4-2023

Impacts of information channels on consumer decision journey: Evidence from an experience durable goods industry

Chih-Wei TSAI
Singapore Management University, cwtsai.2016@sjdba.smu.edu.sg

IMPACTS OF INFORMATION CHANNELS ON

CONSUMER DECISION JOURNEY:

EVIDENCE FROM

AN EXPERIENCE DURABLE GOODS INDUSTRY

TSAI, CHIH-WEI

SINGAPORE MANAGEMENT UNIVERSITY

2023

Impacts of Information Channels on Consumer Decision

Journey: Evidence from An Experience Durable Goods Industry

TSAI, Chih-Wei

Submitted to Lee Kong Chian School of Business

in partial fulfillment of the requirements for the Degree of

Doctor of Business Administration

<u>Dissertation Committee:</u>

TAN, Chin Tiong (Chair)

Professor Emeritus of Marketing

Singapore Management University

LUO, Jifeng (Co-supervisor)

Associate Professor of Information,

Technology and Innovation

Shanghai Jiao Tong University

TANG Qian

Associate Professor of Information Systems

Singapore Management University

Singapore Management University

2023

I hereby declare that this DBA dissertation is my original work and it has been written by me in its entirety.

I have duly acknowledged all the sources of information which have been used in this dissertation.

This DBA dissertation has also not been submitted for any degree in any university previously.

TSAI, Chih-Wei

April 15, 2023

Impacts of Information Channels on Consumer Decision Journey: Evidence from An Experience Durable Goods Industry

TSAI, Chih-Wei

Abstract

With the emergence of various information technologies, how to reasonably layout in different touch points has become a crucial issue for the company in practice, especially for those experienced durable goods with greater uncertainty and decision complexity. The company seeks to leverage the limited budget to achieve the most efficient marketing strategies, and thus the most effective combination of information channels. On the other hand, consumers could be easily influenced by different information resources in the process of purchase decision-making, and their information search behavior will gradually change with their accumulation of knowledge, experience and distinctive search objectives. Therefore, this paper explores the key question of how different information channels will work in the purchasing decision process of consumers. And I further test the heterogeneity of different types of consumers, and the collaborative effect of different combinations of information channels.

Based on consumer decision journey theory and elaboration likelihood model, this paper first analyzes the process of forming consumer brand awareness through peripheral route theoretically. Then, when consumers generate their purchase demand, it will trigger their processing process through central path. And I propose that consumers will use different information channels based on their information-searching objectives in each stage of decision journey, respectively. By leveraging large-scale interviews and surveys data, I verify the important role and contribution distribution of different information channels in each stage of consumer' decision journey based on rigorous Logit regression and Markov chain method. The empirical results show that,

word-of-month is the most influential information channel in the first two stage during consumer decision journey, namely the formation of initial consideration set and active evaluation stage. Besides, digital media is very influential when consumers forming initial consideration set with the second important position; professional recommendation becomes the second influential information channel when consumers approach to active evaluation stage; and offline store plays the most important role when consumers make the final purchase decision. There are heterogeneous effects of information channels among different consumer groups, such as unexperienced consumers are mostly influenced by offline stores in term of brand awareness and evaluation; educated young consumers and less-educated consumers with lower income are easily influenced by recommendations from acquaintances or professionals. And as for the collaborative effect of combinations, digital media, professional recommendations, and offline store are having better effects combined with WOM in stage of initial consideration, active evaluation and final purchase respectively. This paper provides insights for practitioners and makes theoretical contributions on traditional consumer decision journey theory.

Keywords: Consumer Decision Journey, Information Channels, Durable Goods, Experience goods, Search goods, Information search

Table of Contents

Appendix **114**

List of Figures

List of Tables

List of Equation

Acknowledgement

The study journey in the SJTU-SMU DBA programme has been a precious experience and milestone for me and has enriched both my academic and practical business knowledge. The program has offered me well-designed and continuously improved courses delivered by dedicated lecturers, and has enabled interactions and sharing among excellent students and scholars from various backgrounds, resulting in a fruitful and diversified learning experience.

The process of identifying research questions, reviewing literature, and selecting methodologies to deliver research results has significantly upgraded both my academic and practical marketing comprehension. I had the opportunity to engage in extensive discussions with friends from advertising and research agencies. Most importantly, my dissertation committee provided me with careful and detailed guidance throughout the research process, and I am utmost grateful for their support. I would like to express my gratitude to Prof. TAN Chin Tiong and TANG Qian at SMU, and Prof. LUO Jifeng at SJTU for their invaluable guidance that illuminated the path to complete my dissertation. I would also like to extend my appreciation to the CEO of Brand X for generously providing data for my research. Finally, I would like to thank Gao Liyun "Elaine," Executive Director of the SJTU-SMU DBA program as well as all faculty members and friends who supported me throughout this journey!

Chapter 1   Introduction

Consumers rely on multiple information channels before they make product choices (Akalamkam & Mitra，2018). One of the primary objectives of marketers is to reach the target consumers effectively and influence their purchase decision-making process. Traditionally, the consumer decision process has been compared to a "funnel", wherein consumers initially have a set of products or brands that they consider purchasing and then leverage the information they gather to narrow down the set to the final purchase decision (Court et al., 2009). For decades, marketers have relied on limited information channels such as physical stores, marketing campaigns, or mainstream media like television and newspapers to promote their products to potential customers. The explosion and diversification of information channels have significantly transformed consumer information search and purchase behaviours, providing marketers with numerous opportunities to reach their target consumers. However, this also presents an immediate challenge for market practitioners in selecting and utilizing various information channels effectively within their available budget to influence consumers' choices.

Consumers' information search behaviour has undergone significant changes in terms of media usage patterns and the utilization of diverse channels to obtain necessary information. The rapid advancement of internet technology and its applications enable individuals to access vast amounts of information online anytime anywhere. The widespread use of multiple devices, including personal computers, smartphones, and tablets, facilitates connections and interactions between consumers, products, and brands. Exposure to a multifaceted media environment renders customers more informed than when relying on a single medium (Klein et al., 2020). Consumers no longer passively receive information from firms; instead, they proactively seek information from various online and offline channels, and some even generate their own content by sharing shopping or product experiences on social networking platforms. Both company-controlled advertising and peer-to-peer media, such as

consumer reviews, social media activities, and word of mouth (WOM), serve as essential sources of brand information (Jahn & Kunz, 2012). Brands are no longer solely shaped by firm-controlled marketing efforts through multiple information channels but are also influenced by consumer-generated opinions and content.

Many studies in marketing have investigated consumer search behaviour regarding information channel usage. Beatty and Smith (1987) explored various motivating antecedents of consumers' information search behaviours, including search involving retailers, media advertisements, acquaintances, and third-party publications. Barwitz and Maas (2018) further adopted an omni-channel customer journey perspective and examined the underlying reasons for consumers' information channel selection. Given the proliferation of information channels and the emergence of new media, Batra and Keller (2016) posited that consumers' attention may be more divided than ever due to multitasking. Consequently, it is essential to examine how consumers' choices of information channels and the interactions among various channels influence their decision.

In addition to the dramatic shifts in consumers' preferences for information channels, the rapid growth of e-commerce enables online purchasing through emerging digital platforms such as mobile and social media. E-commerce has transformed retail business models, with consumers transitioning from multi-channel to an omnichannel retailing approach (Verhoef et al., 2015; Rigby, 2011). Beyond offering novel purchasing experiences, e-commerce serves as a conduit for exposing consumers to a vast array of product options and information. Consequently, the traditional linear decision-making process struggles to adequately explain consumers' increasingly complex decision-making.

To describe the dynamic consumer decision-making process within this information-rich environment, Court et al. (2009) introduced the concept of the consumer decision journey (CDJ), which is circular rather than sequential like traditional models. The CDJ begins with a trigger, prompting consumers to form an

initial set of brands based on memory and recent advertising exposure. In the next stage, consumers actively evaluate gathered information, adding or removing brands from their consideration set for potential purchases. They then select a brand at the moment of purchase, with post-purchase satisfaction informing the feedback loop for their initial consideration set during the next trigger. Lemon and Verhoef (2016) argue that the CDJ encompasses the process customers undergo across all touchpoints and decision stages, culminating in the overall consumer experience.

While extensive research on the CDJ exists (e.g., Edelman & Singer, 2016; Batra & Keller, 2016), Santos et al. (2021) reviewed 74 related papers and noted that studies of the CDJ often rely on process models and various perspectives from different fields and contexts, resulting in a lack of common understanding and exploration of its theoretical underpinnings. Lohse, Bellman, and Johnson (2000) suggest that "consumer decision-making behaviour should be context specific and product specific to provide new insights and to contribute to theory building in the domain of consumer science." Consequently, research on consumer purchase decisions and the CDJ should be tailored to specific product types, enhancing our understanding, and further examining the theoretical roots and practical implications of consumer decision-making.

In this study, I focus on experience durable goods, specifically exploring the impact of various information channels on consumer decisions using the consumer decision journey framework. According to the Bureau of Economic Analysis, U.S.A. (2017), durable goods are designed for usage over three years or longer. The National Bureau of Statistics of China reports that sales of durable goods (automotive, furniture, home appliances and electronics, and architecture and home renovation) exceeded 5.6 trillion RMB in 2021, an 8.6% growth rate compared to 2020. Therefore, durable goods constitute a significant element of economic production and domestic consumption, and shifts in purchasing trends serve as crucial economic indicators.

Consumer search behavior differs significantly between durables and nondurables due to their distinct characteristics. First, consumers purchase durables less frequently,

as they remain absent from the market for extended periods following a purchase, only returning for replacements or additional items or services. Second, consumers typically invest substantial sums in durables, making them less experienced and facing considerable financial risks. Consequently, their purchase decisions regarding durable goods tend to be more cautious. The decision-making period for consumer durables is typically longer than for fast-moving consumer products. For instance, a paint purchase decision in China takes over 9.1 days, according to a consumer usage and attitude study conducted in 2019. Third, consumers also pay greater attention to post-purchase service and brand reputation, given the extended utility period of durable goods. During this prolonged decision journey, it is worth investigating the impact of information channels on consumers' decision-making for durable goods purchases.

Early durable goods research primarily originated from the economics domain, with microeconomic analyses and classic works contributing to the field's fundamental principles (Swan, 1970; Sieper & Swan, 1973; Coase, 1972; Akerlof, 1970). Since consumers purchase durables infrequently, predicting who and when will purchase or replace such goods has garnered significant interest among scholars beyond the economics domain (Klein & Lansing, 1955; Raymond et al., 1993; Haldar & Rao, 1998). Psychological theories have been integrated into the well-established theory of economic rational decisions to better understand real-world markets for consumer durables (Antonides, 1991; Grewal et al., 2004; Guiltinan, 2010). Not until the early twenty-first century did the focus of durable goods research shift toward consumer durables purchases (Waldman, 2003).

Within the durable goods category, some items possess more experience attributes, while others have more search attributes. Nelson (1970, 1974) classified products as experience and search goods, which were found to affect consumer behavior during the purchasing process (Moon, 2004). Search goods are products whose relevant information can be easily evaluated before purchase, whereas the quality of experience goods is difficult to assess until consumers have used the products. Consequently, the

pre-purchase information search process can be more complex for experience goods. Luo et al. (2012), who integrated Nelson's classification with Lal and Sarvary's (1999) product classification, suggested that search goods with primarily digital attributes can be easily communicated in an online environment. In contrast, experience goods with mainly non-digital attributes are relatively difficult to communicate online.

