organizations (DAOs) are suggested to enhance scalability and enable collaborative decision-making.

- Security and Privacy Concerns: To address privacy and security concerns, implementation of default privacy measures to safeguard user data and prevent data concentration can be considered. Any changes in the Metaverse's code and hardware should align with local regulations and accommodate future shifts.

- Ethical Design and Human Rights: The Metaverse's design is aligned with an 'Ethical Hierarchy of Needs,' prioritising human rights, diversity, accessibility, and user privacy. This modular approach utilises technologies like Blockchain and DAOs to create a decentralised, open, and interoperable system.

- Challenges and Potential: While the modular-based design streamlines complexity and empowers various aspects of the metaverse, challenges remain in effectively involving stakeholders, particularly users, in fair and

ethical decisions. Existing platforms like Decentral and the Sandbox showcase the potential of DAO-based decision-making for user collaboration and positive social impact.

Conclusion

In today's fast-paced digital era, the metaverse stands out as one of the most intriguing developments. Imagine a blend of the real and Metaverse where augmented and virtual reality meets the internet; that is the metaverse for you. It's changing the way we think about the online world and, importantly, how consumers behave within it. The metaverse offers a unique experience for customers. Here, companies can create an avatar to add a personal touch to their online interactions. Companies continue to refine their efforts to deliver experiences once thought impossible. In conclusion, delving into the dynamics of social interactions within the metaverse offers a profound understanding of the evolving digital landscape. This chapter has focussed on the unique amalgamation of digital mediation, spatial immersion, shared experiences, real-time engagement, and technological advancements that characterise the metaverse. As the metaverse continues to shape the way individuals connect, collaborate, and create, it becomes imperative to recognise its potential, challenges, and ethical considerations. By comprehending how consumers navigate this novel virtual realm and comparing it with traditional environments, we can anticipate the future of social norms, consumption patterns, and even societal transformations. As the metaverse journey unfolds, it paves the way for innovative insights that bridge the gap between the real and the virtual, enriching our understanding of human behaviour and interaction in an ever-evolving digital landscape. With concepts like deeper penetration in the game and NeuroMarketing, consumer decision-making continues to evolve. The metaverse is a digital pleasure that changes the behaviour of consumers. There is more to learn and explore as the metaverse continues to grow and change. Further studies can focus on how the brain differentiates between the metaverse and real-life experiences, which can be a fascinating avenue for neuroscientific research. As the metaverse blurs the lines between reality and virtual, establishing ethical guidelines and understanding their implications on consumer behaviour is also crucial.

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CHAPTER 8

ADOPTION OF AUGMENTED REALITY (AR) AND VIRTUAL REALITY (VR) IN ENHANCING CUSTOMER EXPERIENCE IN MARKETING

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Abstract

This chapter studies the growing application of technologies like Virtual Reality (VR) and Augmented Reality (AR) in marketing and their incredible effect on enhancing customer experiences. We look at the evolution of this technology, breakthroughs, and real-world applications of AR and VR, highlighting the benefits and difficulties they bring. This chapter examines the present situation to provide an understanding of the future opportunities for AR and VR in marketing applications that can enhance customer experience.

Introduction

Imagine if everyone, anyplace, could ideate and visualize a virtual building and what this planet will look like, if we can tell any architect that they can build any idea of the landscape they want, with no restrictions on the sort of cost and time to develop. If we say that glasses are needed to see 'buildings' with gorgeous natural sceneries and parks? Can we visualize a bus stop that amuses travellers while we wait? What If we can watch a space in the corner of our house fitting

furniture without buying it and enjoying our dream home idea turn into a reality? All this is becoming a possibility because of the advancements of AI in human life.

AR combines digital data with the natural world or environment, which allows the audience to interact and engage with any scenario. At the same time, VR creates an entirely imaginative synthetic environment away from the natural world, drifting them away from the physical world. Marketers use these technologies to shape an inclusive array of experiences, from collaborative product demos to virtual store tours.

Definition and theoretical framework of AR and VR:
People frequently mistake reality for the actual world and find it difficult to comprehend why virtual reality feels so real, even knowing it is not. Understanding reality as a construct from what we perceive with our senses helps us distinguish whether that perception originates from the digital or the physical world and is essential to grasping these technologies. When someone has cried and felt very emotional while watching a movie or an ad, they are conscious that what they saw was unreal. Still, at that time, it felt natural, which explains the virtuality continuum.
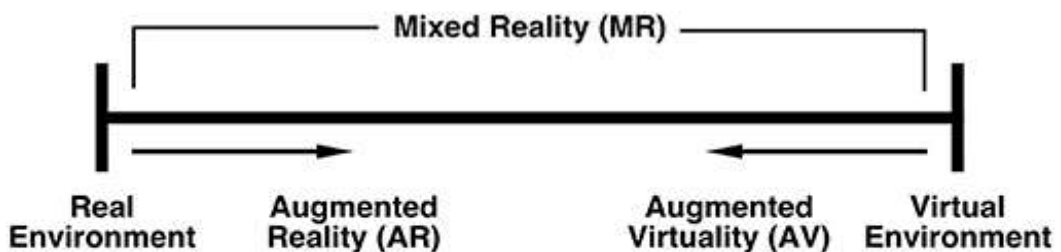
Reality-Virtuality (RV) Continuum

Source: Concept of Virtuality continuum (Milgram, Paul & Kishino, Fumio. (1994)).

The concept of the virtuality continuum, sometimes known as the reality-virtuality continuum, was initially presented in 1994 by researchers Paul Milgram and Fumio Kishino.

Extended reality (XR) is an encompassing term for any technology that changes realism with the help of digital elements and transports humans from the physical or natural world to an imaginary environment, clouding the line amid these worlds. XR embraces AR, MR, VR, and any technological development. (Tremosa, L. 2023, July 25),

As defined by Tremosa, L. (2023, July 25),

Augmented reality (AR) technology allows the superposition of digital elements into the real-world environment.

Virtual reality (VR) technology creates a fully immersive digital environment.

Mixed reality (MR) is an overlapping technology that allows the principle of superposition of digital elements into the natural world or actual environment and their collaboration.
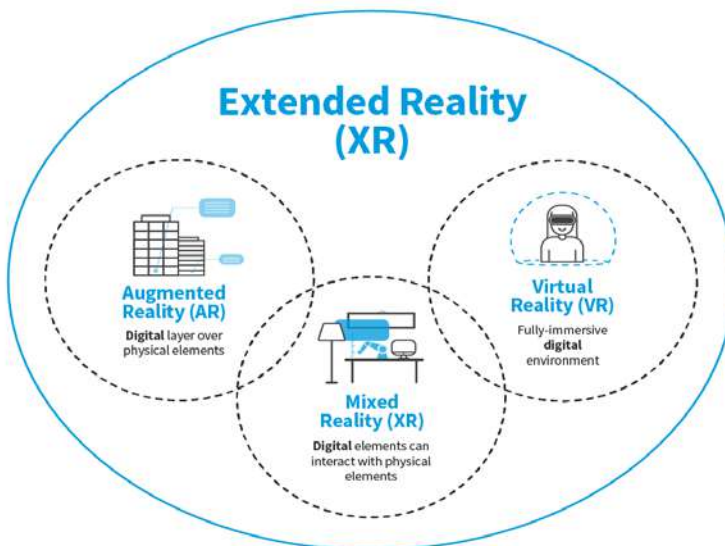
Source: Laia Tremosa and the Interaction Design Foundation, CC BY-SA 4.0

Evolution of AR and VR
In the 1800s, Sir Charles Wheatstone invented the theory of "stereopsis," also known as "binocular vision," which explains how the brain syndicates two

images from two eyes and deciphers 3D image vision in Humans and this revolutionary invention paved the way to the development of first stereoscopes, which can create a 3D image with the illusion of deepness. Stereoscopic demonstrations are widely used in AI enabled VR systems to convey a visionary sense of deepness to digital imageries, enhancing the perception of engagement. Through the use of goggles, the protagonist of Stanley Weinbaum's 1935 science fiction novel Pygmalion's Spectacles travels to a fictional universe. That was the first VR prophecy that we currently use. (BernardMarr,2021)

Later, the journey of AR VR inventiveness advanced from the 1950s and 1960s with the invention of Morton Heilig's Sensorama machine. The word "virtual reality" was conceived in the 1980s, when the development of head-mounted displays (HMDs) and VR gloves was gaining popularity. But these innovations took backstage in the early 2000s due to a lack of technological capabilities and high costs of manufacturing and stakes in R&D. In the 1960s, Harvard Professor and scientist Ivan Sutherland, in his research paper, explained the concept of the "Ultimate Display, "related to AR, which can create a virtual world so accurate that the user will not be able to discriminate it from realism. Based on this concept, Sutherland and his research scholar Bob Sproull developed the first VR-AR helmet in 1968 called "The Sword of Damocles," which was a large device that was attached to the ceiling (Sutherland, 1965) This is broadly considered the blueprint for modern VR. In the 2010s, introducing more progressive headgear such as the ARToolKit, Oculus Rift, HoloLens, and HTC Vive gave a rebirth to VR and AR. AR created a revolution with the advent of smartphones and tablets equipped with high-end cameras and sensors, allowing AR apps like the IKEA Place app Pokémon GO to become famous.

The Role of AR and VR in Marketing
Rapid advancements in augmented reality (AR) and virtual reality (VR) have redesigned the marketing area. These new high-edge technologies have become omnipresent across various industries, helping marketers control their transformative competencies to engage consumers in innovative and unique ways.

Industries are progressively integrating AR and VR into their marketing strategies through mobile apps, web-based platforms, or in-store experiences, and these skills are becoming everyday gears in the marketing toolkit. While AR and VR technology intend to create immersive experiences, they have discrete variances. The choice between AR and VR rests upon the marketing objectives and the desired level of customer experience. Several factors which have paved the way for the popularity of AR and VR in marketing include

a. Customers in the COVID scenario opt for less human interaction while shopping for products
b. Customers are adopting technology at a significantly faster rate
c. Customers looking for a more engaging experience
d. Customers have access to more information
e. Customer recall and recognition lead to brand engagement in increasing the conversion rate.
f. Customers demand more customization in their product choices

Even AR and VR have made reaching new and varied customers easier with promotions enabled by these technologies. For example, research showed that AR games are likelier to appeal to consumers who are often neutral towards conventional messaging.

Enhancing Customer Experience with AR and VR

Advertising and Promotion:
Oreo provided users access to its "Wonder Vault," where they could imagine its cookie varieties using Google's Cardboard headset. To witness the production of their Filled cupcake-flavored Oreos, viewers can ride past chocolate mountains, milk rivers, and giant Oreos. It is a light-hearted campaign that worked wonders to raise awareness for the debut of a new product.

Social media users can create AR filters on Snapchat and Instagram, and businesses use this technology to promote their brands. Coca-Cola Poland, for example, used a filter with their emblem, a polar bear. Prada used augmented reality to create a clever acronym marketing. Users may connect with and enjoy

interactive content in an easy-to-use way thanks to these filters, improving brand visibility across social media.

With its Lego AR Studio app, which allows children to make and interact with simulated Lego sets using their smartphones, Lego used (AR) marketing. Created in 2019 by Lego's Creative Play Lab, this software allows fans to control digital representations of Lego models inside actual sets, such as the City Police Station and Fire Station, directly from their smartphones. Moreover, the application records these exchanges and saves video segments. This app's primary goal is to advertise actual Lego products.

Pepsi put augmented reality (AR) technology in a London bus shelter 2014, giving the impression that flying saucers, wild animals, and other imaginary objects were aiming directly at Londoners. Pepsi's fun personality was highlighted in the production, giving the audience a memorable experience. Following that, a YouTube video displaying the AR technology of the bus shelter had over six million views, making it one of the most watched advertising campaigns on the platform.

Product Visualization in Retail – Online and Offline:
AR allows consumers who wish to feel more confident about their purchases to try on clothing, accessories, and cosmetics virtually. Similarly, virtual reality (VR) lets customers virtually visit stores and view products in lifelike settings, empowering them to make independent purchases from their homes. One significant benefit of AR and VR in retail is that they increase customer happiness and brand loyalty.