Numerous studies have focused on search durables such as automobiles and electronics, as consumers can assess their quality before purchase (Klein & Ford, 2003; Ratchford et al., 2003; Weathers & Makienko, 2006; Ratchford et al., 2007; Kulkarni et al., 2012; Kim & Ratchford, 2012; Singh et al., 2014; Bartosik-Purgat, 2018). However, few studies have addressed furniture and architecture and renovation products, which are classified as experience durable goods since their quality is challenging to evaluate before purchase and often require further installation and application to achieve desired effects and functions. The interval between experience durable goods purchases is long, and consumers find it challenging to assess quality before use, particularly given the significant amounts of money involved. Consequently, there is a gap in understanding how consumers make purchasing decisions for experience durable goods, particularly with regard to the impact of information channels on such decisions. Given the dramatic changes in consumers' media usage patterns and how they use different media channels to make purchase decisions, along with gaps in marketing literature, this research project focuses on the following research questions to make practical and theoretical contributions.

RQ1. What's the effect of information channels on experience durable goods purchase, including the brand awareness, brand consideration, final purchase behavior and future purchase intention? What are the heterogenous effects on a variety of customers?

RQ2. What's the effect of information channels at each stage of the purchase journey?

RQ3. Is there any complementary effect of different combinations of information channels? If so, which combination of information channels has the highest complementary effect at each stage of the consumer decision journey?

For this research, I have partnered with Brand X, one of the top five decorative paint (henceforth paint for short) brands globally, to investigate the impact of information channels on paint purchase decision-making in the rapidly growing architecture and home renovation segment of the Chinese experience durable goods market (20.4% in 2021). Most paint purchases are made by households, and paint firms invest significantly in marketing every year to cover most possible touchpoints both online and offline throughout the consumer decision journey to influence their decision-making.

Data for this study was collected via face-to-face questionnaire interviews conducted by trained interviewers with paint purchasers in multiple cities across China. Participants provided information about their use of information channels at each stage of the consumer decision journey. To fully explore the research questions, I will employ various methods, including regression, clustering, and Markov chain analysis, to examine the effects of information channels on consumer decisions, the heterogeneity across different customer segments, and the synergistic effects on the final purchase decision and other stages of the consumer decision journey.

My findings indicate that all information channels, except for e-commerce (EC), have a positive and significant effect on experience durable goods purchase. Specifically:

First, non-firm-controlled information channels, including word-of-mouth (WOM) and professional recommendations (PR), are the most influential channels throughout consumers' decision journey (CDJ). Digital media (DM) and offline stores (OS) also have positive and significant effects on purchase. Traditional marketing approaches, such as advertising on television, radio, newspapers, and outdoor billboards, are

relatively less effective, while EC is only influential in the stage of forming consumers' initial consideration set, but not significant to purchase.

Second, the importance of information channels varies across different stages of the CDJ. WOM and PR are crucial information channels throughout the journey. DM is influential in the early stage of CDJ, and OS becomes important from the consumers' active evaluation stage. OS is the most influential information channel just before the purchase.

Third, the heterogeneity analysis reveals that consumers' income level, education, and past experience of using durable goods can shape their choice of information channels and lead to different search patterns. Generally, consumers form their evaluation and preferences by comparing the reliability of different information channels.

Fourth, in terms of the complementarity of information channels, it is found that the combination of DM and WOM has the greatest importance in the stage of forming the initial consideration set. The combination of WOM and PR plays the most significant role in the stage of active evaluation. Offline stores (OS) together with WOM are most influential in the stage of final decision. Thus, WOM can be considered the most important information channel in most stages.

This paper makes three important contributions:

First, it extends our knowledge of consumer behaviours of information search and use in the era of the internet and new media. While many studies have examined the formation of consumers' product consideration set and how it affects the final purchase decision, they mostly considered the decision-making as a linear, funnel-like process. As consumers are getting more access to information and can produce their own content based on their post-purchase experience, my empirical studies with the complex and cyclic CDJ framework provide a better explanation of real-world consumer behaviours in recent years.

Second, this study further explores the heterogeneity and interaction effects of information channels on each stage of the consumer decision journey. Using the clustering and Markov chain methods, the results shed light on the influence of various information channels on a more consumer characteristics-specific level, as well as the influence of different combinations of information channels, which can provide inspiration for further study.

Finally, this study expands the limited literature on consumers' purchase decision-making of experience durable goods. While consumers have a significant need for information when making the purchase choice of experience durable goods, no such study has focused on this context to our knowledge.

This research also contributes to real-world marketing and managerial practices, especially for experience durable goods companies. The results on the effects of information channels on each stage of the CDJ can be helpful for managers and marketers to understand how their consumers make purchases dynamically in a world full of various forms of information. Furthermore, the findings on the heterogeneous effects of information channels and the complementary effects of different information channels can provide valuable guidelines for planning optimal advertising mix strategies in key stages of the consumer decision journey, interacting with target consumers, and employing different communication mixes for different consumer groups to pursue effective returns on advertising investment within a limited budget.

This paper is organized as follows:

First, I provide a review of related academic research on consumer decision journey, information channels and experience durable goods.

Second, I develop the theoretical framework and research propositions to be examined in this study.

Next, I introduce the specific industry context of this research and an overview of the data collection process and analysis methods.

Finally, I present the findings and discuss their contributions to the literature and managerial practices.

Chapter 2 Literature Review

2.1 Consumer Decision Journey

2.1.1 Concept

The consumer decision journey is a concept that describes consumer decisions from a consumer-centric perspective, which is appreciated due to the rising importance of consumer experience in marketing literature (Santos & Gonçalves, 2021; Siebert et al., 2020). According to Lemon and Verhoef (2016), consumer experience is a multi-dimensional construct that focuses on a consumer's cognitive, behavioural, social, emotional, and sensorial response to the outreach of firms during the entire process of consumer decision-making. With this multi-dimensional nature, many models from different perspectives have been developed to study this process, such as classical consumer buying behavior models (Engel et al., 1986), decision analysis models (Keeney, 1982), and hierarchy of effects models (Barry & Howard, 1990).

Traditional consumer decision-making models mostly only describe one-way communication - from marketers to consumers. The entire process can be described as a "funnel", in which consumers eliminate brands from their initial consideration set until they make their purchasing decision (Court et al., 2009). However, the ubiquity of technology and digital media has profoundly changed how consumers make their decisions. Nowadays, consumers are exposed to a wide range of media beyond marketing messages by companies and actively search for information through these channels (Lynch & Barnes, 2020). Therefore, recent research has increasingly adopted a consumer-centric perspective to fully understand consumer experiences and decisions beyond company-driven marketing (Tueanrat et al., 2021). Court and his colleagues (2009) developed the concept of the consumer decision journey by examining the purchase decisions of almost 20,000 consumers across five industries and three continents. They found a circular journey with four phases: initial consideration, modification of this consideration set (often adding more brands) as they gather and

evaluate more brand information, selection of a brand (at the moment of purchase), and then utilization of their post-purchase experiences to shape their next go-around.

The main difference between the consumer decision journey and traditional decision-making process models is the emphasis on the dynamic and circular process. Compared to funnel-shaped models, the consumer decision journey is more dynamic and non-linear, allowing consumers to expand or reduce their consideration set during the active evaluation stage. This manoeuvrability of consideration sets can better describe the ever-complex product selection journey of consumers in the broader context of proliferating information channels and products. The consumer decision journey also addresses the processual and experiential aspects of service processes from the customer's viewpoint. It is described as the repeated interactions between a service provider and the customer (Meroni & Sangiorgi, 2011), where each interaction can shape the consumer's opinion of the brand, making consumer decision-making an ongoing cycle.

Although the current understanding of the consumer decision journey is still evolving (Santos & Gonçalves, 2021), it has garnered significant attention, and various definitions have been proposed (see

Table 2-1). Lemon and Verhoef (2016) define the consumer decision journey as the process that customers go through across all touchpoints and decision stages that cumulatively contribute to the customer experience. Their paper is the most cited in the literature on customer journey (Tueanrat et al., 2021). According to Følstad and Kvale (2018), the consumer decision journey is the sequence, process, or path that a customer follows to access or use a company's offering. In summary, the common thread among the given definitions is the procedural nature underlying consumer decision journeys.

Table 2-1 Definitions of consumer decision journey

Name & Year	Definitions
Lemon and Verhoef (2016)	The process that customers go through across all touchpoints and decision stages that cumulatively contribute to the customer experience.

Følstad and Kvale (2018)	A sequence, process, or path that a customer follows to access or use a company's offering.
V´azquez et al. (2014)	The purchase process from awareness to purchase, consumption, and sharing.
Shavitt and Barnes (2020)	The steps that consumers take to build relationships with brands or experiences that are satisfactory.

2.1.2 Origins

The consumer decision journey is based on previous process models (Farah et al., 2019; Kim et al., 2020). Santos and Gonçalves (2021) reviewed and discussed the main foundational models and theories of the consumer decision journey, such as classical consumer buying behaviour models (Engel et al., 1986), decision analysis models (Keeney, 1982), and hierarchy of effects models (Barry & Howard, 1990).

The classical consumer buying behavior models are considered the cornerstones of consumer behavior research (Lemon & Verhoef, 2016). According to Lemon and Verhoef (2016) and Puccinelli et al. (2009), the classical consumer buying behavior models comprise five stages: 1) problem recognition, which involves the recognition of a need or want, triggered by internal or external factors; 2) information search, which entails the search for product-related information to identify options. Information can be obtained from external sources (e.g., salespersons, brochures, other people) or internal sources (e.g., memory); 3) evaluation of alternatives, which involves the analysis and evaluation of alternatives based on developed evaluation criteria; 4) purchase, which refers to the selection of a product and the action of purchase that can be separated into product choice and purchase task due to differences in the timing and location of their occurrence; 5) post-purchase, which encompasses consumer behavior after the purchase, including product use, post-purchase services, service quality, satisfaction, word-of-mouth, and repurchase.

The first classical models assumed that consumers were rational decision-makers who would select the product that maximize their utility, and they also had complete

information on their stable preferences, products, and market conditions (Smelser, 1992). Recognizing these obvious limitations, bounded rationality theory, information-processing theory, and attitude theory were developed to explain the process.

Another model that incorporates the concept of the consumer decision journey is the consumer decision analysis, which belongs to the field of decision analysis. Karimi et al. (2015) and Mintzberg et al. (1976) assert that decision analysis models consist of three stages:

1. Formulation: the perception or mental representation of the decision problem, which involves comprehending the situation, criteria, and alternatives in the decision-maker's mind;

2. Design: conducting an information search based on the formulation of the decision problem and evaluating the generated alternatives according to the previously established criteria;

3. Appraisal: selecting and evaluating an alternative. The foundational theories underlying these models are utility theory and statistical decision theory.

Like classical consumer buying behavior models, the decision analysis model is based on relational choice theory. However, because it considers the psychological process throughout the journey and places extra focus on search and evaluation behaviours, it is more consumer-centric.

The final literature stream is the hierarchy of effects model, which is widely used in advertising and communication, making it more closely aligned with marketing today. According to Bruyn and Lilien (2008), Lavidge and Steiner (1961), and Wijaya (2012), the hierarchy of effects model comprises four stages:

1. Awareness: the initial contact of the consumer with the brand or product, during which the consumer may lack interest in purchasing the item or sufficient information to understand its benefits;

2. Interest: the creation of a desire to deepen knowledge about the product or brand, which serves as a basis for forming attitudes towards the item;

3. Preference: a leaning towards a specific alternative based on favourable attitudes towards specific brand or product features;

4. Purchase decision: the observable act of purchasing a product or service, which is the culmination of previous steps.

The hierarchy of effects model is based on bounded rationality theory, which suggests that consumer responses to different information can vary depending on context and individual characteristics. Attribution theory and appeals-response theory are commonly used in the hierarchy of effects model.

2.1.3 Framework

The consumer decision journey is more dynamic and circular than the traditional decision-making model. According to Court et al. (2009) (see Figure 2-1), it consists of four stages:

1. Initial consideration set: the journey begins with a trigger, and the consumer forms an initial set of brands based on their internal memory or external exposure to recent touchpoints;

2. Active evaluation: this stage involves the process of gathering information and expanding or reducing the consideration set as the consumer evaluates newly acquired information and preferences;

3. Moment of purchase: the consumer selects a brand;

4. Post-purchase experience: based on this experience, consumers form their expectations and shape the initial consideration set for the next trigger.

This construct represents a more sophisticated approach to help marketers navigate the complicated and ever-changing business environment. It considers the information-gathering behaviour in the active evaluation phase, which is often the case as consumers are now exposed to a massive number of products and product information. Consideration can still expand during this stage, unlike the one-way reduction seen in

"funnel" models. In other words, shoppers can actively evaluate products and services, adding and removing choices over time, utilizing technology to their advantage.

As emphasized by Court et al. (2009), this construct is applicable to any geographic market that has different types of media, internet access, and a wide range of product choices, including big cities in emerging markets such as China and India.
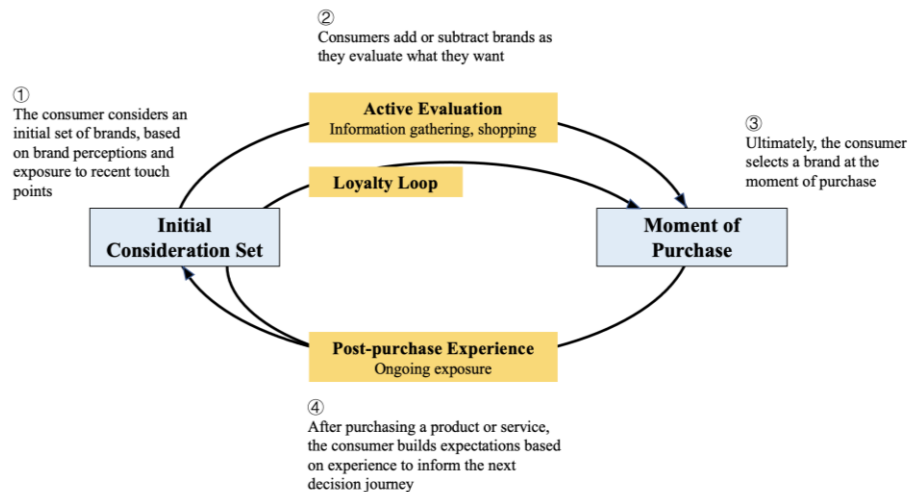
Figure 2-1 The consumer decision journey (adopted from Court et al., 2009)

Court et al.'s (2009) model also includes a feedback loop, where customers continue to evaluate products and services after purchase, placing pressure on products to perform and brands to deliver a superior experience on an ongoing basis. In other words, with so much information and alternatives available, previous post-purchase experiences can provide a "short-cut" for the formation of the initial consideration set and evaluation, resulting in a loyalty loop.

Edelman and Singer (2016) take this point even further, arguing that brands today can not only react to customers as they make purchasing decisions but also actively shape those decision journeys. A range of technologies is underpinning this change, allowing companies to design and continuously optimize decision journeys. More importantly, companies can use journeys to deliver value to both the customer and the brand. Companies that excel in this area can radically compress the consideration and

evaluation phases, and in some cases even eliminate them, during the purchase process, catapulting a consumer straight to the loyalty phase of the relationship (see Figure 2-2). The journey itself is becoming the defining source of competitive advantage.
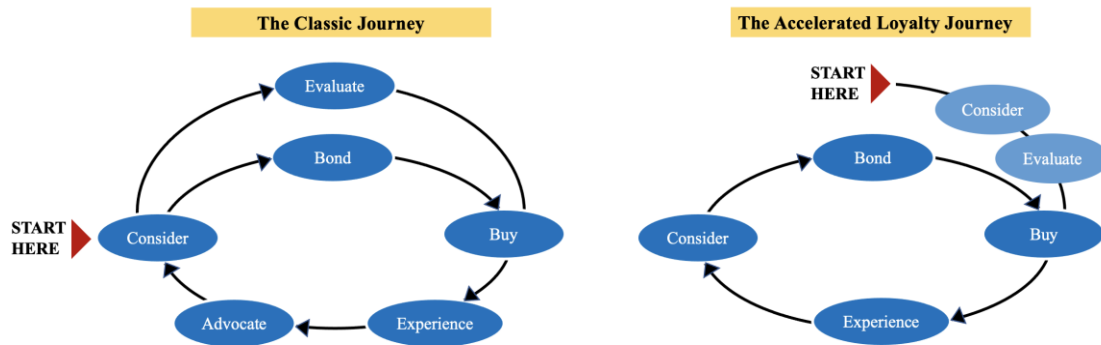
Figure 2-2 The new consumer decision journey (Edelman & Singer, 2016)

Batra and Keller (2016) further updated the constructs of the consumer decision journey and expand the potential stages to 12: 1) Feels a need or desire for it (at a category level); 2) Knows about it (sufficient brand awareness in terms of recall and recognition); 3) Actively considers it (examines attributes and benefits); 4) Searches for more information, learns more about it, and begins to critically evaluate it (builds brand knowledge); 5) Likes it and has trust/confidence in it (has functional and non-functional brand associations that are strong, favourable, and unique); 6) Is willing to pay (more) for it (perceives high brand value on the basis of functional, emotional, social, and symbolic benefits); 7) Chooses to try it soon and knows where, when and how to get it (has a high desire to act); 8) Consumes it (timing, frequency and amount of consumption); 9) Is satisfied with it (has positive thoughts, feelings and experiences);10) Is a loyal repeat buyer of it (both attitudinal and behavioural loyalty); 11) Is engaged and interacts with it (participates in both online and offline brand-related activities); 12) Is an active advocate for it (both offline and online, including via social media) (See Figure 2-3).

Despite the emergence of new ideas about the consumer decision journey, this study maintains that Court et al.'s (2009) model is still appropriate for analysing the dynamic and circular process of consumer decision-making. Therefore, this research adopts the framework of the consumer decision journey theory proposed by Court et al. (2009) to develop propositions and uses statistical methods such as regression models, Markov Chain analysis, and clustering to shed light on the dynamic process of purchasing durable experience goods.
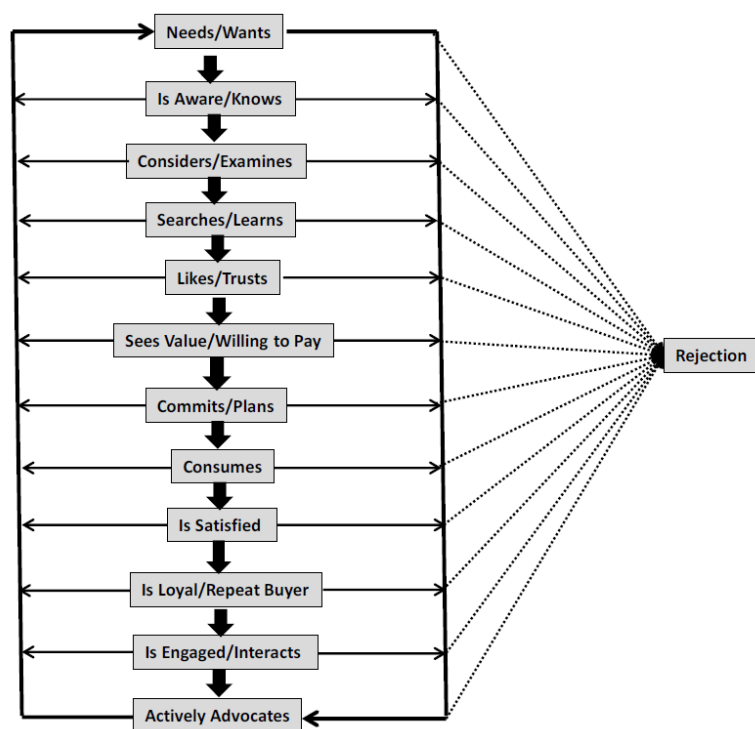
Figure 2-3 A Dynamic, Expanded Consumer Decision Journey (Batra & Keller, 2016)

2.2 Information channels and media synergies

2.2.1 Information channels

Consumers rely on various information channels to make product choices (Akalamkam & Mitra, 2018). Many marketing studies have examined consumer search behavior regarding information channel usage (Beatty & Smith, 1987). Barwitz and Maas (2018) found that customers accumulate experiences through a wide range of

information channels, such as physical stores, mobile devices, and social networking sites. These channels offer various touchpoints that facilitate communications and interactions between consumers and companies. Technological advances have expanded the spectrum of interactive mediums and increased the complexity of the customer journey (Wolny & Charoensuksai, 2014). The emergence of new touchpoints and channels has offered customers more flexibility while increasing the complexity of channel management for companies (van der Veen & van Ossenbruggen, 2015). Therefore, companies need to have a thorough understanding of the emerging engagement platforms and changing customer channel behaviours to manage the customer journey effectively and create a holistic customer experience (Hosseini, Merz, R¨oglinger, & Wenninger, 2018; Li & Kannan, 2014).

Previous research has classified information channels in various ways. Some scholars have categorized them into two types: personal (such as salespersons, friends, and acquaintances) and impersonal (such as advertising and public relations). Other scholars have classified them into three types: firm-controlled channels (such as advertising and retailers), which are initiated by firms to interact with consumers, with the intention of influencing consumers' product choices or brand preferences; non-firm-controlled channels, which are initiated by consumers themselves, usually by actively sharing their after-purchase or use experiences; and ratings and evaluations from independent third parties, including influencers' opinions and comments (Jayson et al., 2018).

In the age of the internet and new media, consumers' media usage patterns and how they utilize different media channels to make product purchase decisions have undergone significant changes. Today's consumers are more empowered than ever before. Social networking sites, blogs, and mobile digital devices such as tablets and smartphones have revolutionized the way consumers receive informative content, not just from firms, but also by connecting with one another, discussing brands and products, and interacting with brands quickly and easily. Many consumers today

regularly search the internet for information about products, brands, prices, manufacturers, and retailers when making purchase decisions (Kulkarni et al., 2012).

The shift from one-way communication to two-way communication in product information acquisition has encouraged consumers to put more effort into initiating and searching for information throughout the decision journey. This makes every touchpoint important for brands' impressions, as they can increase or decrease the number of brands in a consumer's consideration set. Consumers no longer just passively receive information from firms, but they also initiate information search from multiple channels, both online and offline. Moreover, consumers today can also co-create brand meaning through social media channels such as Facebook, Twitter, YouTube, Little Red Book, Kuaishou, WeChat, Weibo, and ByteDance in China's context.

While company-controlled advertising previously dominated, peer-to-peer media such as consumer reviews, social media activities, and word of mouth (WOM) are now equally important sources of brand information (Jahn & Kunz, 2012). Consumers are exposed to a multimedia environment and are more informed than if they only received information from a single medium (Klein et al., 2020).

The multimedia environment has also led to a multitasking approach for information searching, meaning that consumers tend to leverage different channels, such as television and mobile devices, throughout the decision journey to make purchase decisions (Schultz, Block & Raman, 2012). However, according to Broilo et al. (2015), consumers tend to consider fewer sources of information and spend less effort based on their previous experience or perception of which sources may be appropriate for consultation. In other words, consumers combine information channels to find the most efficient ones, based on pre-established evaluation criteria and their involvement with various information sources.