Nike Fit App has a gadget that maps each foot's proportions using a 13-point gauging system by scanning customers' feet with a phone camera and utilizing AR technology. They have used artificial intelligence to create sizing estimates, so the more users it has, the more accurate it will become. By using this tool, Nike anticipates fewer returns due to size will occur, and consumer satisfaction will rise.

For other brands where the customer wants to know their shoe size, a new smartphone software called Snap Feet uses the user's foot's 3D shape to predict how well shoes will fit. It also provides a fundamental augmented reality (AR) representation of how the shoes appear on the wearer's feet.

Rent It Bae, an affordable fashion rental company with an array of apparel and accessories from luxury labels, well-known brands, and Indian ethnic designers, integrated AI and AR technologies into its storefronts in Delhi. They have Show & Pop, an in-store bright screen that lets customers know everything they need about a product, including its price, fabric, rental costs, and available sizes. All they must do is place the item in front of the screen. Simply said, users need to wear appropriate clothing, stand in front of the screen, and rotate clockwise to record and display their 360-degree view, including all the trials to facilitate comparison.

Lenskart customers can virtually test the glasses with its 3D face modeling tool. When the user tries on a frame, they can swipe on the screen to shift their head left or right to see the glasses from different perspectives. The system takes several measurements of the user's face to virtually map the face. Customers may choose frames more quickly, efficiently, and enjoyably with the help of our online 3D face modelling trial, which offers preferences and historical data.

Based on Apple's newly launched ARKit technology, the IKEA Place app marks a critical turning point in the company's digital transformation. IKEA, one of the first home goods firms in the world to offer consumers this technology, is revolutionizing the way we purchase furniture going forward. This program adjusts products automatically according on the size of the room, with 98% accuracy. The accuracy of AR technology will allow us to see the texture of the fabric as well as the way light and shadow are portrayed on the furniture. Through the app, users can capture their surroundings and share them as a picture or video with others.

Source: www.ikea.com/global

"MirrAR" is an excellent technology developed by Tanishq in collaboration with StyleDotMe. It lets customers try on jewellery virtually (VR), so they do not have to wear it. Virtual reality allows them to see how it appears when they wear it, which makes jewellery shopping more accessible and more enjoyable. Tanishq revolutionized their customer experience by launching into the Augmented Reality experience at Bengaluru and Delhi airports.

One of the first companies to encourage collaboration between VR and sales was the real estate company Halstead Property, located in New York, which installed VR headsets and 3D guided displays in its offices. Prospective buyers can utilize VR headsets to view a virtual home representation based on the blueprint and a "live" virtual tour of a property or home without physically being there, even before the house has been approved and erected. Thanks to VR headsets, Halstead Property is helping its clients save time and money on house hunting by providing them with an immersive virtual reality experience in their future homes without ever having to leave their homes. Metaverse platforms like Sandbox and Decentraland allow users to purchase virtual property and have timely access.

Immersive Storytelling

VR enables marketers to create compelling storylines. Brands can immerse consumers in their tales instead of only using traditional commercials, turning

them from passive viewers into active players. This kind of emotional involvement makes an impact. Immersion storytelling, such as that found in HBO's "Westworld: The Maze," allows consumers to become part of the brand's tale, which improves content marketing.

HBO created a game for Season 2 that enabled viewers to interact with the show's setting in which lifelike robots were housed in a Wild West theme park in HBO's Westworld. The game designers designed it to be highly whimsical for devoted viewers who adore the quality and stories of the show. They can play this game for over two hours with so many options and tales. It received significant recognition, accolades, and even praise from Amazon during their earnings call.

VR was employed to make the Rio Olympics the most technologically advanced. Samsung and broadcaster NBC collaborated to offer fans 85 hours of VR Olympic entertainment during the games. Sports fans had the opportunity to go to famous locations, such as Copacabana Beach, see exclusive material while watching the games, and learn a little about the histories of Samsung and NBC.

Gucci, an International Brand, launched Mini games with browsable art exhibitions, where users may buy clothing for their Roblox avatars in an artificial environment of a Gucci store. Users can inspire others to visit and explore the town's offerings by wearing the outfit they have bought and starting a conversation, which gives a more enthralling experience to customers.

Customer Engagement and Interaction

Café Tresor, located in New Delhi's center, is a brand-new, upscale Apple service center. Alisha is a gifted virtual assistant in this store that is incredibly intelligent and fast. Alisha helps customers with conversing, watching, and writing after they register, ensuring they do not have to wait too long. It is like having a brilliant assistant to enhance the Apple experience.

Loreal App - Modiface's Augmented Reality technology allows customers to browse the entire Maybelline product collection online without worrying about how a product will appear on them. Users can test on a dozen shades without taking off their makeup. Using an innovative face tracker algorithm, the Virtual

Try-on technology locates eyes, lips, cheekbones, and face and applies virtual cosmetics. The lipstick will genuinely follow the mouth and head movements.

Samsung Galaxy smartphones and tablets come with an app called AR Zone. It combines a few relevant services into a single app and offers a variety of AR capabilities, such as AR Emoji. With the AR Emoji Camera, users may record movies or take animated 3D avatars of themselves dubbed by MyEmoji.

Benefits of AR and VR in marketing:
Marketers can enhance customer experience by customizing offers and content to each user's interests and needs and creating individualized marketing experiences.
Customers can virtually test-drive cars or sample makeup before purchasing, lowering the possibility of product returns and disappointment.

AR VR tools provide insightful information and data on user interactions and habits, which aids in developing more targeted campaigns and a deeper understanding of the target market.

AR and VR are valuable tools for training employees and customers about intricate goods and services.

Customers frequently post about their AR and VR experiences on social media, promoting brand visibility and positive publicity.

Over time, AR and VR may prove to be economical for companies whose marketing strategies have historically relied on travel, live events, or tangible prototypes.

Challenges and Limitations
Due to their hefty implementation expenses, small and medium-sized enterprises may find VR and AR marketing initiatives impractical.

A good VR and AR marketing campaign requires talented individuals who have a thorough understanding of the underlying principles, and this requires highly skilled and trained people.

Innovative technologies pose more problems when clients run apps, which may irritate them and make them doubt the brand.

In some studies, it has been observed that AR VR tools have the potential to cause or exacerbate anxiety, phobias, trauma, depression, or other psychological problems by subjecting users to demanding, frightful, or unpleasant stimuli,

High-performance gear is needed for VR to function correctly and prevent lag, errors, and glitches. This hardware includes headsets, controllers, sensors, and many more.

Ethical and privacy concerns

Because VR and AR marketing systems manage a lot of client data, privacy is a big problem. Depending on the brand and marketing strategy, this data may contain details about the user's identification and behaviours and biometric information like fingerprints and handprints, voiceprints, iris or retina scans, and face geometry. Ensuring that customers are aware of the data they are supplying and its intended use and putting safeguards in place to preserve and secure it are crucial.

The Future of AR and VR in Marketing

The adoption of AR and VR into marketing tactics is still in its initial stages, but the expansion is very rapid and diffusing faster. Early adopters predict that this technology will transform our media consumption habits. A recent report by Gartner suggested that 32% of marketers have used AR and VR in their campaign drives, with an additional 42% forecasting to do so in the following years.

According to Markets and Markets, the augmented and virtual reality industry is projected to grow from $206.1 billion in 2021 to $296.9 billion in 2024, a 57.5% increase. According to PwC, VR and AR might raise the world GDP to USD 1.5 trillion by 2030. 71% of businesses using augmented reality claim increased

customer satisfaction and operational effectiveness (source: Deloitte). According to 67% of advertising agencies, augmented reality raises audience interest and engagement with promotional materials (source: Adweek).

As mobile devices become more capable and reasonably priced, the potential of mobile augmented reality (MAR) keeps expanding, and new hardware innovations like mobile projection systems are released. The number of mobile AR user devices is anticipated to increase to 1.7 billion by 2024, and the mobile AR industry will reach $36 billion by 2026.

The arrival of new and unique headsets from Meta, HTC, and Apple propels the acceptance of mixed reality. Its growing notoriety is also greatly attributed to software tools from numerous big firms, including Microsoft, Google, Snapchat, Magic Leap, Lenovo, and Unreal. The opportunities for mobile marketing campaigns are virtually limitless as developers and marketers keep pushing the boundaries of artistry and innovation in mixed reality.

Conclusion

In summary, using AR and VR in marketing changes how companies interact with their clientele. With the help of these technologies, businesses may improve client experiences and create more engaging, dynamic, and customized interactions. But companies also must deal with many other problems, such as user experience problems, ethical dilemmas, and technological obstacles. There is a lot of promise for AR and VR in marketing in the future, as new developments and trends are expected to transform consumer experiences significantly.

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CHAPTER 9

CONSUMERS' INTENTION TO USE CONTACTLESS PAYMENT SYSTEMS (CPS) IN THE NEW NORMAL

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ABSTRACT

The present study is critical as it examines the impact of HBM and UTAUT on the adoption and use of CPS through empirical observation during the COVID-19 period in India. This study attempts to study different factors influencing the intention to use CPS and its actual usage. Constructs from well-defined theoretical models like Technology Acceptance Model (TAM) and its extended

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form, UTAUT, Innovation resistance theory, and health belief model (HBM) were adopted. A structured questionnaire was used to survey 336 respondents, and an empirical analysis was done using AMOS. Findings of the study highlight that perceived security strongly impacts customers' intention to use CPS by banks compared to privacy. Among the constructs adopted from the health belief model concerning the ongoing pandemic, it was found that perceived susceptibility has a significant impact on the intention compared to perceived seriousness. This cross-sectional study is limited by geographic constraints and highlights the adoption of CPS using HBM and UTAUT during the pandemic. This research suggests insights to experts, policymakers, and CPS providers about the adoption and actual use of CPS by consumers during COVID-19.

Keywords: Contactless payment systems, Technology Acceptance Model, UTAUT, Innovation resistance theory, health belief model.

INTRODUCTION

The world has changed due to COVID-19, which has forced people to shift toward online business and payments. The pandemic has carved the demand for contactless technologies to prevent the physical touching of surfaces and maintain social distancing (Puriwat &Tripopsakul,2021). Indian economy to date is majorly a cash-based economy, but the pandemic has made Indian rethink handling cash due to fear of infection via currency notes (Bhatiya,2021). This major shift in consumer behavior has changed the selection of payment methods among customers. COVID-19 has seen a significant boost among Indian customers for contactless payment systems (CPS). CPS is a wireless financial transaction in which the consumer approves monetary reimbursement for purchase by moving a security token near the vendor's point of sale (PoS) scanner. Chip-enabled bank cards and smartphone digital wallet applications are popular security tokens for contactless payment. Although CPS is a pre-existing technology, COVID-19 has given it a new dimension and has been considered the healthiest payment method (Shetty, 2020).

CPS does not entail any physical touch between the user's device and the seller's payment gateway while making payment, but a contactless point-of-sale (POS) terminal is required at the seller's. CPS can be implemented by different methods

like radio frequency identification (RFID) or near-field communication (NFC). CPS can be enabled by embedding RFID if various forms (Ozturk, 2016) and integrating a wireless technology called NFC into the gadgets to facilitate interface with POS terminal (Baumgartner et al., 2018; Wadii et al., 2017).

Identifying any individual's perceived susceptibility, seriousness, and coping behavior are crucial for adopting CPS during a pandemic (Srivastava et al., 2021). The anxiety of getting infected by Covid-19 infection is a catalyst for CPS. Perception of risk for COVID-19 can be comprehended as a pushing element for motivating embracing and continuance usage intent of CPS. It has seen a rapid increase and has become a new standard to prevent health and life risk during the current pandemic. Studies have established a relationship between health anxiety and concern and the usage of technologies like google meet adoption during COVID-19 to maintain social distancing (Al-Maroof et al., 2020) and COVID-19 tracking technology to find out infected people around an individual (Wnuk et al., 2020). However, there has been little attention to adopting contactless payments due to health risks and perceived susceptibility to virus infections. This has been seen as a gap1 in the study and has been answered by RQ1. How do health risks and perceived susceptibility to virus infection aid the adoption of CPS? This study answers this gap by adopting the health belief model (HBM) to explain the Intention to use and actual use of contactless technologies during a pandemic due to fear of getting infected by the virus and their actual use during this period.