Therefore, in a business environment full of information, it is essential to examine how consumers leverage different information channels at each stage of their decision journey for both marketing researchers and practitioners.

Klein and Ford (2003) suggest that information channels can be classified based on whether they are information-technology-based. Some scholars have further classified TV, radio, magazines, newspapers, catalogues, out-of-home banners, word-of-mouth, and direct mail as traditional media (Strebel et al., 2004; Akalamkam & Mitra, 2018), while the newly emerged channels based on internet technology are classified as online or digital information channels. These include websites, various formats of online advertisements, social networking sites, and video sharing sites. In this paper, I mainly focus on six information channels, including traditional media, digital media, e-commerce, offline stores, word-of-mouth, and professionals' recommendations. The specific touchpoints of each are shown in Table 2-2.

Table 2-2 Information channels

Traditional media (TM)	TV	TV commercials, title sponsorship, and product placement
	Other traditional media	• Outdoor advertising, at such locations as bus stops, subway stations and building exteriors • Building interior advertising, such as in elevators and community corridors • Advertising in building material markets or supermarkets (such as brand advertising in the shopping malls like B&T Home and Easy Home) • Newspaper and magazine
Word-of-mouth (WOM)	WOM from relatives and friends	• Introduction or recommendation from relatives and friends • Neighbours whose houses are being decorated
	Personal experience	Personal or family's previous use experiences
Offline stores (OS)	Advice from physical stores	• Retail or exclusive stores • Home decoration expos and brand manufacturer exhibitions

	Advice from contractors and painters	• Labour contractors and project managers • Painters
Professionals' recommendation (PR)	Advice from designers or house decoration companies	• Designers from house decoration companies • Independent designers with their own studios
Digital media (DM)	Digital webs & apps	• Search engines (such as Baidu, Sogou, and Bing) • Content platforms (such as Zhihu, Baidu Zhidao, Baidu Tieba, and Dianping) • Home decoration design platforms (such as liba.com, www.hrbwoniu.com, Haohaozhu, and Yidoutang) • Internet home decoration websites (such as to8to.com and Jia.com) • Social networks (such as WeChat, Weibo, and RED) • Video websites (such as youku.com, www.qq.com and www.iqiyi.com) or their APPs • Short video (such as TikTok, Xigua, Huoshan, Kuaishou and Miaopai) • Vertical home decoration platforms (home.163.com, PChouse, jiaju.sina.com.cn and jia360.com) • News platforms (Toutiao, new.qq.com) or their apps • Brands' official websites such as Nippon Paint/Dulux/3Trees
E-commerce (EC)	E-commerce & Livestream	• Taobao/Tmall • JD • Online stores of home decoration, such as B&T Home and Easy Home • Other shopping websites

2.2.2 Channel behaviour and effects

In order to understand how consumers leverage information channels differently, I have investigated the literature on information channels. According to Gao, Melero, and Sese (2019), consumers tend to behave heterogeneously and use different channels based on their individual circumstances. When selecting a channel, customers weigh the costs and benefits and evaluate their search costs, opportunity costs, and cognitive effort against potential risk reduction and comfort (Li & Kannan, 2014). As a result,

they are likely to interact with channels they are more familiar with in order to reduce the associated effort and perceived risk (Anderl et al., 2016). Overall, customers consistently choose options that offer the highest perceived value-in-use and allow them to navigate through their journey in the way that best corresponds to their goals (Hosseini et al., 2018; Kerr & Kelly, 2019).

Customer channel behavior has evolved with the development of the internet and digital platforms (Lynch & Barnes, 2020). The proliferation of information channels has increased the complexity of the customer journey from the perspective of companies, as it provides rich interaction options for customers to use during the decision-making process (Huré, Picot-Coupey, & Ackermann, 2017; Wolny & Charoensuksai, 2014). In the omni-channel environment, customers can use multiple channels, switch between them, and integrate them more easily than ever before, resulting in information effects that can occur in various ways (Hu & Tracogna, 2020). Here, I summarize the multiple effects of information during the consumer information journey.

1. Direct effects

Consumers who are exposed to multiple media environments tend to be better informed than those who only receive information from a single medium (Klein et al., 2020). The choice of information channels by consumers is closely related to their prior knowledge and experiences within a particular product category. It can also vary at different stages, resulting in different decision journeys and various purchase decisions (Jahn & Kunz, 2012).

To examine the simple effects of different information channels, Court and colleagues (2009) conducted research across five industries. They found that for the initial consideration set, company-driven marketing activities (such as traditional advertising, direct marketing, sponsorship, in-store product experience, and salesperson contact) are the most mentioned by respondents. During the active evaluation stage,

consumer-driven marketing activities (such as internet reviews, word-of-mouth recommendations from friends and family, in-store interactions, and recollections of past experiences) are most effective, accounting for two-thirds of the touchpoints. The remaining third is covered by company-driven marketing. In the closure stage, store/agent/dealer interactions are the most effective. However, the value of these results is more thought-provoking than practically useful, as information searching behaviours can vary widely across industries, particularly for durable experience goods, which are the focus of this research.

2. Interactive effects

With abundant media resources available nowadays, consumers often use multiple information channels to assist their decision-making process. As consumers form their brand impressions throughout this journey, the information channels they encounter can have interactive effects with one another. Batra and Keller (2016) suggest that due to the trend of multitasking, consumers' attention is more divided than ever before, making it crucial to study how consumers' choice of information channels and the different channels' interactions influence their decision-making. In the following part, I will review some of the most common interactive effects in the literature and demonstrate how these effects may occur during the consumer decision journey.

a) Spill-over effects

The spill-over effect, also known as the halo effect, is a cognitive bias in which an individual's overall impression of a product can influence their judgment of its specific properties or similar others (Janakiraman et al., 2009). According to the accessibility-diagnosticity theory proposed by Feldman and Lynch (1988), if a consumer believes that product A is informative about product B, they tend to use perceptions of A's quality or information to infer that of B. This effect has been observed in various situations, including parent brands and their extended products (Carter & Curry, 2013), offline channel images of multichannel retailers on corresponding online channel

evaluations (e.g., Chang et al., 2018), and aesthetic design features of a webpage on its usefulness judgments (e.g., Liu et al., 2017). Ghose and Todri-Adamopoulos (2016) also suggest that display advertising has a spill-over effect on search and propose that the effectiveness of search advertising will be overestimated if this effect is not considered. However, negative spill-over effects, also known as the perverse halo, have been found too. For example, product recalls can hurt the sales of recalled products and even some non-recalled products in the same category due to negative spillovers (Giannetti & Srinivasan, 2021).

b) Carryover effects

The carryover effect is defined as the lagged effect of current advertising expenditures on sales or other outcomes in future periods (Hanssens, Parsons, & Schultz, 2001). Advertising carryover assumes that potential buyers first comprehend and accept the information communicated via advertising and then retain the information until making a purchase decision (Herrington & Dempsey, 2005). Advertising rarely has a full impact on sales in this period and usually extends well into the future (de Kluyver & Brodie, 1987). Köhler et al. (2017) found that the carryover effect of personal selling and mass media lasts 12.6 and 3.4 months, respectively, with personal selling having a longer carryover time than mass media.

c) Synergy effects

The synergy effect is defined as "the joint impact of multiple information channels that exceeds the total of their individual parts" (Assael, 2011). When the effect of using multiple marketing media in combination goes beyond the sum of their individual effects, it is termed media synergy (Schultz, Block & Raman, 2012).

For example, Naik and Raman (2003) showed that the adaptation of an integrated marketing communications approach demonstrated the importance of synergy in multi-media activities between television advertising and print advertising. Chang and

Thorson (2004) suggest that television and web advertising work better together than individually. Naik and Peters (2009) proposed a model of online and offline advertising to detect within-media and cross-media synergies. Their analysis provided evidence of the intra-media and inter-media synergistic effects of offline media (TV, print, and radio) and online media (banners and search). This research demonstrates that these effects influence how consumers evaluate different product brands. Voorveld's (2011) experiment analysis indicated that combining online and radio advertising resulted in more positive affective and behavioural responses than using one medium alone. Joo et al. (2016) demonstrated that television advertising increases consumers' search behavior, as reflected in the number of product category-relevant searches and the brand's share of keywords searched.

Moreover, Lim et al. (2015) demonstrated synergistic effects among TV, mobile TV, and internet advertising. Lesscher et al. (2021) studied direct mailing and found that it significantly influences consumer activity in the online channel, including online search and clicking behaviour. Direct mailing was shown to be effective throughout the purchase funnel, both directly and indirectly, with a positive net sales effect. Jayson et al. (2018) analysed 838 brands in 14 product and service categories for share of spend in paid media and share of digital owned media, unique visitor traffic, and traffic to social media. The results found that synergies exist between paid-media and owned-media, and suggest a balance between paid-media (firm-controlled media) and owned-media (peer-to-peer) investment for brands' long-term sales growth.

Understanding cross-information channel synergies and other interactive effects is crucial because firms typically develop media strategies under the assumption that there are synergistic and other effects among information channels. Companies can take advantage of these effects and factors to develop media planning strategies and media mix.

Strebel, Erdem and Swait (2004) argue that consumers tend to use multiple sources of information, and information channels act as complements, leading to the synergistic effect between information channels. However, the findings by Dijkstra et al. (2005) show that the utility of multiple information channels might be as effective as either TV or print advertising alone, and the use of too many information channels may negatively affect consumers' attention and communication effectiveness. Furthermore, cannibalization between information channels can occur as the usage of one channel may reduce the usage of others. Enoch and Johnson (2010) argued that cross-media usage is not a zero-sum game, but rather enlarges the size of the media pie because of "new markets of time." They found that heavier users of one medium tend to be heavier users of others. Media users use different information channels at different times and in different places for different purposes, and they choose the best available screen for their location. However, cannibalization can still occur when the content of different information channels is the same or extremely similar (Simon & Kadiyali, 2007).

The different findings on the effect of deploying multiple information channels have drawn significant attention to empirical analyses related to consumers' choice of various information channels and the interactive effects between them (Danaher & Dagger, 2013; Trusov et al., 2009; Draganska et al., 2014). However, most studies have focused on company-initiated advertising channels and have not considered the increasingly complex process of consumers' information searching behavior. This paper contributes to this stream of literature by using a consumer-centric framework of the consumer decision journey in a two-way communication of product information setting.

2.3 Durable goods

The consumer's choice of information channels for product information varies according to the product category and their personal characteristics (Bhatnagar & Ghose, 2004; Konuş et al., 2008). Thus, the translation of brand awareness into a final

purchase decision can differ between durable goods and other frequently purchased products (Van et al., 2009; Anable et al., 2006).

2.3.1 Concept and characteristics

Durable goods are goods that provide utility for more than three years. They are designed to be used over time, rather than being consumed in a single use or a short period of time. There are two main types of durable goods: business durable goods, which are business purchases and utilities, and consumer durable goods, which are purchased and used by individuals or households. Examples of consumer durable goods include motor vehicles, furnishings, home appliances, tools, electronics, and some intangible goods such as software. Durable goods differ from nondurable goods, which are intended for short-term consumption, such as food, beverages, clothing, gasoline, and other energy goods (Bureau of Economic Analysis, U.S.A., 2017). According to Waldman (2003), personal consumption expenditures on durable goods exceeded $800 billion in the United States in 2000, and durable goods production constituted about 60% of aggregate production in the manufacturing sector.