The entire world will be witnessing a new normal in which people will prefer to go for CPS because of awareness of the hygiene element in the battle against Covid-19 and convenience, which first-time users of CPS will experience. Although the surge in the adoption of CPS indicates a good sign, it also surges security and privacy concerns which have been identified as a second gap in the study and answered by. RQ2 What are the security and privacy concerns associated with CPS? This study answers the RQ2 by building on a unified theory of acceptance and use of technology (UTAT) theory which is a validated theory in the adoption of technology like NFC in smartphones (Chang, 2013) and online shopping (Celik, 2016).

The present study incorporates effort expectancy and performance expectancy from UTAUT theory to assess the acceptance of CPS by an individual. The study also considers constructs like trust (Singh and Sinha (2020) and awareness (Alalwan et al., 2017) as essential factors in payment services. The current study was staged during the COVID-19 pandemic to access the adoption of CPS. The study contributes to the area of CPS; it analyses the usage of CPS from the perspective of health protection by integrating a practical element of perceived health risk. It incorporates two well-recognized models – HBM and UTAUT – for analyzing the user adoption of CPS. The study's primary objective is to focus on the actual use of CPS during COVID-19 and to build a theoretical model associating BI to use, HBM, UTAUT, IRT, and AU of CPS.

The rest of the paper is arranged as follows: the last segment builds on the theoretical framework and reviews the conceptual model and hypotheses development. Additionally, the research focuses on data analysis and discussion. Lastly, it delivers the mplications and conclusions of the study.

THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT
HBM, UTAT, and IRT support a theoretical model of the present study. People are more inclined towards CPS due to the fear of getting infected by the virus because it requires less physical interaction. During this period, it was seen that the forced digitalization due to fear of getting infected by the virus had developed few risk concerns; therefore, HBM and IR have been incorporated into the model (Fig1)

UNDERPINNING THEORIES:

Unified Theory of Acceptance and Use of Technology
Different theoretical models have been formulated to envisage the adoption and use of technology. Unified Theory of Acceptance and Use of Technology (UTAUT), which Venkatesh et al. (2003) proposed, can explain individuals' intentions to use any specific technology. UTAUT advances by merging the central concepts of eight earlier dominant models ranging from human behavior to computer science. UTAUT states that behavioral Intention, performance expectancy, facilitating condition, social influence, and facilitating needs directly

affect the acceptance and use of technology. There has been extensive usage of UTAT for validation of various technology settings like NFC in smartphones (Chen & Chang, 2013), online shopping (Celik, 2016), smartwatches (Wu et al., 2016), and mobile banking (Alalwan et al., 2017). Around 70 percent of an individual's behavior variation has been predicted via UTAT (Min et al., 2008). The present study identified UTAUT to identify different factors affecting individuals' usage intention of CPS during COVID-19.

UTAUT states that Performance Expectancy (PE) is the belief magnitude of a person about the usage of technology for improved job execution (Venkatesh et al., 2003). PE is a persuasive tool for justifying user intention to employ any technology (Luo et al., 2010). CPS's perceived ease of use and rapid payment process diminishes the payment time, which is an advantage.PE is the most prominent precursor for the Intention to use CPS(Morosan & DeFranco (2016).PE, trust and technology features, and technology fit for the task were considered the most critical factors influencing the intention to adopt mobile banking (Morosan & DeFranco 2,016). Thus, we hypothesize that:

Hypothesis 1: Performance expectancy positively correlates with the Intention to use CPS.

Hypothesis 2: Perceived ease of use has a positive relationship with the Intention to use CPS

Security and intention to use CPS:
According to some studies, one critical problem impeding online purchasing growth is customer perceptions of risk. As a result, businesses are working to reduce this view in order to reduce its impact and improve the sense of security (Gefen, Karahanna & Straub, 2003a,b). In electronic payment systems, security and risk perception are vital challenges. (Ashrafi & Ng, 2008). Perceived security is the extent to which users believe that using technology is safe. (Shin,2009). Safety is of prime importance among users when technology gets associated with payment due to increased digital fraud and data leakage (George and Sunny, 2018). Earlier studies prove that the security feature will decide whether users use any CPS (Hossain, Zhou, 2018). Johnson et al. (2018) uncovered that a user's

Intention to use CPS is significantly linked to perceived security (Johnson et al., 2018). Perceived safety substantially improves the users' trust by shielding them from transactional ambiguities and risks (Khalilzadeh et al., 2017). As a result, new security methods for new electronic payment systems must be established to secure client transactions and inspire confidence, enhancing attitude. This danger is a key stumbling block to introducing new payment methods (Lee, 2009). As a result, it is believed that the public's impression of security while adopting new payment systems must be managed for such kind of technology to be successful (Grassie, 2007; Schierz et al., 2010). Therefore, the perceived security of CPS is believed as an added variable of UTAU, which is a decisive assurance for determining users' trust in using CPS during COVID-19. Accordingly, this study proposes the following hypotheses.

Hypothesis 3. There is a positive relationship between security and Intention to use CPS during COVID-19.

Privacy and intention to use CPS:

From Bauer's classic studies, which showed that risk is a factor in consumer behavior because the consequences of using a product cannot be predicted with certainty, to the most recent research on payment systems, the perception of security has always been linked to negative consequences that the consumer might face if he changes his intention to use(Bauer, 1960). Consumer attitude toward CPS is related to their attitude towardsecurity (Wang,2003). The lack of a privacy policy in CPS reduces the user's confidence. In the context of CPS, the primary consideration must be security, as data breaches may lead to severe consequences. Davis (1985) evaluated the fundamental trust beliefs, security actions, and technologies that shape the fundamental of CPS cards which swap confidential transaction information with contactless POS terminals. TAM and the perceived security model were implemented to compare the factors which ascertain acceptance of SMS and NFC payment systems for future payment (Xinyan, et al. 2009). The University of Bahrain 2018 experimented with a malicious application that can spy on transactions of CPS. Therefore, we can hypothesize the following:

Hypothesis 4. There is a positive relationship between privacy and Intention to use CPS during COVID-19.

Health Belief Model (HBM)

HBM was developed by US General Health Service's social psychologists in the 1950s. It explains how to train people on measures to act in response to health risks(Rosenstock, Irwin 1974). This model is based on an individual's reason for executing a behavior(Shang, Lili, Junjie Zhou, and Meiyun Zuo., 2020). The theory underlines how an individual's perception produces motives and leads to actions. As per HBM, individuals consider two primary components when deciding whether to engage in health-related activities: risk perceptions and expected outcomes from the behavior (Maiman, Lois and Becker 1974). Risk perception relates to the perceived seriousness of the uninvited moments of existing risks and the perceived susceptibility to the stake; the previous is acceptance of the severity of the consequences persuaded by the condition, and the latter is the individual's belief about the probability of attainment of the illness.

Some researchers have recently employed HBM and technology acceptance models to study factors affecting digital technology use intentions during the COVID-19 pandemic. Factors influencing Intention to use contact tracing application for COVID-19 based on HBM (Walrave et al., 2020). Findings highlighted that the contact tracing app's intent was substantially related to the perceived value application, self-efficiency, and perceived hurdles. Another study conducted among Indonesian students to find the factors impacting the use of e-learning in COVID-19 indicates that the Intention to use e-learning has a significant relationship with perceived utility and students' approach towards e-learning, and enabling conditions have a substantial influence on perceived ease of use and perceived usefulness (Sukendro et al., 2020)

Sukendro et al. (2020) discovered factors envisaging the use of e-learning during COVID-19 among students in Indonesian universities. The results revealed that behavior intention to use e-learning was prophesied by perceived usefulness and students' attitudes towards e-learning. Facilitating conditions significantly influenced perceived ease of use and usefulness. Therefore, the present study

embeds UTAT theory derived from TAM with HBM to analyze the factors that influence the Intention of customers to use CPS during pandemic scenarios in India. Concerning the above findings, we can hypothesize that:

Hypothesis 5: perceived susceptibility has a positive relationship with the Intention to use CPS

Hypothesis 6: Perceived seriousness has a positive relationship with the Intention to use CPS

Innovation resistance theory

CPS is new and incorporates advanced technology. Innovation in acceptance is complex for big firms and at the individual level. Companies try their best to develop innovative and user-friendly products and put continuous efforts into user adoption.

Still, failure in the acceptance of innovation is witnessed by many companies (Danneels, 2003). Consumers eventually reject it before adopting it and show reluctance to accept any innovation (Kuisma et al., 2007). Innovation resistance indicates the resistance offered by the consumer towards any present comfortable state or divergence from their notion of innovation (Ram & Sheth, 1989). IRT is derived from Innovation Diffusion Theory (IDT) (Rogers, 2014). Dimensions of IRT comprise the Value barrier, risk barrier, traditional barrier, usage barrier, and image barrier (Laukkanen et al., 2007). Consumers depict rejection in three stages: postponing the innovation, rejecting the innovation, and opposing the innovation. During the pandemic, there was a potential risk of the virus spreading the link to the physical exchange of currency notes and coins as there was no way to check the virus strains. CPS was the most prominent payment method in this case, but consumers still resisted due to technology involvement, fear of data breaches, and digital fraud (Akana & Ke, 2020). This study shows that CPS is important for consumers' behavioral intentions and must be considered an essential construct (Miltgen et al., 2013). Based on the above background, we propose that

Hypothesis 7: IR has a positive relationship with the Intention to use CPS during COVID-19

Hypothesis 8: IR has a positive relationship with the actual usage of CPS during COVID-19

Age and Gender

Since the late 1990s, the function of gender in the original TAM has been studied. According to Gefen and Straub (1997), the role of gender has often been disregarded in behavioral studies of the IT industry. Previous research has looked into the moderating influence of gender on e-commerce acceptability (Wynn, 2009). These studies reveal behavioral intention toward shopping or purchase orientations between men and women. Males have traditionally been more ready to engage in e-commerce than women; men are more likely to make planned purchases (e-hardware), while women are more likely to buy various sorts of items or make less planned purchases (Van Slyke et al., 2002). However, as previously stated, we believe that gender can have a significant impact. The possible effects of age and gender variables on Intention to CPA and actual use of CPS during a pandemic have also been analyzed. These variables have been studied independently in a different context (Lu et al., 2011), but these variables will impact pandemic time due to forced digitalization have not been researched. This research will focus on the relationship between age and gender concerning the Intention and actual usage of CPS during COVID-19. Therefore, we hypothesize that

Hypothesis 9: Age has a positive relationship with the Intention to use CPS during COVID-19

Hypothesis10: Age has a positive relationship with the actual usage of CPS during COVID-19

Hypothesis11: Gender has a positive relationship with the Intention to use CPS during COVID-19

Hypothesis12: Gender has a positive relationship with the actual usage of CPS during COVID-19

Trust and intention to use CPS:

Trust can be defined as users' readiness to accept susceptibility with positive beliefs about the intentions of others in the situation portrayed by interdependency and risk (Ennew & Sekhon, 2007). It is a complicated notion defined as opinions about other individuals' capacity, goodwill, and veracity (Lee & Choi, 2017), influencing behavioral Intention (Siau & Shen, 2003). Yen and Chiang, 2020 studied chatbox and found that trust is impacted by competence, social presence, dependability, and informativeness. Conclusion: there is confidence in having a well-established relationship between the online interface (Lee & Turban 2001) and technology adoption (Venkatesh et al., 2012). The existing uncertainties due to COVID-19 have affected the risk factors due to online fraud, but they can be reduced with trust. Research has established that faith is the deciding element in fostering relations during uncertain conditions (Pavlou & Gefen, 2004). In current unclear conditions prevailing due to COVID-19, we consider that trust will act as a defining factor regarding the behavioral Intention of the user to use CPS. Therefore, it can be hypothesized that,

Hypothesis 13: There is a positive influence of trust during COVID-19 on the perceived ease of use of CPS.

Awareness

Awareness is well-defined as a strategy of communication that informs the users about the advantages and efficiency of technology and encourages them to start using the new technology (Hayashi, 2009). The absence of awareness about technology usage is the primary problem in developing nations like India (Gupta, 2018). Due to unawareness of technology, users havresiste adoption of the same, which affects consumers' behavioral Intention of consumers to use technology. Consumers fear the loss of personal data, which can be misused and affects technology adoption. A study found a strong link between awareness and the effectiveness of technology; it was highlighted that when the consumer's attention is updated, they adopt the technology more effectively (Stepcic & Kabanda,2016). Therefore, we propose hypotheses to find the effect of awareness on the perceived ease of use of CPS.