In China, the definition of durable goods is similar, but it also includes the architecture and home improvement materials segment, which is included in China's statistical reports due to its significance to the country's economy. According to the National Bureau of Statistics of China (NBSC), durable goods include automobiles, furnishings, home appliances, electronics, and architecture and home improvement materials. In 2021, durable goods accounted for a total of 5,676.1 billion RMB, an 8.6% increase from 2020. Since the privatization of residential property policy was announced in 1997, the booming housing industry, along with the rapid increase of the new middle-class population, continuous growth of disposable income, and changes in lifestyle have led to a significant increase in the architecture and home improvement materials segment, which grew by 20.4% in 2021.

2.3.2 Significance

Durable goods are a significant component of economic production because they account for a considerable portion of durable goods sales, and changes in purchasing trends of durable goods are important economic indicators. According to Greenwood et al. (2005), durable goods are "engines of liberation", as the adoption of labour-saving technologies such as washing machines, home appliances, and electronics, can free up time spent on housework and liberate women from their domestic responsibilities. This can lead to an increase in female workforce participation over time and an increase in labour supply, eventually contributing to long-term economic growth.

As a result, government policies have been implemented to encourage and promote the adoption and usage of durable goods in order to improve the living standards of specific groups of people and stimulate economic growth. For example, in 2006, China launched the Home Appliance Going to the Countryside (HAGC) project, which achieved a growth rate of 53.2% CAGR for the home appliance and electronics sector, compared to the prior five years' rate of 15.8% (Wang & Xue, 2019). More recently, the Ministry of Industry and Information Technology of China announced the Green Architecture & Renovation Products Going to the Countryside program in March 2022, which aims to promote and provide subsidies for the purchase of green architecture and renovation products in rural areas. China believes that domestic consumption expenditure is a crucial factor for its economic growth in the coming decades, and its growth will depend heavily on the export sector, the housing industry sector, and public infrastructure investment.

Economic scholars have been studying durable goods for decades due to their significant influence on economic growth. In the 1970s, they considered and discussed several questions from a microeconomic perspective. Peter Swan (1970) and Sieper and Swan (1973) discussed the issue of optimum durability and argued that monopoly durable producers tend to choose less durability than competitive producers. Coase (1972) considered the question of time inconsistency of durable goods and concluded

that reducing durability is an alternative policy that might be more profitable for monopoly durable producers. George Akerlof (1970) focused on the used car market and argued that quality uncertainty and information asymmetry between buyers and sellers lead to adverse selection, resulting in the market for "lemons." Waldman (2003) acknowledged these three studies as classic contributions to the durable theory that established important fundamental principles. However, he argued that they only made limited progress in advancing our knowledge of the real-world market because their assumptions were unrealistic. Since the 1990s, studies on durables have deployed more realistic models, leading to significant progress in our understanding of the real market for durables.

2.3.3 Consumer decision-making and consumer durables

In the field of consumer decision-making, predicting who and when will purchase or replace durable goods also attracts great attention among scholars, durable goods firms, and the public sector. A durable good purchase is characterized by several factors: 1) the buyer stays in the market for a short period of time; 2) the purchase involves a substantial amount of money; 3) the buyer only returns to the market for replacement or to purchase additional item sand services, making the time interval uncertain and often long. Therefore, it is crucial for marketers of durable goods to identify the right consumer at the right time to effectively promote their products.

Numerous scholars have attempted to understand consumer durable goods purchasing behavior and to predict the timing. Early research, such as Klein and Lansing (1955), studied consumer demand by examining financial and demographic variables to predict who and when durable goods purchases would be made. Raymond, Beard, and Gropper (1993) studied durable goods replacement using a hazard model, which allows for richer relationships between the age of the durable goods and the probability of replacement, rather than a dependent variable model. Haldar and Rao (1998) analysed the timing of the first purchase of durable goods by developing a

micro-analytic threshold model, which they argued outperforms other competing predictive models in terms of fit and predictive ability.

However, according to Guiltinan (2010), many of the early studies on the decision-making process for replacing durable goods in economics and marketing literature were based on rational choice theory. These studies suggested that consumers aimed to maximize the net utility of ownership over time by comparing the incremental cost of replacement and the relative utility between the original goods and their replacements. These studies primarily focused on demographic and economic variables as the main explanatory factors. Later, some psychologists started to integrate psychological theories into the well-developed theory of economic rational decisions. Antonides (1991) is one of those who applied familiar psychological terms like attitudes, perceptions, motivations, and aspirations to economic decisions. Grewal et al. (2004) incorporated consumer psychology theories into the research on the timing of repurchasing consumer durables. They suggested that attitude functions, which include knowledge, value expression, social adjustment, and utilitarianism, can help predict and explain the inter-purchase interval. By introducing behavioural science into this field, scholars developed a broader perspective on predicting consumer durables replacement through the construction of the rational consumer model and on explaining consumers' utility and consumption of durable goods.

Consumer behavior in purchasing durable goods can be vastly different from non-durables. Unlike non-durable goods that are bought for short-term consumption, durable goods are intended to be used regularly for several years or more before replacement, leading to longer time intervals between purchases and higher prices. Non-durables, such as the fast-moving consumer goods (FMCG) sector, are characterized by low involvement and low risk due to their low purchase transaction amounts and high frequency of purchase. Hoyer (1984) suggested that consumers tend to apply very simple decision-making tactics when they repeatedly purchase less important products, enabling them to make quick and effortless decisions while

ensuring satisfaction. Bronnenberg, Kim, and Mela (2016) suggest that searches in non-durable categories may be shorter in categories with low prices and well-established preferences, such as consumer grocery goods. Jacoby and Fisher (1978) suggested that consumers seek to process as little data as necessary to make rational decisions and found that they can acquire as little as 2% of the available information.

In contrast, consumers have less experience with purchasing durable goods due to their low frequency, and as a result, they tend to be more cautious in their purchase decisions. According to Bag et al. (2019), when purchasing durable goods, consumers tend to spend more time and gather information extensively. They scrutinize product descriptions, compare functions and quality, and seek the opinions of others about brands and products before making a purchase. Lichters et al. (2016) observed that the compromise effect with durable goods is more pronounced than with FMCG products. Hem et al. (2003) argued that purchasing durable goods is associated with a high level of risk since the potential for expected financial loss can be substantial. Consumers may also lack sufficient knowledge to assess the quality of most durable goods, further increasing the risk. Because of the higher perceived risk, there is a greater level of consumer involvement in purchasing durable goods.

The widespread use of the internet has transformed the way people live and behave, making online search and online purchasing of durable goods important topics for marketing practitioners and scholars. Research questions about what types of search patterns, brand perceptions, review data, and social networks contribute to online durable goods purchases have been discussed. Chen et al. (2016) studied the impact of different sources of information on the purchase of a particular mobile phone brand in China and suggested that information acquired from eWOM (electronic word-of-mouth), neutral/third-party sources, and company/retailer sources has a positive influence on consumer attitudes toward the brand and purchase. Godey et al. (2016) studied social networks and the relationship of brands, suggesting that social networks enhance both brand awareness and brand image. Bag et al. (2019) developed an

attribute-level model to predict durable goods purchase intentions, identifying brand social perception scores and consumer review polarity through social network mining as key attributes that influence consumers' digital camera purchases. Scholars have also turned their attention to online shopping and exploring consumer behavior at the attribute level for durable goods (Bag et al., 2019).

2.3.4 Experience durable goods

The nature of a product is one of the major factors that affects the search process and leads to purchase decisions (Darby & Karni, 1973; Moon, 2004). Nelson (1970, 1974) classified products into search goods and experience goods. Search goods are those whose relevant information can be easily evaluated before purchase, whereas experience goods are those whose quality is difficult to assess until consumers have used the products. Nelson (1970, 1974) further classified experience goods as experience durables (purchased infrequently) and experience nondurables (purchased frequently) and found significant differences in the advertising-to-sales ratio between the two. Kline (1998) provided two conditions for a product to qualify as an experience good: either its full set of attributes cannot be known without direct experience, or the cost or difficulty of searching for product attributes is greater than that of direct product experience.

In the online setting, Girard and Dion (2010) validated that the purchase intention of search goods is higher than that of experience goods. Luo et al. (2012) integrated Nelson's and Lal and Sarvary's (1999) taxonomies to differentiate digital and non-digital attributes, suggesting that search goods with mainly digital attributes are easier to communicate in the online environment than experience goods with non-digital attributes that require physical trials or testing of the goods. While Peng et al. (2009) suggested that the differences in consumers' perceived ability to evaluate product quality before purchase between search and experience goods are blurred in online environments, they also found that experience goods involved greater depth (time per page) and lower breadth (total number of pages) of search than search goods. They

further found that new opportunities for information acquisition on the internet, such as product reviews and multimedia that enable consumers to interact with products before purchase, have a greater effect on consumer search and purchase behavior for experience goods than for search goods. Moreover, Zhai et al. (2016) highlighted the effect of online pre-purchase behaviours on cross-channel shopping, which is important for the purchase of experience goods as they are more likely to be associated with physical store visits than search goods. In this study, understanding consumer purchase decision-making regarding decorative paint is essential for gaining a full picture of consumer purchasing behavior for experience durable goods.

2.4 Summary

From the literature review above, it can be concluded that the consumer decision journey has changed significantly from the past, and now requires a carefully designed and integrally implemented marketing approach to ensure the most realistic predictions. Specifically, the approach should involve deploying appropriate media and messages in each stage and in an optimal order. Different information channels have different strengths and weaknesses, generating various effects on consumer knowledge and behavior along their decision journeys. The advent of new media options has significantly increased the marketer's ability to target specific outcomes with greater precision.

However, this area of research, especially in empirical studies, is still understudied in terms of capturing the dynamic nature of the consumer decision journey and how different information channels affect the process. Additionally, it is important to note that due to the complexity of the consumer's path to purchase, information channels within or across each stage can have heterogeneous, interactive marketing effects on different customer segments. Further studies are necessary to provide stronger grounding to the proposed conceptual framework and to gain a deeper understanding

of the consumer decision journey and how consumers seek, acquire, and integrate brand-relevant information in today's communications environment.

It is also worth noting that there is a lack of research on consumers' purchase decision-making of experience durable goods, with most literature efforts mainly focusing on automobiles and home electronics, which are durable goods with more search attributes. Furthermore, the literature is especially limited in studying and investigating the entire consumer decision journey for paint purchase, which is classified as an experience durable good. Using a consumer-centric approach, this paper aims to fill this gap by studying the impact of information channels on the consumer decision journey towards experience durable goods.

Chapter 3   Theoretical Framework and Research Proposition Development

Due to the longevity and high uncertainty of experience durable goods, consumers' decision-making tends to be more complex and requires more external information and references. All touchpoints matter throughout the entire process of consumers' purchase decision-making. Brands contact consumers through various touchpoints, such as offline stores and online user-generated content platforms, where brand value and information are communicated to consumers. These touchpoints are strongly correlated and interact with each other and can be further classified into different information channels. As mentioned before, this paper mainly focuses on six information channels: traditional media, digital media, e-commerce, offline stores, word-of-mouth, and professional recommendations.

Historical exposure and contact with brand-related information may unconsciously influence consumers' memory. Consumers' generation of demand raises their awareness of corresponding products and brands, prompting them to form an initial consideration set. To make the final decision, consumers will effectively gather and process information derived from different information channels to further evaluate and actively compare different products, altering the initial set. Companies strive hard to use various marketing strategies to build fundamental brand awareness in order to be selected into a consumers' consideration set. Throughout the entire purchase journey, marketing practitioners spare no effort to understand customers' information searching and evaluation behaviours to achieve greater profits, especially through the utilization of different information channels.

This study thus aims to open the black box of the consumer decision journey and examine the effects of different information channels on consumers' purchase decision-making for experience durable goods. A particular focus is on paint products, which are a typical example of experience durable goods.

3.1 Research Framework

Due to the lack of knowledge or pre-existent experience with durable goods, consumers face considerable uncertainty when assessing a product's quality. Purchasing durable goods entails functional risks and often involves substantial financial investments (Hem et al., 2003). Generally, consumers invest significant time in decision-making for durable goods, as infrequent repurchase demands prompt greater caution. Bag et al. (2019) suggest that consumers engage in extensive information search and collection concerning product attributes, such as price, quality, and functionality, when purchasing durable goods. Throughout the consumer journey, various information channels influence decision-making at different stages. This paper focuses on traditional media, digital media, offline stores, e-commerce, word-of-mouth (WOM), and professional recommendations as primary information channels.

These information channels possess unique characteristics. Digital media is one of the most efficient, convenient, and abundant information resources. With the advancement of information technology, various search engines such as Baidu, and user-generated-content platforms such as Zhihu and the Red, have provided young people with the opportunity to share their experiences, search, and gain information on online digital platforms. Meanwhile, traditional media still exerts great influence on elderly people, as formal advertisements on official TV channels generally represent the financial ability and reputation of the company. Furthermore, with the increasing importance of omni-channels, e-commerce has complemented offline stores. Consumers can easily compare products of different brands online and gain basic information such as price and product types. However, consumers still need to go to offline stores to touch and feel the real products. In the case of decorative paint, they need to ensure the material and colour match. Word-of-mouth (WOM) represents opinions from relatives and friends and consumers' prior experience. When faced with many choices, consumers consider suggestions from experts such as painters, interior designers, and home decoration companies, namely "professionals' recommendations."

Past exposure to these information channels shapes and forms consumers' recognition and awareness of specific products and brands. After considering and comparing various brands through continuous information gathering, consumers make the final decision. Since all these information channels convey ample information that can enrich consumers' recognition and knowledge, they significantly influence the consumers' journey of purchasing decisions, no matter before, during, or after the purchase. Information channels thus have significant effects on consumers' holistic purchase decision of experience durable goods.

More importantly, this holistic decision-making process involves multiple stages. The consumer decision process is not a linear funnel with sequential steps, such as the traditional AIDA model (Michaelson & Stacks, 2011) and consumer decision-making process model (Lamb, Hair, and McDaniel, 2014). Based on the theory of the Consumer Decision Journey (CDJ), it is a journey involving different stages, where consumers actively evaluate, add, or drop brands into their initial consideration set. They may constantly compare and update their consideration sets based on information and utility along the journey until making the final decision (Court et al., 2009).

It is crucial for practitioners to open the black box of consumers' decision journey and distinguish the role of different information channels. During the various stages of the CDJ, consumers select appropriate information channels to determine deciding factors such as cost, quality, and utility. The effects can vary according to the characteristics of different stages and information channels. Therefore, I will analyse the concrete effect of information channels on each stage of the consumer decision journey.

The theoretical framework for my thesis is shown in Figure 3-1. Firstly, based on the brand perspective, I will explore the holistic effect of different information channels on experience durable goods in the pre-, during-, and post-purchase stages, namely brand awareness, brand consideration, final purchase behaviours, and future purchase intention. I will also explore the heterogeneous effect on customers of different

demographic profiles. Secondly, to open the black box of consumers' purchase decision-making, I aim to obtain the contribution of information channels on each stage during the entire purchase journey based on the CDJ theory. Importantly, the CDJ theory has an internal connection with the brand marketing process, such as the cultivation of consumers' brand awareness, consideration, and final purchase decision. Finally, I aim to validate the complementary effect of different information channel combinations and identify the combination of information channels with the highest complementary effect in different stages.
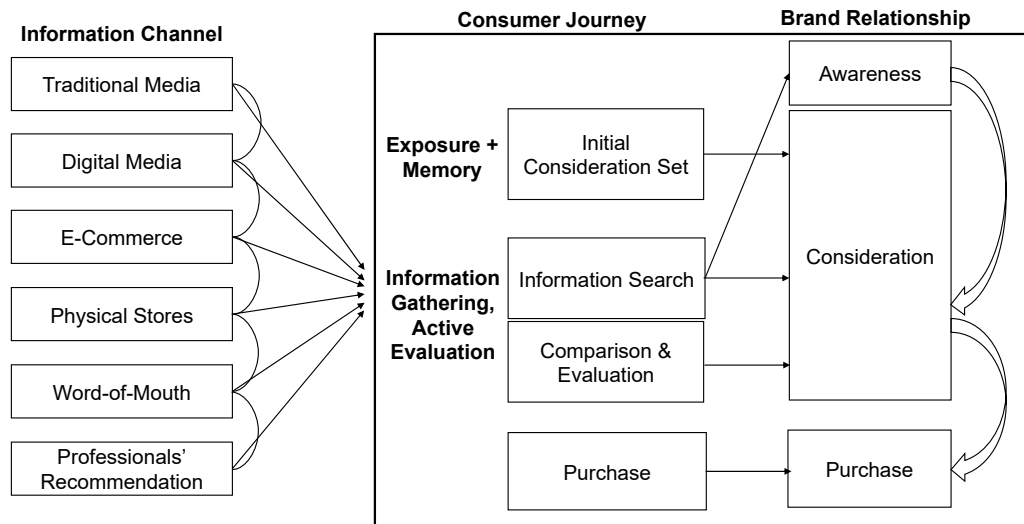
Figure 3-1 Theoretical framework

3.2 Research Proposition Development

According to the Elaboration Likelihood Model (ELM) proposed by Petty and Cacioppo (1986), the likelihood of elaboration is determined by a person's motivation and ability to evaluate the communication presented. It is a general model that helps understand the underlying process of persuasive communication. The model suggests that when consumers' motivation and level of ability to process the information presented are high, they will choose the central route of persuasion, carefully scrutinizing the input messages with high involvement.

However, the peripheral route of persuasion occurs when consumers' motivation or ability to deal with the information presented is low. This happens mainly when consumers' information processing ability is too low to evaluate the communication of a new category or a long purchase cycle product, especially experience durable goods, which involves a complex process of learning the product attributes and forming the choice criteria. Based on the ELM theory, I argue that consumers are more likely to leverage the peripheral route approach to accumulate brand awareness, namely the recognition and memory of a specific brand before they have an interest in buying the product. Once consumers generate a purchase demand, such as a need to buy paint products for house decoration, they will start their brand purchase decision journey and initiate the central route, especially when they consider the characteristics of experience durable goods, such as longevity and high uncertainty.

Before they embark on the purchase decision journey, historical exposure to specific brand information can build consumers' brand awareness. The peripheral route reflects that unintentional communication cues in the past shape consumers' minds, even if they lack the motivation to process information (Kitchen et al., 2014). Holden and Lutz (1992) proposed that information accessibility plays a significant role in brand evocation. Therefore, information with higher accessibility unintentionally generates brand awareness in consumers.

Traditional media, including TV, outdoor, and interior advertising, provide simple, short, and visually impactful cues for consumers. With the development of digital media, emerging platforms provide user-generated content and enrich information resources. Moreover, word-of-mouth (WOM) can also unconsciously communicate brand-related information since relatives and friends can share their historical purchase or usage experiences. Although consumers will not enter offline stores without need recognition, the size, appearance, location, and signage of the offline stores have a similar effect to outdoor advertising, as consumers unintentionally accumulate images of brands. Without need recognition, consumers will not intentionally browse and

scrutinize products or brands' attributes and detailed information on e-commerce platforms.

In a nutshell, without a clear purpose, consumers will not intentionally browse e-commerce platforms, visit offline stores, or seek help from professionals. Therefore, I formally propose the following propositions:

Proposition 1:   When forming consumers' brand awareness of experience durable goods, traditional media, digital media, and word-of-mouth have a greater impact compared to other information channels.

When consumers generate a need for a specific product and initiate their purchase decision-making, they recognize and investigate different brands across multiple information channels to determine brands that are good and are leading. They can also inquire about the experiences of other people and gain recommendations and suggestions. To build their choice criteria, consumers start to compare brands and study key product attributes, gradually forming their own rational judgment. This effortful process evokes consumers' central route based on the ELM theory.

More importantly, there are distinct stages during consumers' purchase decision process, including: 1) the formation of the initial consideration set; 2) the active evaluation stage; and 3) the final purchase decision-making. Consumers' information searching and processing during their decision-making journey progressively improves as their objectives become clearer and as they accumulate product-related knowledge. Their involvement, energy, and ability to search for information among different information channels will change according to their stage objectives and motivations. Wang et al. (2009) have proposed that consumers' objectives and involvement significantly impact the effectiveness of advertisements based on the framework of ELM. Due to their limited energy, consumers allocate their attention selectively (Lee, Chen, and Ilie, 2012). Therefore, I connect consumers' objectives and their information

ability in different CDJ stages with the characteristics of information channels to develop key propositions.

During the initial stage of the CDJ, which is the formation of the initial consideration set, it is difficult for consumers to differentiate between various products and brands. Consumers' historical exposure to brand-related information is important because it helps to form their fundamental recognition. Their prior experience on selecting products and evaluating product attributes will influence the formation of their alternative sets (Lynch et al., 1988). As for amateur consumers, even if they have enough motivation to search for information, they may not be capable of processing it. Therefore, consumers will seek help from relatives and friends, namely, suggestions from word-of-mouth. From the perspective of accessibility-diagnosticity (Feldman and Lynch, 1988), word-of-mouth has a greater impact than traditional media (Herr et al., 1991).

WOM is easily accessible by seeking friends' experience. Amateurs highly value the opinions of their relatives due to the lack of home renovation experience. Furthermore, face-to-face WOM provides more vivid and direct interpersonal communication, which helps consumers to gain reliable opinions from others and inquire about their questions in real-time. Therefore, WOM provides consumers with a perceived diagnosticity.

As aforementioned, the accessibility of information is crucial. To collect product-related views efficiently and comprehensively during the initial period, information channels with sufficient decision-related contents play a greater role. The most accessible digital media could provide multi-resources references, such as the instruction, article experience blog and usage video, and etc. It has been an increasing popular channel for contemporary consumers. Thus, I formally propose that:

Proposition 2a: For the purchase of experience durable goods, during the initial consideration formation stage, word-of-mouth and digital media are the most effective information channels.

During the second stage, namely active evaluation, consumers have accumulated a certain knowledge about the focal product and brand attributes, and they have generated their initial choice criteria (Sproule and Archer, 2000). Then, they will be more selective in information searching due to their knowledge accumulation, and they aim to spend less effort accessing advanced information (Cowley and Mitchell, 2003). Therefore, they not only focus on more specific details based on previous collections of information but also need advanced knowledge. They tend to seek professional advice by asking reliable experts to carefully evaluate their own choices.

Furthermore, offline stores can also provide consumers with more complete and detailed information. Offline stores can help them understand more aspects about the paint product, such as instructions and quality certificates, and provide reliable after-sales service. While e-commerce mainly undertakes the role of price comparison. Therefore, I further propose the following proposition:

Proposition 2b: For the purchase of experience durable goods, during the active-evaluation stage, professional recommendation and offline stores are the most effective information channels.

Finally, when making a purchase decision on experience durable goods (such as decorative paint in this study), consumers will devote themselves to investigate the target brand and will become most actively involved. For those products with high uncertainty, consumers tend to seek help from trustworthy information resources and aim to reduce risks through their information searching and processing to pursue the final choice (Sproule and Archer, 2000). It is necessary for consumers to physically interact with real products and examine their quality and final performance. Since it is difficult to ensure the quality of experience durables, they are inclined to go to offline stores.