Hypothesis 14: There is a positive influence of awareness on the perceived ease of use of CPS.

Relationship between Behavioral Intention and Actual Usage of Digital Payment Systems.

BI indicates personal readiness to execute a specific behavior and is a precursor of user actions (Glavee-Geo et al. 2017). Ajzen (1991) states that use or the actual usage behavior is an apparent reaction in a given situation concerning the given target. Earlier studies on information technology acceptance studied to examine the positive connection between behavioural intention and actual usage of information technology (Tarhini et al., 2015). Because behavioural intention has been found to correspond with actual conduct in the literature, gauging intention will give a reliable indicator of consumer behaviour (Thakur et al., & Srivastava, 2014; Venkatesh et al., 2012). A systematic literature review conducted by Turner et al 2010 included 79 qualitative studies about the prediction by TAM on actual usage of information systems. Venkatesh et al. (2012) presented another significant discovery in the consumer environment based on an online survey of 1,512 mobile internet users. They discovered a link between behavioural intention and accurate technology usage, implying that customers' intentions to utilize technology are followed by their actual utilization. Based on the above findings, we hypothesise that:

Hypothesis 15. BI to use CPS positively influences actual usage of CPS.

PROPOSED MODEL
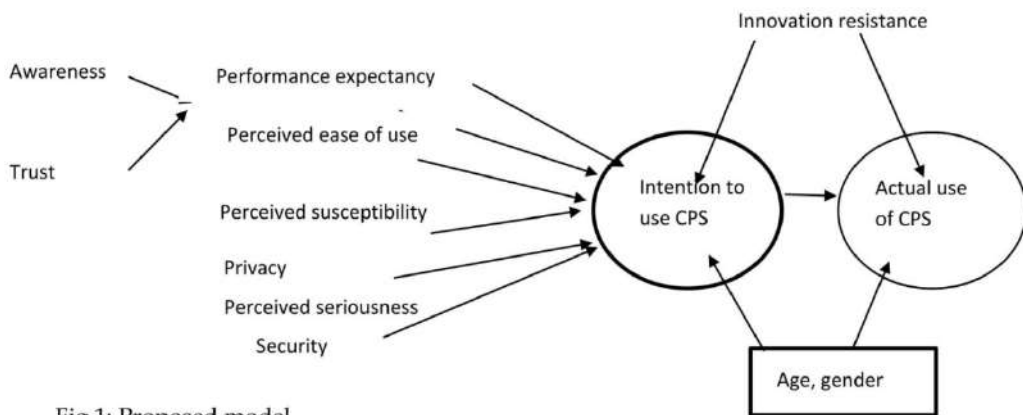
Fig 1: Proposed model

EMPIRICAL STUDY
MEASURES

This study has adopted measurement scales that have been authenticated in earlier studies. A 4 items scale was operationalized to measure the performance expectancy of CPS based on Venkatesh et al., 2012. The construct perceived ease of use, having three items, was adapted from Cheng et al. (2006). A three-item scale to measure awareness was adopted based on the study by Al-Somalli, Gholami, and Clegg (2009). Moreover, items to count trust were adopted from Jarvenpaa., Tractinsky, and Vitale, (2000) trust scale. Four items of the perceived security scale were adapted from the studies of Wang et al. (2003). Moreover, 5 item scale to measure privacy was adapted from Casal'o, Flavi'an, and Guinalíu 2007. Two additional constructs from the Health belief model—namely, perceived susceptibility and perceived seriousness—the authors adapted ten measurement scales from Ahadzadeh, Ashraf Sadat, Saeed Pahlevan Sharif, Fon Sim Ong, and Kok Wei Khong (2015). To measure Innovation resistance, Kleijnen, Lee,, and Wetzels, (2009) 3-item IR scale was adopted. Finally, to measure the behavioral intentions of CPS users, all four items were tailored from Suh and Han (2002) and their actual use by Malhotra; Galletta.(1999) scale. However, the items were re-worded to make them relevant to the study's specific context. All these items were measured on a seven-point Likert scale anchored from "1" (strongly disagree) to "7" (strongly agree).

DATA COLLECTION AND DESCRIPTION OF THE SAMPLE

This study envisions users' behavioral intentions for contactless payment systems by examining key determinants of CPS adoption in India. Therefore, the target population for this study is all citizens of India aged 18 years or above with at least one bank account. The current study used a self-administered method because of its high response rate (Lutfi,Idris,Mohamad 2016). Data were collected using a questionnaire survey from April 5 to April 20, 2021. As this study targets India's citizens, Sloven's formula was adopted to calculate the sample size of the population. As it is impossible to study the whole population of India, the sample size that can be considered for the study is smaller and may use a random sampling method. Slovin's formula provides the desired amount of accuracy for the researcher. The authors have adopted Slovin's formula to determine the sample size, resulting in 385 respondents. However, in the current

study, 331 valid responses were collected, for many recommendations confirming the appropriate sample size for conducting factor analysis. However, suggested minimums for sample size could range from 3 to 20 times the number of variables and absolute ranges from 100 to over 1,000 (Mundfrom, Shaw, and Ke,2005). Hence, 336 responses were considered for the study.

Since the target population is multilingual, the survey was administered in English. To warrant the precision of the structured survey, the study was preliminarily tested with 78 respondents before administering the primary investigation. Additionally, specialists from relationship marketing, digital, and brand management were invited to appraise and provide judgment on the reliability of every item. Few alterations were carried out through the pre-testing phase. The web-based form is comprised of two parts. The first part involved participants' demographic profiles, and the second part included questions about all the dependent and independent variables adopted for the study.

The summary of respondents' demographics is presented in Table 1. The sample constituted around 48.5 percent males and 51.5 percent females. Concerning age, 30.7 percent of them are 18-28 years, 39.0 percent are 29-39 years of age, and 30.4 percent are 40 years and above — the majority of respondents' monthly household income of 1lac to 3 lacs. Moreover, least had above three lacs.

Table 1: Demographic profiling of the sample

Features of the sample	Item	Frequency	Percentage
Gender	Male	163	48.5
	Female	173	51.5
Age	18 yrs to 28 yrs	103	30.7
	29 yrs to 39 yrs	131	39.0
	Above 40 yrs	102	30.4
Monthly household family income	Less than 1lac	96	28.5
	1lac to 3lac	180	53.5
	Above 3lac	60	17.8

SCALE RELIABILITY

Reliability analysis was administered to assess the strength of the scale. Cronbach Alpha (α), an indicator of internal consistency, was determined (Cronbach, 1951) using SPSS version 20.0. Cronbach Alpha (α) for all the constructs was more incredible than the threshold value of 0.700 (Cronbach, 1951, Kline, 2005). This confirmed that the scale exhibited good internal reliability, as shown in table 3.

ANALYSIS OF DATA

To inspect the projected relations of the study, the authors examined the data by commissioning a 2-step approach as operationalized by Anderson and Gerbing in 1988. Step-1 included the conduct of exploratory factor analysis (EFA). Step-2 involved administering the confirmatory factor analysis (CFA).

Exploratory factor analysis was administered to summarize data to better comprehend the patterns and relationships among the set of variables. The extraction was administered using principal component analysis, a data reduction technique that will support extracting the maximum variance in the data, thereby reducing many variables into fewer components, which is later followed up with the principal axis factor-produced factors. Varimax rotation was used to rotate the factors, which is an ideal rotation technique to start exploring the data set for better interpretation. This rotation technique helped group the 42 identified variables into certain groups of variables termed factors. The sample adequacy was justified using the Kaiser-Meyer-Olkin (KMO) test, and the KMO value was 0.800 in the present study. The EFA of the 42 items revealed an 11-factor structure. The eleven factors with 5,4,5,5,3,4,3,3,3,4 and 3 items accounted for, 11.73,8.05,7.88,7.48,7.42,6.44,6.13,5.70,5.65,5.63 and 4.52 percent variance, respectively. EFA yielded an 11-factor solution and explained 76.64% of the total variance. Factor loadings for the final study are presented in Table 2.

Table 2: Factor loadings involving Rotated component Matrix

| | Component | | | | | | | | | | |
	1	2	3	4	5	6	7	8	9	10	11
int1										.634	
int2										.781	
ir1					.940						
int3										.821	
int4										.736	
ease1				.701							
ease2				.845							
ease3				.798							
ease4				.808							
ease5				.723							
Pse1	.911										
Pse2	.830										
actual1								.780			
actual2								.782			
actual3								.773			
ir2					.937						
pse3	.905										
ps1							.942				
pe1		.900									
pe2		.917									
pe3		.905									
pe4		.674									
pse4	.911										
security1						.707					
security2						.758					

	1	2	3	4	5	6	7	8	9
security3						.759			
security4						.746			
pse5	.832								
privacy1			.659						
privacy2			.796						
privacy3			.775						
privacy4			.749						
privacy5			.756						
trust1								.694	
trust2								.885	
trust3								.871	
awareness									.830
awareness									.575
awareness									.722
ir3					.933				
ps2							.946		
ps3							.701		
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.									
a. Rotation converged in 7 iterations.									

The standard bias method may exist due to data collection from single respondents. This common method bias was tested using Harman's single-factor test, and the results of this study specified that the first-factor structure accounted for 18.910 %, which is < 50 % (Podsakoff et al., 2003). The data revealed that the standard bias method did not affect the study's findings.

To evaluate the overall model fit of the measurement model, the authors analyzed the indices $\chi 2$ /df, GFI, CFI, NFI, IFI, and RMSEA values, which help determine the model fit. The measurement model of dependent, independent

variables analyzed using CFA depicted a reasonably good model fit with χ 2 /df (2.984), CFI (0.903), NFI (0.862), IFI (0.904), TLI (0.881), RMSEA (0.054). The diagrammatic representation of the measurement model is indicated in figure 2 in Appendix 1.

Scale Validity tests

Inter-item reliability, Composite reliability, and convergent validity were scrutinized to examine the reliability and validity of the model constructs. Composite reliabilities were in the range of 0.72 and 0.994 for all the constructs, which exceeded the recommended 0.6 value (Bagozzi and Yi, 1988). To assess the construct validity, the discriminant and convergent validity methodology of Fornell and Larcker, 1981 was adopted (Hair et al., 2008). Examining the convergent validity using Average variance extracted (AVE) was calculated. The AVE values were more than 0.5 (as depicted in Table 3), which indicated that the convergent validity of the constructs was well accepted (Fornell and Larcker, 1981). In continuation with Fornell and Larcker's (1981) guidelines, to establish the discriminant validity. The square root of AVE values of constructs was higher than the correlation estimates, which supported the discriminant validity of the constructs. To establish face validity, experts from the field of marketing, both in academics and corporate, were approached to validate the items of the study. The experts confirmed the suitability of the items for the study.

Table3: Average Variance Extract

Variables	Estimates	square of estimates	AVE	Cronbach alpha
int1	.634	0.402233748		
int2	.781	0.610127353	0.743047	.952
int3	.821	0.674232119		
int4	.736	0.541324025		
ease1	.701	0.491376606		
ease2	.845	0.714705264	0.77508	.915
ease3	.798	0.637343635		
ease4	.808	0.652744322		

ease5	.723	0.522366126		
Pse1	.911	0.829245983		
Pse2	.830	0.688258355		
pse3	.905	0.819900854	0.877767	.856
pse4	.911	0.830579217		
pse5	.832	0.691803903		
actual1	.780	0.608691152		
actual2	.782	0.61214353	0.778419	.839
actual3	.773	0.597024052		
ir1	.940	0.882739674		
ir2	.937	0.877671087	0.936404	.994
ir3	.933	0.870169201		
pe1	.900	0.809908395		
Pe2	.917	0.840019116	0.848869	.793
Pe3	.905	0.818442946		
Pe4	.674	0.454712879		
security1	.707	0.500360878		
security2	.758	0.574523884	0.74258	.882
security3	.759	0.575579922		
security4	.746	0.556988625		
privacy1	.659	0.434680428		
privacy2	.796	0.633767578		
privacy3	.775	0.600628652	0.747121	.980
privacy4	.749	0.561123548		
privacy5	.756	0.571723091		
trust1	.694	0.481371017		
trust2	.885	0.783917634	0.816849	.796
trust3	.871	0.759243312		
awareness1	.830	0.689135535	0.709244	.740
awareness2	.575	0.331190049		

awareness 3	.722	0.521425726		
ps1	.942	0.887724338		
ps2	.946	0.894471856	0.862936	.732
ps3	.701	0.491191393		

Testing of the Hypotheses: Regression Analysis

Structured Equation Modeling was used to investigate the variation in the impact of respective dependent and independent variables. Table 4 presents the details of the SEM analysis and Fig 2 depicts the path diagram. Based on the p-value (less than 0.05), six hypotheses were accepted, and nine were rejected..