Offline stores offer consumers the opportunity to see, feel, and touch actual products, addressing potential questions and concerns. The display of tangible items reduces product uncertainty and alleviates apprehension, fostering trust. Although e-commerce strives to establish initial consumer trust (Yang et al., 2009), it is less effective compared to offline stores, particularly for experience durable goods. For decorative paint, consumers' final purchasing decisions are heavily influenced by physical stores, especially for those lacking prior experience. I thus further propose:

Proposition 2c: For experience durable goods purchases, during the final decision-making stage, offline stores are the most effective information channels on consumers' decision-making.

In practice, companies allocate substantial resources, including financial investments, across various media channels to reach a broader audience or target promising consumer groups. However, as companies have limited resources and cannot invest in all media channels throughout the consumer decision journey, it is crucial for marketing practitioners to identify the most effective combinations of information channels at the final decision-making stage, just before consumers make a purchase. Although consumers possess significant information searching abilities (Ruppel and Rains, 2012), discerning the quality of experience durable goods is still difficult before use. Offline stores offer opportunities for customers to further interact with sales personnel and confirm information. Luo et al. (2012) proposed that search goods with primarily digital attributes are more readily communicated online than experience goods whose non-digital attributes necessitate physical trials or testing. Zhai et al. (2016) emphasized the importance of online pre-purchase behaviours in cross-channel shopping, particularly in relation to the purchase of experience goods, as they are more likely to be associated with physical store visits compared to search goods.

Word-of-mouth (WOM) provides easily accessible, influential interpersonal and informal communication about products or services among acquaintances, serving as a

trustworthy information channel that diminishes consumers' uncertainty when they purchase experience durables. Professional recommendations (PR) offer expert, detailed information about brands and respond to consumer inquiries, particularly for durable goods that require additional services to achieve ultimate utility. Given that services are generally considered riskier than goods (Zeithaml, 1981; Mitra et al., 1999), seeking recommendations and ensuring service quality through professional input also mitigates consumers' uncertainty. Consumers could leverage multi-channels to conduct cross validation.

Thus, I propose the following, final proposition:

Proposition 3:   For experience durable goods, the most influential information channel combinations that affect consumers' decision immediately before making a purchase are those that include any two of the following channels: offline stores, professional recommendations, and word of mouth.

Chapter 4　Research Design

4.1 Research Context

4.1.1 China media scene

The rapid development of internet technology and its widespread application have enabled people to access a large amount of information on the internet anytime and anywhere. According to Dentsu's Consumer Connection System (CCS) study, the average frequency of daily media contact across six major media formats (including the internet, outdoors, online video/television, online audio/radio, newspapers, and magazines) increased from 3.12 in 2016 to 3.43 in 2019. Not only has the average frequency of media daily contact increased, but the behaviour of accessing websites and applications has also sharply increased. As per the 2021 China Statistical Report on Internet Development by China Internet Network Information Centre (CNNIC, 2021), in 2020, China had 989 million internet users, with a penetration rate of 70.4% of the overall population. On average, a user spends 26.2 hours on the internet per week, and time divided among different types of websites and applications is fragmented, as shown in Figure 4-1.
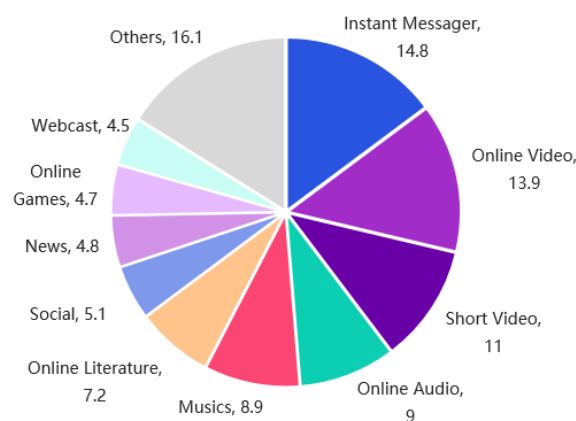
Figure 4-1 2020 share of time length % (CNNIC, 2021)

Meanwhile, media costs and investments in China continue to increase. As seen in Figure 4-2, the report by Publicis Group, "Fuelling Growth for 2022 – Media Landscape and Way Forward", shows that media spending in China has reached more than 500 billion RMB since 2016 and has consistently increased over the years. It reached a peak in 2019 and decreased by 3% in 2020 due to the Covid-19 epidemic. However, advertising spending in 2022 is expected to have reached more than 600 billion RMB.

More importantly, advertising expenditure varies depending on users' media browsing behavior. As depicted in Figure 4-3, television has been the largest media expenditure, accounting for 27% of total spending in 2016 with 135 billion RMB. However, it is estimated that in 2022, TV advertising will only account for 10% of total spending, amounting to approximately 60 billion RMB. Conversely, digital advertising has increased from 52% to 74% of total spending due to the significant growth of feed advertising and search & display advertising on e-commerce platforms (Publicis Group China, 2021).
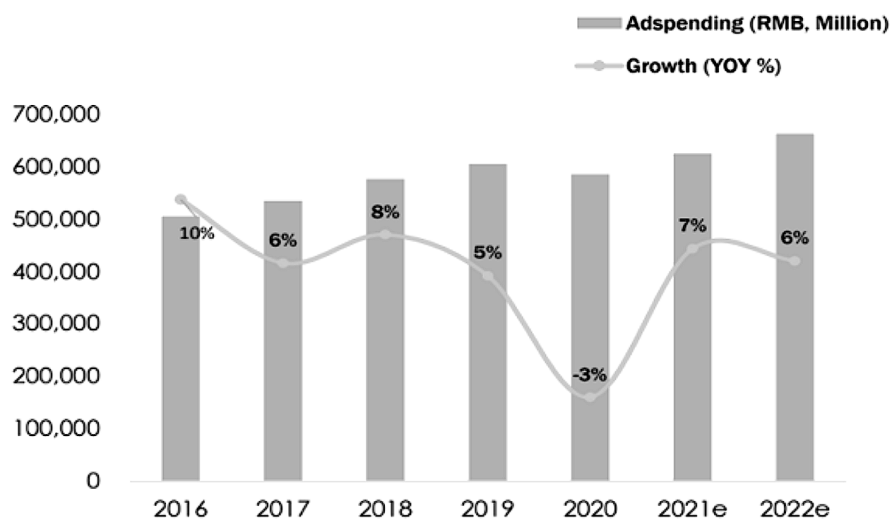

Figure 4-2 Total advertising spend and growth rate (Publicis Group China, 2021)

The acquisition of diversified and dynamic consumer information influences consumers' purchase decision-making. As customers' social media usage and merchants' media channel investments interplay with each other, it is crucial for marketers to establish an effective advertising spending portfolio strategy in order to prompt desired consumer purchase behavior within this complex media context.
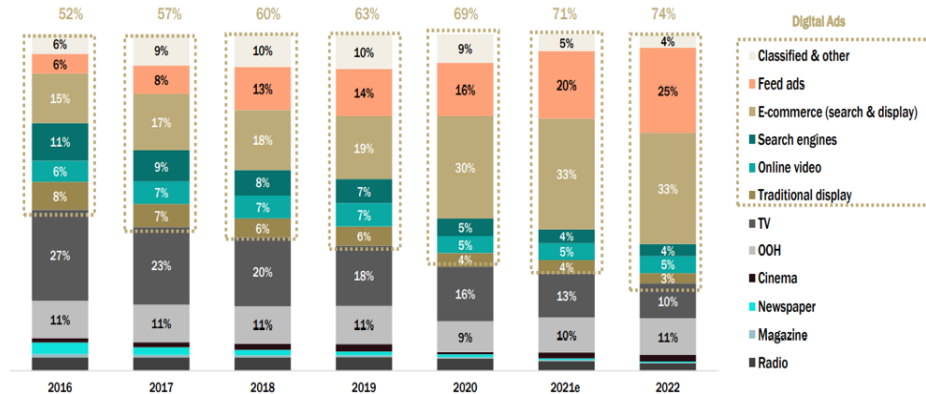
Figure 4-3 Total advertising spend by media (Publicis Group China, 2021)

4.1.2 Characteristics of paint product

Decorative paint is a versatile product used for both decoration and protection of interior and exterior surfaces, including walls, closets, furniture, and flooring. A report released by Research and Markets in January 2022 and cited by both PCI (Paint & Coating Industry) and European Coatings forecasts that the global decorative paint market will experience a compound annual growth rate of 5.1% between 2021 and 2026, with expected revenues increasing from $71.3 billion in 2021 to $91.6 billion by 2026. This projected growth is largely attributed to the largest and fastest growing markets in the Asia-Pacific region, particularly China and India, due to advantages such as low production costs and the ability to effectively serve emerging local markets. According to Lin (2022), the decorative paint market in China was valued at 22.7 billion RMB in 2021, with a majority of purchases made by households. Additionally, the architecture

and home renovation segment, which includes the decorative paint market, was the fastest growing durable goods segment in China for 2021. Given the substantial potential for growth and profits, paint firms are willing to invest in significant marketing each and every year to influence decision making in the consumer decision journey.

Previous studies on consumer durables have largely focused on automobiles and home electronics, leaving inquiries into decorative paint purchases relatively scarce despite their innumerable idiosyncrasies. According to Nelson (1970, 1974), paint, along with automobiles, TV sets, and laptops, falls into the category of experience durable goods, given the difficulty consumers face when assessing the quality of architecture and home improvement materials prior to purchase. However, a more recent study by Weathers and Makienko (2006) challenged the validity of this classification and addressed the search nature of these products. Nonetheless, in an increasingly digitalized world, paint should still be considered as experiential.

Firstly, unlike the quantifiable attributes in automobiles or electronics (e.g., measurement on horsepower, fuel-consumption, display size, memory, CPU, etc), there are comparatively few attributes of paint that are numeral and measurable. Accordingly, the evaluation and communication of its quality can be more difficult before consumers' purchase.

Secondly, decorative paint differs from other experience durable goods in that it is not a finished good that is ready to use right after purchase. Decorative paint is a semi-finished product that can only achieve the final effect and functions through additional purchased tools and manual work.

Finally, spanning from product category and attributes just mentioned, differences materialise on product complexity dimension description. This characterizing feature would impact consumer purchase-attitude assessments due to the attempt to correlate implicit weighting, attribute sales communication and aggregated weighted scores review of multivariate (regarded "higher connectivity-dustiness") tools to win a

straightforward decision-fit that tests consumer behaviour against guaranteed durability achievements (Huffman and Kahn, 1998.) These differences, and the inability to assess paint precisely or predict work planning accurately, render the purchase of decorative paint complex, posing decision-making challenges and raising the chances of an customers perceived risks comparatively high. Consequently, understanding consumer's purchasing patterns when it comes to decorative paint, with a particular theme relates differently to the experience durable brands envisioned yielding long-term repeats purchase inclinations, is fundamental for market performance efficiency deduction.

Finally, decorative paint is unique in its complexity and poses significantly higher risk and uncertainty during purchase decision making. Product complexity extends beyond product characteristics and classification, and involves how attributes interrelate and weigh against each other to generate an aggregated overall product score (Huffman & Kahn, 1998). While it is easier for consumers to touch and use electronics, it is challenging to determine the quality of paint until it is used for decoration. Hence, analysing consumer decision-making processes in decorative paint purchases is critical to developing a comprehensive understanding of consumer behaviour towards experience durable goods.

As a typical experience durable good, decorative paint has key differences from frequently purchased products, as revealed in the Consumer Usage and Attitude on Paint Study report (U&A study, X & Kantar SH 2020).

First, decorative paint has a longer lifespan, including:

1. A requirement for painting jobs or home renovation projects every 8.5 years on average;

2. Typically, a longer decision-making period, with an average of three months for an apartment renovation job, and 9.1 days for consumers to make a paint selection;

3. A rare opportunity in general, as consumers purchase decorative paint for new house renovation for their marriage, which typically occurs between the ages of twenty and thirty.