Table 4: SEM Analysis

Constructs	p-value	Acceptance
Ease of use and intention	0.000	Accepted
performance expectancy and Intention	0.858	Rejected
Security and intention	0.720	Rejected
Privacy and intention	0.160	Rejected
Susceptibility and intention	0.000	Accepted
Seriousness and intention	0.553	Rejected
IR and intention	0.036	Accepted
Age and intention	0.544	Rejected
Gender and intention	0.058	Rejected
Trust and ease	0.362	Rejected
Awareness and ease	0.000	Accepted
Innovation Resistance and Actual	0.194	Rejected
Intention and Actual	0.007	Accepted
Age and Actual	0.027	Accepted
Gender and Actual	0.124	Rejected

Fig 2: Path Diagram
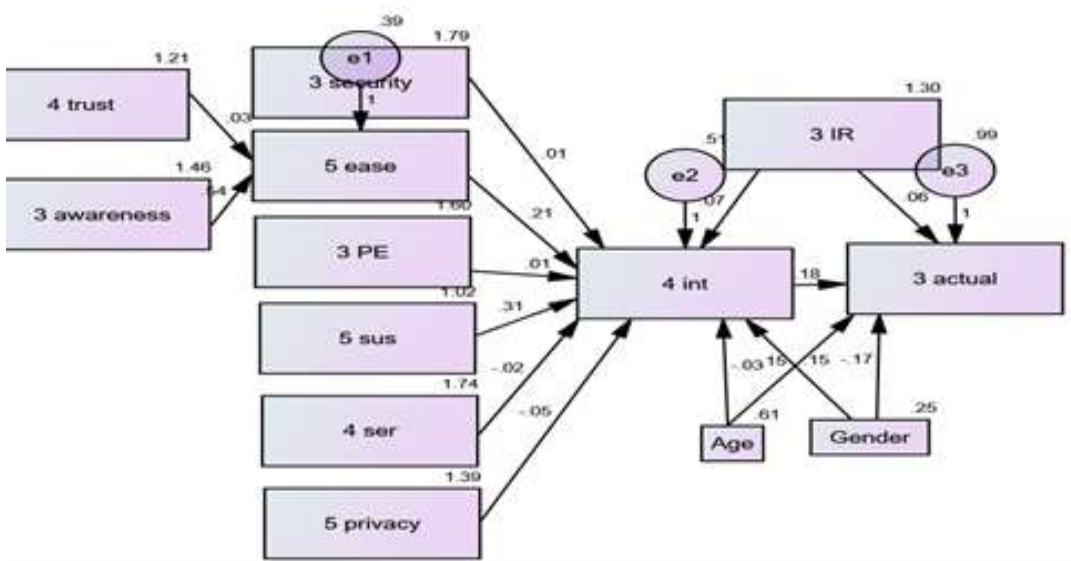
Still, their likelihood of catching covid 19 impacts their Intention to use CPS banks. Users feel that since they can be infected by covid 19, they intend to adopt CPS by banks. Some studies have indicated that IR harms the actual use of digital payment (Molesworth & Suortti,2002). Our study confirmed also confirmed the relationship between innovation resistance and Intention to use. But this has no influence when it comes to actual usage. Consistent with the previous research findings that BI influences the AU of digital payment systems (Venkatesh & Zhang, 2010), the present study also confirms the same for CPS users in India. It is also worth ensuring that age had no significant impact on the Intention to use CPS but had an effect on the actual use of the same. Thus, age did not play an essential role in their Intention to use CPS, but it had some impact when it comes to the actual use of the same. Similarly, it is also interesting to observe that gender had no effect on either intention to use or actual usage of CPS by banks..

THEORETICAL AND MANAGERIAL IMPLICATIONS
The current research has both theoretical and practical implications. This study is a foundation for evaluating users' Intentions toward CPS in uncertainties of a pandemic where social distancing is the key to avoiding infection. Earlier

researchers have focused on the implementation of CPS like NFC cantered mobile payment method built on theory innovation diffusion innovation and Technology Acceptance Model (TAM) (Pham and Ho, 2015), payment methods based on QR code applying TAM (Liébana-Cabanillas et al., 2015), UTAUT based mobile wallet payment methods (Shin, 2009). But a study on CPS incorporating HBM, UTAT, and IRT is minimal. The present research focuses on this significant gap to include three well-established theories, HBM, UTAUT, and IR theory, to know the Intention and actual usage of CPS by consumers during COVID-19. This research tries to comprehend the influence of awareness, trust, perceived ease of use, susceptibility, seriousness, privacy, security, age, gender, and intention and actual usage of CPS during a pandemic.

With the anxiety spread by COVID-19 among people, usage of CPS is increasing as it is safe. In the form of NFC mobile-based payments, mobile wallet payments, and QR code payments, CPS has enormously added to the online payment sector. Business needs to devise and acquire innovative solutions for CPS to reap benefits during COVID-19. Awareness has a crucial role in CPS, and firms need to focus on this element for strategies for the future. The direct influence of effort expectancy suggests that users acknowledge the prominence of ease of using CPS.

LIMITATIONS AND FUTURE SCOPE

The present research is a cross-sectional study, and data were collected only during COVID-19. Future researchers can compare user intention during and post COVID -19 pandemic making it a longitudinal study. In this study, the researcher has used only HBM, UTAT, and IR theory at later stages; researchers can incorporate other models for better clarity. The limited sample size is another limitation that can be addressed by future research, which will give better results. Researchers can focus on comparative studies between different geographical boundaries and sectors like hospitality, health, etc.

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Appendix 1
Fig 2 : Measurement model
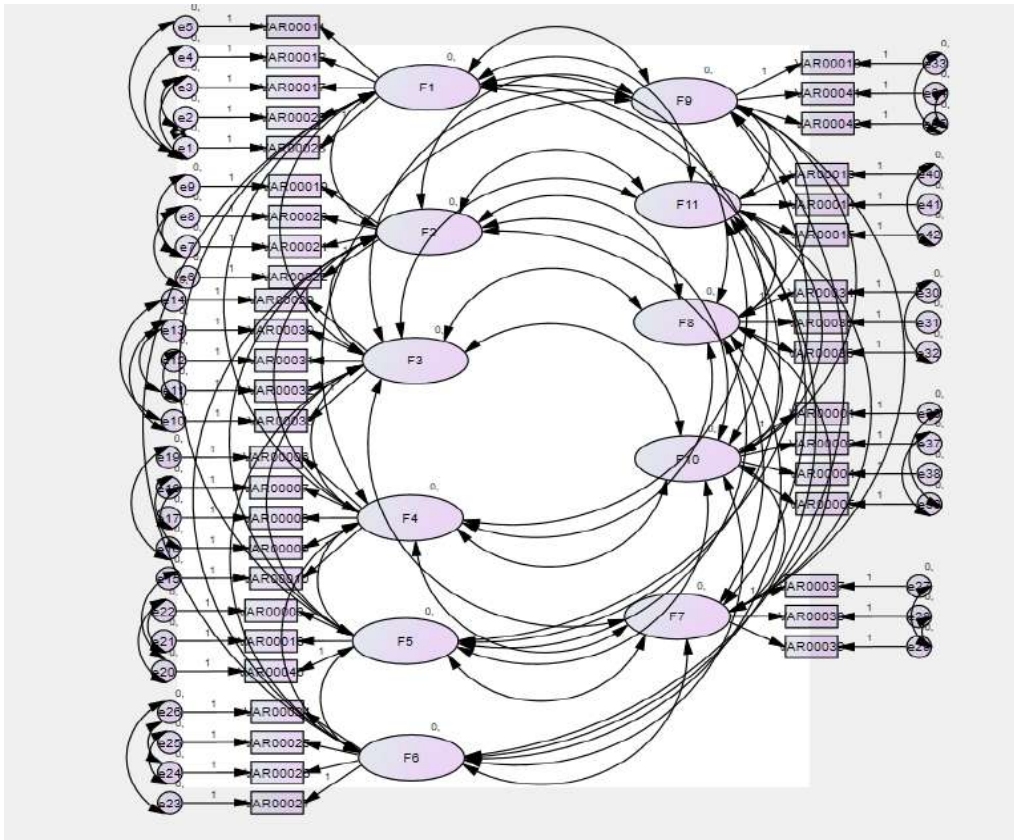
CHAPTER 10

CONSUMER FOOD CHOICES: HEURISTICS & NUDGES FOR BETTER HEALTH

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Introduction

Eating is crucial for the survival of life and is a universal activity characterized by numerous food choices. Food choice is considered a trivial matter for some individuals. However, it is a very critical decision, so one should be thoughtful when deciding what to choose from the various options available. Food behaviours involve acquiring, preparing, serving, giving away, storing, eating, and cleaning up after food. Food is almost universally available and accessible for anyone at any time, almost anywhere. When making a decision, consumers consider various factors, including: Can I eat this? Is it something I should eat? Why do I consume so much of this? Is it healthy to consume this type of vegetable? Are boiled veggies edible? Is it possible to make harmful food healthy?

Not unexpectedly, the importance of food to customers' emotional, physical, or physiological well-being, when combined with the cultural temptation to become

fat or overweight, has significantly accelerated the development of research that investigates the underlying conflict in the link between food and food decision making. Lauran Block, in her curator edition, mentions a broad range of theoretical perspectives to provide insight into consumer food choice-making (Block, 2011). The edition also mentions various internal and external motivational variables, social and physiological factors, and circumstantial-based contextual elements that impact consumer food choice decision-making (Block, 2011). Consumer study on individual aspects that impact consumer paradox of decision-making. Why is today's consumer, despite having so much knowledge about food and nutrition than ever before, as obsessed with calories, fat (low and high), carbs, and BMI, are still suffering from overconsumption or overweight? Researchers are attempting to change consumer's perception of "food as health" to "food as well-being" by encouraging them to make healthier and better choices. This chapter revolves around consumer food choice decisions, which have been classified into phenomena (covering previous literature) that consumers consider during decision-making. The chapter also takes you from how heuristics affect one's decision-making process and how nudge theory can help consumers make healthy decisions.

Food Choice: Consumer's Dilemma of what to eat

Contemporary post-industrial societies have a good number of food choice decisions. Today, we have access to large amounts of food, and almost every kind of food may be acquired wherever and whenever anybody desires (Sobal, 1999). Past studies have established varied causes of dietary preferences incorporating cultural, socio-economic, environmental, physical, and intellectual factors (Furst, Connors, Bisogni, Sobal, & Winter Falk, 1996; Martins & Pliner, 2005; Mela, 1999). While these characteristics are important in terms of food selection, one cannot comprehend consumer decisions until one grasps how all of this information fits into a larger picture.

Food choice is perceived as an elementary but complicated behavior that consists of numerous interconnected factors. Also, these criteria fall within the traditional boundaries of one of a wide range of scientific disciplines, and as a result, each of these disciplines claims to have at least a partial answer to the basic issue in food choice research: Why does someone eat what, when, and where? (Koster, 2009).

The food decisions are complex because they represent different food behaviors. These food behaviors comprise multiple stages of food handling in which distinct decision steps can be involved. (Sunmi Yoo, 2007).

Food choice values are the characteristics that one individual brings while deciding on the food (e.g., taste, cost, health, convenience, relationships) along with significant meanings and emotions that people are attached to while considering what to choose (Jeffery Sobal, 2009). Health is a broad concept that many people can define scientifically, including medical, nutritional, social, or psychological explanations. From the consumer perspective, health consists of two major dimensions, i.e., eating healthy and avoiding unhealthy foods. But when the choice to be made about eating, various factors are considered by consumers like healthy or unhealthy, Tasty or not tasty, costly or cheaper, appealing to the eye or not, etc.

Healthy Eating vs Unhealthy Eating
The comparison between healthy and unhealthy food has been always part of the discussion. Food experts are trying to make unhealthy food a little healthy as the growing population is shifting towards healthy eating. In most instances, we assume that the healthier choice in the argument between healthy and unhealthy food emerges victorious. So, what is healthy food? In essence, healthy food is not processed. It contains vitamins, minerals, and antioxidants necessary for the growth and immunity of the body. Mostly, they have low sugar and sodium levels, thus appropriate for weight control. Therefore, this food is usually considered a balanced diet, e.g., Vegetables, fruits, pulses, and the right amount of fat. On the other hand, if we talk about unhealthy Food, Unhealthy Food is processed. It contains fats and carbohydrates, which makes a person obese or overweight. They mostly have high sugar and high salt levels, which is inappropriate for weight control, e.g., chips, biscuits, and fast food. Understanding healthy food or healthy eating behavior has been a concept that has been studied in consumer studies and the sociology of food for many decades (Kia Ditlevsen, 2019).

Tasty Food vs Not Tasty Food

Healthy food is considered less tasty and not filling (Lieberman, 2006). Many people consider fast foods or so-called junk food to be convenient and delicious, which is probably why a considerable number of consumers prefer buying it even though most of them think it is unhealthy. Although it is perceived as tasty, convenience food is inexpensive, and dietary and organic food is considered healthy but expensive (Hughner et al., 2007).

Wholesome Food or Unwholesome Food

Moreover, concerning health, many studies have demonstrated that people tend to perceive foods at a daily cognitive level as either good or bad (Lupton et al., 1995). Some foods have an inherent understanding that they are wholesome, nourishing, and good, whereas others are considered unwholesome, nutritionally empty, or even dangerous (Fischler,1980; Lupton,1996). For example, a bowl of oats with fruits and nuts or A bowl of Maggie are both easy to make, but the bowl of oats with fruits contains nutrition factors, and a bowl of Maggie contains unwanted fats and carbs, which might seem to be wholesome for some time, but you will feel hungry after some time.

Appealing vs Not Appealing

Unhealthy food is more exciting and appealing (Lieberman,2006). Consumers tend to choose the food that is more appealing to their eyes. For example, for a bowl of fruits with only apples and another bowl of a mix of fruits with various colours, they will choose the bowl which is more appealing to them, i.e., the second option. Although taste, smell, and vision are separate, studies have proven that visual stimuli affect other senses, such as taste and smell. Although colour is undoubtedly the most apparent visual signifier, other visual cues like glamour, uniformity, and shape also determine our expectation of what to expect based on previous knowledge and learning associations. Expected results result in cognitive top-down effects that could and sometimes do change taste and flavour appraisal. Healthy foods could be made attractive by persuading consumers toward them, which could promote healthier food consumption. The package colours communicate the product's properties and might assist in making healthy products look appealing (Kearney, 2011). These healthier options

usually come in less colourful and watered-down forms when compared to their "regular" alternatives.

Expensive Food vs Inexpensive Food

Is food healthy? Is it tasty? Does it look good? Is it affordable? All other questions have been answered above, but affordability always comes into consumers' minds while opting for food. For many people, fast food or junk food are considered convenient and readily available, and consumers prefer to purchase them as they are easily affordable (Haws, 2017).

Moreover, many convenience foods are considered delicious but cheap, while many foods that are considered healthy, like organic produce, are often seen as costly (Hughner et al., 2007). It means that the most common and visible information on the healthiness of food and price is probably positively correlated. However, most of the special marketing claims on food packages are interpreted to signify better health value and are very popular about high prices. Value pricing often exposes consumers to cheap, unhealthy food products, making particular instances of cheap, unhealthy food very salient (Haws, 2017).

Role of Heuristic in consumer food choice

As previously discussed, food choices are a turbulent process for an individual. However, there are some choices that they are particular about (for example, which brand of rice they will pick from a grocery store or which restaurants are on their go-to list); this is referred to as a heuristic. A heuristic is nothing more than a mental shortcut for solving issues quickly and delivering results that are adequate to be useful given time constraints (Bias, n.d.). To add more, heuristic means an act of learning or habit that we do daily, and our mind has learned that and makes the command when similar events occur. The first theory about the determinants of food consumption behavior involved personal characteristics, properties of the food, and environmental factors (Ensaff, 2021).

Habits strongly impact eating behavior and are more environment-dependent, less under deliberate control, and primarily beyond consciousness (Jonathan van't Riet, 2011). Social and environmental cues indeed have a bigger impact on eating choices than ever before. One of the reasons could be that automatic

behavior lacks characteristics like purpose, control, effort, and awareness. Conscious choices are uncommon for everyday dietary decisions; instead, these choices are primarily automatic and habitual, acting efficiently via heuristics (rules of thumb) that have been improved by repetition in similar scenarios. Individuals rely heavily on behavioral cues from others and are influenced by social norms and their surroundings (Eric Robinson,2014). This reliance on social cues and environmental factors can lead to the adoption of unhealthy eating habits, as the prevalence of unhealthy food options or peer pressure may influence individuals. Additionally, societal norms and cultural practices can shape individuals' dietary choices, making it challenging to break away from automatic behaviors and make conscious decisions prioritizing health and well-being.

The heuristic creates an emerging effect on the choice of the consumer to choose food which prefers their taste, eyes, and smell, and they tend to choose unhealthy food over healthy foods. Many reasons have been proposed, and finger-pointing takes place everywhere, even to food marketing companies for their part in creating and advertising fatty, sugary pleasure foodstuffs that are not helpful for the body (KELLY L. HAWS, 2016). However, when faced with a myriad of options of what to eat, these choices get overwhelming for some and they start terming it as "the tyranny of choice" (Schwartz, 2004), while individuals make about 200 food selections in a day (T, 2006). As consumers eat more than 1,000 meals yearly, this is usually a low-involvement decision that depends on a sort of heuristic-based decision-making (Haws, 2017).

Much human behaviour is automatic and heuristic-based. Indeed, much of human behavior is determined not by conscious intentions but by features of the environment that operate outside of conscious awareness (JA Bargh, 1999). Our senses operate automatically: To begin with, when we see or hear a stimulus, we first turn to the direction of that stimulus, and then our perceptions inform the part of our brain that is charged with conscious awareness. However, we react to contextual signals even though our conscious involvement is not part of the processes involved (Chartand, 2005). The example of habits demonstrates this; certain actions are triggered without any of the processes involved requiring conscious input (S Orbell, 2010).

Can Consumers be nudged towards a healthier food choice?

Nudging has been stated as an effective environmental intervention approach to influencing dietary preferences (Thaler & C.R.Sunstein, 2008). Thaler and Sunstein developed the concept of 'nudge' in 2008, defining it as 'any component of the choice architecture that modifies people's behaviour in a predictable way, without restricting any alternatives or materially modifying their economic incentives' (Ashkan Afshin, 2017). Nudging gained popularity as an alternative to the belief that humans are rational agents who continually seek opportunities to increase their utility. Instead, it recognizes that people's ability to make logical judgments is constrained by cognitive limitations, biases, and habits, causing them to make decisions incompatible with their long-term objectives (Pelle Guldborg Hansen, 2016). Nudges use similar principles that lead to poor decision-making to guide individuals toward decisions that are in their best interests. When applied to diet modification, nudges make good choices easier, for example, by making them more visible without restricting options for bad alternatives (Pelle Guldborg Hansen, 2016).

Several nudging studies have been performed so far, capturing a wide range of interventions, such as placing healthier items in more convenient and prominent areas in supermarkets (e.g., position nudge) or making healthy foods more accessible through signs (e.g., information nudge) (Marisabel Romero, 2016; Marjolein C. Harbers, 2020).The studies related to the packaging of the product mentioning the low fat, low in sodium diet foods have also been carried out by creating nudges for consumers to choose from the dietary product range.

Products that are light or reduced in fat/sugar content usually have lower appeal or sensory scores; thus, being labelled 'light', 'low-fat, or sugar-free may be detrimental to their sensory success compared to their conventional competitors. Nudging shoppers towards healthier foods by designing appealing, healthy foods for selection can help achieve healthier food choice outcomes (Irene Tijssen, 2017). Most nudging interventions rely on the fact that low-involvement decisions are automatic to make automaticity work for health awareness instead of fighting against it, a common approach used by most interventions to promote health awareness. A nudge is a small and subtle rearrangement of the decision

context that makes the desired (here: healthier options) the "easy choice" yet preserves consumer options.

Products that are reformulated and contain little or no salt, fat, and sugar tend to have lower hedonic evaluations and reduced satiation qualities. Thus, intrinsically healthy foods tend to be perceived as less appealing or satisfying (but healthy) than their full-fat. Consumer eating goals might mediate this intuition (Irene Tijssen, 2017). For example, a consumer trying to lose weight may opt for a low-sugar cereal marketed as a healthier choice. However, they may find the cereal less enjoyable and less filling than the full-sugar version they are used to, which could lead them to consume more overall calories throughout the day.

Consumer eating goals, such as weight loss or maintaining a healthy diet, often prioritize health over taste and satisfaction. When motivated by these goals, individuals may be more willing to sacrifice the hedonic aspects of Food in Favor of its nutritional value. As a result, the perception of intrinsically healthy foods as less appealing or satisfying may be influenced by the personal eating goals individuals set for themselves. For example, someone trying to lose weight may choose to eat a salad instead of a burger, even if they find the burger more appealing in terms of taste. Their goal of weight loss outweighs their desire for immediate satisfaction. In this case, their personal eating goal mediates between their taste intuition and their decision-making process.

Conclusion

Food choice values are the characteristics that one individual brings while deciding on the food (e.g., taste, cost, health, convenience, relationships) along with significant meanings and emotions that people are attached to while considering what to choose (Jeffery Sobal, 2009). From the consumer's point of view, making food choices is always related to eating healthy or being fit. Health is a broad concept that many people can define scientifically, including medical, nutritional, social, or psychological explanations. From the consumer's perspective, health consists of two major dimensions: eating healthy and avoiding unhealthy foods. The first section, eating healthily, is concerned with nutritional characteristics such as a healthy diet, functional foods, fewer fatty

meals, and other health and nutrition-related factors. The second section, avoiding unhealthy meals, deals with food safety problems, having high sugar foods, and less nutritious Food (Karen Brunsø, 2002). The study also talks about how heuristics hinder consumer decision-making for healthy choices. Moreover, it is to learn to change and accept new dietary plans when one has to unlearn old eating habits.

The chapter has covered various aspects of how food choices are made and how consumers classify them using various sensory bases like taste and visual, also based on healthy or unhealthy choices and whether the choice they are making is fulfilling (the major reason which consumers often keeps in mind), the heuristic bias of always creates the scenario to choose the food which is created automatically under unconscious mind. The heuristics create behavioural cues implicating food choices influenced by social norms and surroundings. Nudge theory helps make one choose a healthier option from the available options. Nudge theory is nothing but the nudge (create) to take action without constraining itself from any limitations or environmental or cultural norms. The chapter will create a different consumer perception of the choice architecture of simple yet complex decisions of food.

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CHAPTER 11

TITLE: UNDERSTANDING DRIVERS OF CUSTOMER EXPERIENCE FOR ELECTRIC VEHICLE USERS: HIGHWAY SEGMENT

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Abstract

The purpose of this exploratory study was to delve into the distinctive charging needs of electric vehicle (EV) owners and users of the national highway segment compared to the charging needs of customers segments that need charges at residences or within the home city. It also attempts to point to gaps and opportunities so that EV charging companies can improve customer experience for this specific segment which is poised to grow mirroring the overall EV adoption in India. This study is of contemporary interest as the EV industry along with the EV charging landscape has seen heightened activity in the recent years.

The qualitative study was conducted in Mumbai between July- August 2023 and covered EV owners and EV drivers of commercial vehicles who use highways for long distance travel. The findings from the respondents was then triangulated with the in-person interactions with personnel stationed and manning EV charging stations and EV automotive showrooms.

Insights included many areas of inconvenience and insecurity for users especially on journeys covering distances between 150 kms and above. Therefore, the findings open up many opportunity areas regarding delivery of services impacting customer experience. This would thereby affect loyalty towards the brand of EV charging infrastructure. This study can lay the foundation of a more in-depth quantitative study to firm up strategies of capex-heavy EV charging company investments. It also calls for a more holistic approach to augment the economic subsidies that are in place for manufacturing for the private automobile sector.

Introduction

The interest in organisations to manufacturing and marketing electric vehicles has gained momentum due to various economic incentives offered by the government coupled with the growing environmental consciousness and conviction of the hazardous effects of internal combustion engines (ICE). The US department of energy has defined an electric vehicle[1] as a vehicle that " can be powered by an electric motor that draws electricity from a battery and is capable of being charged from an external source. An EV includes both a vehicle that can only be powered by an electric motor that draws electricity from a battery (all-electric vehicle) and a vehicle that can be powered by an electric motor that draws electricity from a battery and by an internal combustion engine (plug-in hybrid electric vehicle)."

Many Asian countries are gearing up to take advantage of the interest in the EV sector; India plans to have 30% of its passenger car sales to be electric by 2030 while South Korea, Japan and China are planning to be the world's top EV producers by 2030. [2]Apart from the EV itself, the presence of a charging infrastructure ecosystem is an important aspect. An article featured in Live Mint (July 2023) quotes an CII (Confederation of Indian Industry) report informing that India needs a minimum of 1.32 million charging stations by 2030 to facilitate the rapid adoption of electric vehicles (EVs). Growing at an 40% growth rate annually, and with an estimated 106 million EVs hitting the road annually just

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[1] https://afdc.energy.gov/laws/12660

[2] https://www.marketsandmarkets.com/Market-Reports/electric-vehicle-market-209371461.html?gclid=CjwKCAjwp8OpBhAFEiwAG7NaEtZgdo_DXxoOBf_ndC3YkJsde4yKGb_PyRvF0j1Pen7QM8tTgOjHrBoCaJwQAvD_BwE

seven years away, India will need to install charging stations at the rate of 4,00,000 per annum. Only with these levels of investments can an ideal ratio of 1 charger for every 40 electric vehicles would be achieved which works out to 1.32 million chargers by 2030. Today, the technology of most EVs in the market centers around fixed batteries; this implies that unlike say to charge a mobile phone carrying a charger or a power bank along is a convenient option such possibility does not exist for, for those customers that drive a long distance and, this can become a bottle neck to growth.

On a general classification, there are three types of EV charging, which are:
- Level 1 (Slow Charging)
- Level 2 (Fast Charging)
- Level 3 (Rapid Charging)

Level 1 and Level 2 are both AC type chargers, whereas Level 3 are DC chargers. However, some corelations are apparent; for instance, as the level of charging raises, the charging speed reduces. Similarly, the more the power of EV charging, lesser-time it takes to get charged. The rapid DC chargers provide 50 kW whereas the ultra-rapid chargers provide 100 kW or more.

In the early days when EVs were just introduced, the focus was on having a charging infrastructure at home which gradually has now shifted to public charging. With the growth in EVs, EV charging stations have proliferated in both private and public locations such as office, hotels, restaurants, malls, hospitals, cinemas, and so on.

It has been observed that EV charging industry installations now caters to distinct types of customer needs based on location of the installation. For instance, customers can charge their vehicles at:
i) Private Places: eg offices, homes/ societies or at the hotel promises. These customer needs are catered to by slow charger ie AC Level 1 chargers.
ii) Public Places: These are primarily faster charging needs [3] covering

- Destination charging: Primarily within the city of residence but, these are located at offices, malls, hospitals, hotels where the customer or driver arriving at the destination ideally spends a finite time at this place and would prefer 'fast' charging. This method uses AC Level 2 chargers.
- Enroute to a destination: Here the user has charging needs when travelling on national highways and could be for inter-city journeys of longer duration. These charging stations typically have DC Level 3 chargers.

This study focuses on this last segment of users namely either, private car owners, drivers of private cars or even drivers of taxi operators who drive these vehicles which ply from the city to upcountry locations. Within this segment of private car owners, a further differentiation is observed; those who drive on national highways for leisure purposes along with friends and family or those who opt for road travel for business purposes. These cars could be self-driven or chauffer driven. The study encompasses both these segments.

Customer demands: Speed of charging can be affected by limiting factors such as ambient temperature and load at the time of charging. The ideal required operating temperature for charging is between 15 to 25°C while the load pertains to if during charging, an EV is concurrently using other systems, it can slow down the charging. A simple example would be that say in summer for instance, if the driver sits inside the car with the air-conditioning system running that will slow down the charging speed. Slow charging often means that the EV is charged in a few hours, instead of 30 minutes to 1 hour, which is the case for (ultra) fast charging. Slow charging also prevents a grid overload.

The rapid pace of evolution of the EV industry points to the customers' needs at destination charging will eventually shift towards 'having the right to plug.' In plain terms it means EV drivers will expect to plug in their car literally anywhere underscoring the convenience aspect to the user. public planners would need to factor in more public parking spots that are designed to integrate EV charging facilities. The proliferation of charging stations would have a cascade effect both

on charging station manufacturers and charging station operators as well as convenience aspect of users.[4] With the shifting emphasis on speed and convenience, the industry therefore realistically is expected to see more players offering EV charger maintenance services with response times SLAs built in. For example, some companies like ABB charging infrastructure focus on operating with the highest utilization and lowest downtime as well as connecting thousands of intelligent fast chargers deployed.

Services from operators that offer a suite of services including remote services such as remote diagnostics and software upgrades; onsite service and parts availability, extended warranty options, preventive service and maintenance, spare parts programs will become the norm. Therefore, this space would evolve to also include customised software services QCPP / inter-operability, software integration support and standardised online training / customised service training and third part training programs.

Methodology
The word 'qualitative' is rooted in 'qualis', which is, 'what kind of' or 'what sort of'. The distinctions between quantitative and qualitative market research are very well documented and, essentially indicate that quantitative research measures phenomena that have the status of 'facts' and on the other hand, qualitative research, seeks a more 'in depth' understanding. Qualitative research etymologically is a *classificatory* way of understanding and explaining the way we humans make distinctions. Briefly, quantitative research utilised a series of 'what?' questions whereas, qualitative research is preoccupied with 'why?' questions so that deeper level insights emerge.

This study therefore adopts qualitative exploratory method to better understand the usage, experiences, expectations and behaviours of a select segment of customers; long distance travellers usage of EV charging stations when travelling on the highways which has seen too much of study.

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[4] https://economictimes.indiatimes.com/industry/renewables/ev-charging-station-business-may-require-up-to-rs-1-05-lakh-crore-investment-by-2032-report/articleshow/96063896.cms

The respondents (Refer Table 1) were met on site at a charging station where EV owners en route to their destination pulled up at charging station that was off a highway. Six 1:1 interviews ranging from 1 to 30 mins. were conducted. These were conducted when the EV owner was charging. While respondents were willing to share their experiences and, permission to record was given but, they refused to provide name and personal information. While permission for the following details was requested: name, occupation, EV owner, highway travel for business or personal use; single or with family these were not allowed to be collected. Based on the situation, observation augmented the experiences shared and, no personal information was compiled.

The Field study was conducted by three students of MBA class and who were conversant in local language as well as English. This ensured that there was no loss of context in case the respondents chose to speak either in English or Hindi. The voice files were then manually transcribed and, text analytics was conducted. Each recording was heard at least thrice and key words and phrases were identified. The frequency of words and phrases were tabulated and major themes emerged. Qualitative researchers maintain that determining adequate sample size in qualitative research is ultimately a matter of judgment and experience.

Mumbai a commercial capital of India and a large metropolis on the west of India was chosen for the start point of the study which focussed on highway experience of EV drivers. Mumbai is the start point and also destination for many for multiple journeys. At the start, this study included EV owners and cab drivers who use highways while driving between Mumbai, Navi Mumbai and Thane. While the density of traffic is the highest, the average journey was around 30 kms and the charging experience were found to be uniform as well as there was limited use of charging of the scope of this study. Therefore, the study focussed on those who drove along the highways where the distance was more than 150 kms or needed minimum one charging enroute between the cities of Mumbai and Pune and, Mumbai and Nashik.

All respondents were given a brief introduction before requesting participation in the survey. As the need was to obtain on-ground insights, the study was

conducted on the field with no prior appointment, and researchers carried the question bank along as a guide to the discussion.

Three main areas were shortlisted for carrying the field study

i)   *Highway charging location* –
   a. Interaction with EV owner at charging station.
   b. Located within the petrol pumps.
   c. Expected respondent profile: Private EV owner or Taxi operated owner. Uses highways for driving for leisure with friends or family and, also for business

ii) *EV Brands Showroom* –
   a. Interaction with Show room personnel who are present the information for prospective EV buyers.
   b. Location: Common area accessible to general public (walk ins)
   c. Expected respondent Profile: Sales persons of automotive brand who pitch to prospective buyers.

iii) *Taxi Service provider using EV:*
   a. Interaction: EV driver and EV owner of the Taxi service
   b. Location: Within cab and also phone
   c. Respondent Profile: Owner Proprietor who receives feedback from clients. The owner had minimum of 3000 journey-days.

Analysis and Findings

Temple (2004) points out that, although word cloud makes a great introductory text mining visualization, it has limitations like low contextual clarity, low information density, and imprecise ranking ability. Hence word cloud was not deployed here.

Content analysis is a widely used qualitative research technique and there are three distinct approaches conventional, directed, or summative that can be followed by researchers. Notably, all methods are used to interpret meaning from the content of text data and, hence, adhere to the naturalistic paradigm. The three approaches differ from each other with respect to coding schemes, origins of codes, and threats to trustworthiness. In conventional content analysis, coding

categories are derived directly from the text data. With a directed approach, analysis starts with a theory to guide the forming of initial codes. Whereas, in summative content analysis counting and comparisons, usually of keywords or content, followed by the interpretation of the underlying context is employed. This study opted aligned to the conventional approach as it as a exploratory study into a distinct segment of users of which little was known.

The following clusters and themes emerged by evaluating the interactions between multiple stakeholders

1. **Sales personnel at showroom** concentrate on conversions by employing various product and price aspects. The service aspects that they focussed on was more financing, warranty and guarantee and only after that they interacted about the charging networks. Here too they emphasised their brand alliance with a charging station provider and rudimentary information of the app where they can know the charging station network. Very limited information sharing covered the aspects of how an EV driver can conserve fuel on long drives or proactive information on the nearest alternatives of charging. Cost of charging at the charging station is not discussed.

2. **EV driver's interactions.** Salient insights that emerged were as follows

Preparedness for long journeys

Leisure drivers who plan a trip typically especially with family and friends are prone to download information and attempt to charge fully before a trip commences. They are also sensitive and wary about having their trip experience derailed by delays or unforeseen conditions. Therefore, their insecurity is heightened especially if there are elderly or kids travelling along with them and so trip preparation takes as significant effort that includes asking around, going on social media and also checking websites of charging stations enroute. Their need for a predictable journey and predicable convenient services enroute is heightened.

For business travellers, if they are using the route or are frequent travellers, they have already mapped the vulnerabilities and do have back-up plans which mainly entails staying at a suitable place for the night. While they feel that the

infrastructure growth has not kept in sync with the explosion of EV vehicles and wish for this to gain attention of authorities. They mention that staying as a hotel is a sub-optimal solution and rather would require that they reach their destination based on their prior schedule.

Facilities at the Enroute Charging Stations

Owner- drivers (who love the experience of exploring highway driving and long distances) feel that there not enough / working EV charging stations available even on national highways. They also feel that of the EV charging stations about 30-40% don't work or, are dilapidated and badly maintained. They feel there seemed to be no ownership for the infrastructure to be in working condition and somethings seems to slip between the installer-service provider, the pump owner (on whose premises it is installed) and, the local authorities responsible for providing uninterrupted supply. They voice their frustration that they have encountered stations which show up on the app but of no practical use as the grid in that area is down. This gets transferred to negative customer experience. For those who are taxi-driver this is compounded by the fact they then they face flak from customers.

The observe that since most EV charging stations are installed within existing fuel pumps with such igh levels of ICE filling in fuel, the interest of the owner or the attendants in EV which us still a relatively small percentage, is very low. Personnel are not trained or not motivated enough to help.

The un-sheltered places for charging came in for mention; "if we refuel say petrol or diesel the residence time at the pump is minimal. But for a minimum of 40 to 45 minutes charging, a sheltered charging facility should be made available especially since India has many extreme weather conditions. In the same route at different times of the year the driver while waiting is exposed to the elements such as sun, rain or cold. This gets worsen if kids and family are along."

Charge points are located at a fairly distance from where facilities like washroom or refreshments are available.

They opine that instead of having EV chargers at the fuel pump, they should rather be placed outside food courts much like a "recharge point" where both elements human re-charging and vehicle charging can be undertaken.

Siloised Communication

Inspite of every operator or their brand alliance partner claiming to have an app, this information is in silos. Information on the charging station networks is not aggregated. Each charging company has its own ecosystem and there is no alliance for sharing information between them to offer the customer the best information.

"I am sure with digital infrastructure in place, it is less a technology problem but a mindset problem."

Customers tend to down load many apps of different charging infrastructure providers and use that to check which are nearest charging points. Additionally, even though a service provider may have mapped the charging stations on route, there is no proactive information that the driver is heading to an inactive station. Such proactive and real-time updates can be very useful along with alternatives. Apart from wastage of time and fuel which may be at a critical level, it is also frustrating and saps the driver's energy.

"The high of a great drive just gets dissipated when we encountered this problem… till then we were having the most pleasurable journey", the wife of the EV driver mentioned. They had two young kids travelling along with them and it was raining heavily at the time of discussion.

Holistic planning frameworks for EV related assets: better use of technology.

A business man who drove a high-end EV model said, *"I was unable to charge my car due to a power outage. There were no other charging stations nearby, so I had to book a hotel for the night and return the next day to charge their car"*. This meant a complete disruption of his scheduling.

Grid down times is mentioned as a derailer of enthusiasm on both leisure and business trips. The driver doesn't have visibility if they are driving into a station that is down because the national grid is down

They also recommend that the EV design should have the ability to fit in the chargers so that they can carry charged power bank with some emergency charge but the design of the current EV does not seem to allow for this.

Timing of charging

The charging time is approximately 45 mins to 1 hour and most drivers did were mentally prepared for this wait.

Conclusion

EV charging stations are an important component for the success of the EV industry in India. There are multiple brands some of which are standalone (Sun Fuel Electric, Ather etc.) and some of them are integrated with their parent company (Tata Power, Reliance etc). Shailesh Chandra the MD of Tata Passenger Electric Mobility, the EV arm of Tata Motors is quoted as saying, "If the charging infra targets are achieved it would unleash the true potential of EVs in the country." [5]The number of charging stations while growing exponentially are in catch up mode. In fact, the FAME scheme operated by the government is expected to set up 22000 EV charging stations by nest year by the oil marketing companies themselves. The capex component means that investing in EV charging stations is a costly investment. Some of the charging stations are located at the fuel pumps where combustion engines fill up eg Petrol pumps run by state owned companies such as BPCL, HPCL, Indian Oil etc as well as private companies such as Reliance and the TATA group.

This study was able to understand that convenience and stress-free drive are important aspects from a EV driver's customer experience point of view. This holds true for both segments of highway users; owner driver or a cab driver. The ability to have access over the information at anytime and anywhere so as to make a right decision was an important requirement as well as the need not to

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[5] https://economictimes.indiatimes.com/industry/auto/auto-news/tata-motors-plans-to-bifurcate-the-fossil-fuel-based-and-ev-biz-take-off-as-ev-volumes-expand/articleshow/104654970.cms

feel helpless. The highway segment especially for those traversing long distances can expose both drivers as well as the passengers to moments of anxiety which can mar the user experience.

Recommendations cover more government investment in charging infrastructure especially, better density of charging stations, digitally connected smart stations, mandatory sharing of information between the various players. Additionally, planners should look at delinking the old traditional refuelling and recharging activities to be held at oil marketing companies' infrastructure but rather evaluate locating them near amenities like food, refreshments and facilities like toilets or even casual shopping so that the driver and their passengers are can indulge in 'engaged waiting.' This pitstop has to be better designed for a holistic experience.   Most of the infrastructure has not been thoughtful enough rather force fitted so while charging the owner feels very torn between charging and visiting a food court as they are very far away. Also, in extreme weather such as rain, heat and winter staying outside of the EV while charging has been found to be very inconveniencing; once again highlighting the importance of design element in the user experience vis a vis expectation.

This study while having many practical implications can be a start point of deeper study to study this segment and the influencers of customer experience for this distinct yet growing segment of customers. The study is limited by the smaller sample and also the time constraints.

Tables and Figures

Table 1. Respondents

Typ e 1	Brand Showrooms					
	Name of the brand	**Location**	**Approx. time of interaction**	**Role of the person interacted with**		
	BMW	Santacruz	1 hour	Store Manager		
	Morris	Jogeshwar	2 hours	Member of		

	Garage	i		EV Team		
	KIA	Vile Parle	30 mins	Store Manager		
Type 2	**List of petrol Pumps visited**					
Type 2B	**City**	**Name of location**	**EV chargers Installed**	**Person (role spoken to)**	**If spoken to any customer Y/N)**	**Customer Interaction**
	In Mumbai	Jogeshwari - HP	0	Pump Operator	None	
		BKC - 1 - IOCL	2	Pump Operator	Y	2
		BKC - 2 - IOCL	2	Franchise Manager	None	
		BKC -3 - BPCL	2	Pump Owner with BPCL Engineer	None	
		Santacruz - HP	0	Pump Operator	None	
Type 2B	**Out of Mumbai**	Navi Mumbai - HP	2	Pump operator	N	
		Khalapur - HP	4	Station manager	Y	2
		Khalapur - BPCL	4	Station manager	Y	2
		Lonavala - Shell	0 (Installed /non-operational)	Pump operator	N	

| | | Lonavala - Reliance | 2 | Pump operator | N | |
| | | Pune Highway - HP | 2 | Pump operator | N | |

Type 3	List of petrol Pumps with EV Chargers and standalone EV chargers visited (working / no working at time of visit)			
	Location (short address)	**Date/ Time of visit**	**EV charger Working**	**EV Charger Not working**
	Nerul - Tata Power	16/07/2023- 12pm	2	0
	MG - Statiq	28/06/2023- 3pm	1	0
	Acme Mall - Tata Power	03/07/2023- 1pm	2	0
	Navi Mumbai - Charge zone	16/07/2023- 2pm	2	0
	Khalapur - HP	16/07/2023- 4pm	4	0
	Khalapur - BPCL	16/07/2023- 4:30pm	4	0
	Lonavala - Shell	16/07/2023- 5:30pm	2	0
	BKC - 1 - IOCL	11/07/2023- 2pm	2	0
	BKC - 2 - IOCL	11/07/2023- 2:30pm	2	0
	BKC -3 - BPCL	11/07/2023- 3:30pm	2	0

Table 2. Apps from EV Charging Operators covered in the study

List of apps checked	
Plugshare	Shows list of all available EV charge points on the map
ChargeZone	List of all Charge Zone chargers with facility to book slots and make payments, Supports payment with RFID and linked wallet

SunFuel Elcetric	List of all SunFuel Electric chargers with facility to book slots and make payments
Statiq	List of all Statique chargers with facility to book slots and make payments
Tata Power EZ Charge	List of all Tata Power chargers with facility to book slots and make payments
Adani EV Charger	List of all Adani Power chargers with facility to book slots and make payments

Table 3. National Network of EV charging stations

.No.	State Name	No. of Operational PCS	National highway wise operational Public EV Charging Stations (PCS)	No. of operational PCS
			National Highway	
1	Andaman & Nicobar	3	National Highway-10	1
2	Andhra Pradesh	222	National Highway-11	3
3	Arunachal Pradesh	9	National Highway-128	1
4	Assam	48	National Highway-13	3
5	Bihar	83	National Highway-130	1
6	Chandigarh	6	National Highway-130A	2
7	Chhattisgarh	46	National Highway-130B	2
8	Delhi	1845	National Highway-130C	2
9	Goa	44	National Highway-135	2
10	Gujarat	195	National Highway-143	2
11	Haryana	232	National Highway-148A	2
12	Himachal Pradesh	27	National Highway-149	2
13	Jammu & Kashmir	24	National Highway-15	4
14	Jharkhand	60	National Highway-150A	2

15	Karnataka	704	National Highway-16	37
16	Kerala	192	National Highway-161A	2
17	Lakshadweep	1	National Highway-163	9
18	Madhya Pradesh	174	National Highway-167	3
19	Maharashtra	660	National Highway-167A	1
20	Manipur	16	National Highway-169A	2
21	Meghalaya	19	National Highway-19	5
22	Nagaland	6	National Highway-2	5
23	Odisha	117	National Highway-20	2
24	Puducherry	4	National Highway-21	1
25	Punjab	126	National Highway-22	3
26	Rajasthan	254	National Highway-228	2
27	Sikkim	1	National Highway-24	7
28	Tamil Nadu	441	National Highway-254	2
29	Telangana	365	National Highway-26	4
30	Tripura	18	National Highway-27	2
31	Dadar &Nagar Haveliand Daman &Diu	1	National Highway-275	2
32	Uttar Pradesh	406	National Highway-28	3
33	Uttarakhand	48	National Highway-29	1
34	West Bengal	189	National Highway-3	4
35			National Highway-30	12
36			National Highway-305	1
37			National Highway-307	5
38			National Highway-309	3
39			National Highway-31	1

40			National Highway-313	1
41			National Highway-32	1
42			National Highway-320D	1
43			National Highway-334	6
44			National Highway-34	8
45			National Highway-346	2
46			National Highway-347	2
47			National Highway-347B	2
48			National Highway-35	1
49			National Highway-353	2
50			National Highway-365	1
51			National Highway-39	10
52			National Highway-40	1
53			National Highway-43	2
54			National Highway-44	39
55			National Highway-46	2
56			National Highway-47	2
57			National Highway-48	11
58			National Highway-49	2
59			National Highway-5	6
60			National Highway-50	3
61			National Highway-507	1
62			National Highway-515	4
63			National Highway-52	6
64			National Highway-53	5
65			National Highway-539	14
66			National Highway-55	9

67			National Highway-565	1
68			National Highway-58	10
69			National Highway-59	2
70			National Highway-6	8
71			National Highway-63	1
72			National Highway-64	2
73			National Highway-648	2
74			National Highway-65	22
75			National Highway-66	8
76			National Highway-67	4
77			National Highway-7	18
78			National Highway-716	1
79			National Highway-727A	1
80			National Highway-730	4
81			National Highway-731	2
82			National Highway-75	3
83			National Highway-752B	2
84			National Highway-752C	2
85			National Highway-765	1
86			National Highway-766	2
87			National Highway-8	12
88			National Highway-86	2
89			National Highway-9	15
90			National Highway-948A	2
Total		**6,586**	**Total**	**419**

Source: Ministry of heavy metals, Govt of India As on : 31st March 2023

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Appendix

Discussion Guide for Field Study:
   A. EV drivers/ EV Taxi drivers
1. What are the reasons you use the EV for on the highway
2. What is the charging experience
3. How do you rate your own experiences
4. How do you plan if at all before leaving on a trip

5. Who travels along with you use your EV on the highway (cue friends / family/ business colleagues / driver)
6. Do you drive yourself?
7. How many such trips do you make in a period of 2 months? do you travel the same route every time
8. How is the personal driving experience
9. What are the special needs when you want to charge mid-way on the highway namely in the middle of your journey (intercity/ intracity)
10. What does your family need when you are charging
11. Any observations and / or experiences that you would like to narrate
12. India many seasons: any suggestions for those who travel so that their enjoy their travel experience

B. Questions for in depth interview: EV Charging Station Attendant
1. What are the typical needs of the EV owner/ driver that comes here to charge their EV
2. What are the frequently asked questions
3. How often does your EV charging station go down
4. Have you been specially trained to assist EV drivers or do any small trouble shooting
5. Do you know the nearest EV charging station from here and do you know if it is also working if your location is not

C. Questions for in depth interview: EV Brand showroom Sales Assistant
1. When do you explain/ educate customers regarding the EV charging
2. Is it an important element in the sales pitch
3. What aspects of charging do prospective customers ask from you which could influence the purchase decision