Second, decorative paint involves high value, with the lower- and middle-range cost of renovation ranging from $155 to $465 per square meter (floor space) and a typical cost between $16,000 to $60,000 for an apartment renovation project, depending on the apartment size and quality of renovation. Although paint itself is not expensive, the cost of hiring a painter usually ranges from $1,000 to $3,000 based on an 80 square meter apartment estimate.

Third, decorative paint poses high uncertainty. As a semi-finished material before application, paint is a sticky liquid that people usually avoid touching, making it challenging to evaluate its quality before and even after use, except for painters. Unlike finished products that consumers can see and touch before purchase, such as toiletries that are even labelled with brands, it is often impossible to tell which paint brand is used in, for example, five-star luxury hotels.

Fourth, decorative paint has high complexity. Many products and services from different categories are involved throughout the house renovation process. Using paint products also requires professional knowledge and processing experience, without which proper finishing results cannot be achieved. Moreover, in China, most consumers have no experience with DIY painting and typically prefer to hire professional painters, further complicating their purchase decision-making process.

Finally, various influence factors are involved in the paint selection process. Given its complexity, consumers often rely on heuristic decision-making, taking into account inputs from credible experts such as recommendations from interior designers, painters, and home decoration companies.

These characteristics play a crucial role throughout the entire process of purchasing and using paint. Once the consumer generates a demand for paint, they comprehensively evaluate the financial, functional, and even health risks, making their

decision-making process more cautious. Moreover, changes in media and consumer behavior due to rapid technological developments have created two issues for marketing practitioners. They must now leverage various formats and more context-based or scenario-based information to reach the right person at the right time, using the right information channel and touchpoint to influence their decision-making. Marketing activities have also become much more complex, requiring practitioners to learn and practice to ensure effective results. With increasing complexity and sparse data, Anderl et al. (2016) point out that models are yet to be developed to reduce the complexity of firms to deal with multi-channel data.

4.2 Data Collection

The data used in this study includes those collected from Company X, a leading architectural paint company in China. X is currently ranked number three in the world and number one in Asia in the architectural paint segment. X focuses on a consumer-centric approach, providing quality products, innovation, talent development, and market investments. X has established a nationwide manufacturing, distribution, and sales service network, and its sales have grown by more than 20 times from 2001 to 2021. However, X has recently faced increasing challenges. The development of the decorative paint market in China only started in the 1990s with the announcement of the policy to privatize apartments, but ss the demand for house decoration has sharply increased, the paint industry has become much more saturated with many competitors. The market has also become more fragmented, with personalized demands being more prevalent.

Against this background, X seeks to achieve greater market competitiveness and cultivate brand awareness among consumers. Therefore, X has explored different information channels to reach its target audience. X was the first brand in the paint category to use national TV advertising for marketing popularization since 1998, building up more than 50% top-of-mind brand awareness and over 90% total awareness

in the decorative paint segment in China. Additionally, Brand X was the first to and has continued to sponsor national home renovation TV programs since 2014 to influence a wider potential audience. Currently, X has expanded into various social media platforms such as WeChat, Little Red, and TikTok. As consumers are switching their information search and media usage behaviours, it is crucial for X to distinguish and select effective information channels among the many options available. Brand X also needs to design a more efficient marketing and advertising strategy with the proliferation of information channels, especially with limited marketing budgets. As a result, X has conducted several interviews and large-scale surveys to find the appropriate solution.

This study uses data on information channels and brands, collected with questionnaire-based structured interviews carried out in April and May 2019. Face-to-face interviews were designed to ask paint purchasers to recall their behavior and the process of their latest paint purchase. Based on paint usage and attitude studies conducted by Company X over the last decade, the interval of paint purchase is typically between 8 to 10 years. To prevent ambiguous recall, the study only included paint purchases and usage that had taken place within six months of the face-to-face interviews. Trained interviewers from research fieldwork companies conducted the interviews, which were supervised and quality-checked by Kantar Shanghai, a leading multinational research firm.

4.2.1 Questionnaire structure and key questions

The questionnaire contains five parts.

It begins with screening questions aimed at differentiating non-qualified samples from the right candidates in accordance with our research design.

Part A contains questions that seek to map out the characteristics of the respondents' latest home renovation activities, including the latest paint brand purchased, the type of house renovated, contractors used, the degree of their

involvement in the renovation and paint purchase, the cost of the renovation, and the respondents' experience of renovation.

Part B includes questions related to brands that the respondents know, have considered, purchased, and will consider buying in the future. Questions B1-B3 ask which brands are top of mind, unaided awareness, and total awareness. B4 and B5 are about brands in the respondents' initial consideration set and the brand they purchased in their latest purchase. B6 asks about the paint brand purchased by those who had prior renovation experience. B7 asks which brands the respondents will consider buying in the future, perhaps in a few years' time.

Part C pertains to the latest paint purchase and its decision-making process. R1 assesses the time spent on making the paint purchase decision. R2 and R3 enquire about the information channels used for home renovation and paint purchase, respectively. R4 requests that the consumer lists the information channels mentioned in R3 in the sequence in which they were accessed, leading up to the purchase. R5 asks the consumer to identify the brands encountered in the information channels listed in R3, which represent touch points during the consumer journey. In R6, the consumer assesses each touch point, indicating whether the impression was positive or negative, while R7 and R8 request further details on the positive and negative impressions, respectively. R9 is especially important, as the consumer is asked to identify the objectives of the information channels for paint purchase decision-making. These include 1) serving as sources for initial information search about brands, products, price, and colour of the paint; 2) comparing and evaluating the brands, products, price, product attributes, and colours after initial information search; 3) and assisting with making the final decision about brands and products before the moment of purchase.

R10, R11, and R12 are designed for the respondents to choose the most beneficial information channel for the initial information search phase, evaluation, and comparison phase, and immediately before the final decision before purchase, respectively. In R13, the consumer is presented with various options regarding the

information needed for paint purchase. In R14, the goal is to evaluate the information gathered by the consumer in R13 and to compare it to the information channel listed in R3. R15 assesses whether the consumer visited an offline store during the consumer decision journey, and R16-R17 enquires when and why, during the phases, the consumer visited the offline store. In R18, the consumer is asked to specify where (online or offline store) and how they made their latest paint purchase. R19 focuses on understanding the exact type of store where the latest paint purchase was made, and R20 deals with the consumer's level of involvement and attitude in the latest paint purchase.

The final Part G are questions about samples' demographics information.

The full questionnaire is attached in Appendix I.

4.2.2 Demographics of the samples

This study focuses on the key decision makers of households who made the latest paint purchase within the preceding six months, from November 2018 to the interview date. To ensure the representativeness of the sample, the interviews were conducted in 13 cities that cover different geographic locations and tiers of cities in China. The anticipated number of research samples in each city is shown in Table 4-1. Their ages range from 25 to 55 years old. These samples represent a diverse range of income levels and educational backgrounds, as detailed in Table 4-2. To ensure validity, the study excluded researchers, public relations, advertising, and news professionals, paint, and home renovation business practitioners.

Following the pre-processing of data, such as null-value and outlier detection, the sample size for analysis consisted of 1,220 valid samples. As per

Table 4-3, the majority of respondents were middle-aged, highly educated, and married, and as anticipated, they came from different tiers of cities.

Table 4-1 Sample by cities

Region	Tier 1	Tier 2	Tier 3	Tier 4	Total
East-JN	Shanghai (N=150)				150
East-SW		Nanjing (N=100)			100
Central		Wuhan (N=100)	Changde (N=100)		175
North	Beijing (N=150)				150
North-ZY		Zhengzhou (N=100)	Xinxiang (N=75)	Huixian (N=50)	225
South	Guangzhou (N=100)		Huizhou (N=75)		175
West		Chengdu (N=100)	Mianyang (N=75)	Jiangyou (N=150)	225
Total	400	400	300	100	1200

Table 4-2 Sample definition

Geographic and Demographic coverage	Purchasing time	Segment	Brand
1. Local residents 2. Age 25-54, including male and female 3. Tier 1 – Tier 4 cities national wide including North / South / East / West regions 4. Low, middle, and high income	Key decisions maker of paint purchase within 6 months	Covers eight price segments and five renovation methods as in Appendix I	Brand quota was set according to their market share based on the 2019 U&A study

Table 4-3 Sample demographics distribution

Age	Total	Tier 1	Tier 2	Tier 3	Tier 4
25-19	30%	29%	31%	29%	30%
30-34	30%	29%	31%	29%	30%
35-54	40%	42%	39%	41%	39%
Education	Total	Tier 1	Tier 2	Tier 3	Tier 4
Primary school and junior high school	5%	0%	5%	9%	9%
High school	18%	8%	18%	25%	32%
College and above	78%	91%	78%	65%	57%
Household Income	Total	Tier 1	Tier 2	Tier 3	Tier 4
High	34%	66%	35%	4%	4%
Middle	48%	30%	62%	49%	56%
Low	18%	5%	2%	45%	39%
Marital Status	Total	Tier 1	Tier 2	Tier 3	Tier 4
Single	12%	21%	7%	9%	14%
Married without kids	14%	15%	19%	7%	9%
Married with kids	74%	64%	74%	84%	76%

4.3 Research Method

4.3.1 Measurements

Brand awareness is defined as the potential consumer's ability to recognize or recall a specific brand prior to their product purchase process. It indicates the effect of historical media communication on consumer behavior. Unaided awareness and especially top-of-mind positions are particularly relevant for shaping consumers' purchasing decisions. Throughout the Consumer Decision Journey, after the formation of initial consideration, consumers actively search for information and evaluate different brands. Engaging with different information channels enables them to make their final decision and generates future purchase intention.

To measure the impact of information channels on the decision-making journey of paint brand purchases with the questionnaire, I formally constructed key predicted, explanatory, and controlled variables, as shown in

Table 4-4.

Firstly, based on the question "what brand will you think of when the paint is mentioned", I determined respondents' awareness of paint brands before being prompted. As a result, I defined the binary predictive variable *Awareness* as equal to 1 when brand X is included in the awareness set, and 0 otherwise. Secondly, several paint brands were provided to the respondents, asking them which brands they had considered for their latest purchase. This method aimed to identify whether the respondents had considered purchasing brand X paint last time, from which the binary predicted variable *Initial Consideration Set* (ICS) is constructed. Similarly, the binary predicted variables *Purchased* and *Purchase Intention* (PI) of brand X were defined as a result of the questions "which brand of paint did you purchase in your latest decoration" and "what brand will you consider buying if you need to paint the wall of your house in the future", respectively.

I further analysed how respondents obtained diverse information about brand X. Based on the results of the question "what information channels did you use to obtain paint brands-related information during the process from your initial consideration to final purchase" and the information channel classification in Table 2-2, I defined the following explanatory variables: *Traditional Media* (TM), *Digital Media* (DM), *E-Commerce* (EC), *Offline Stores* (OS), *Word-of-Mouth* (WOM), and *Professional Recommendations* (PR). Traditional media comprises several touchpoints, such as TV, outdoor advertising, advertising in building material markets, and newspapers or magazines. Digital media includes search engines, content platforms, home decoration design platforms, internet home decoration websites, social networks, video websites, short videos, vertical home decoration platforms, news platforms, brand's official websites, and shopping websites. E-commerce refers to e-commerce platforms and live streaming services. Offline stores include retail stores. Word-of-Mouth consists of consumers' historical experiences and recommendations from relatives, friends, and even neighbours. Professional recommendations are from painters and decoration

companies. I counted the numbers of specific touchpoints of each information channel and conducted Z-score standardization to satisfy the standard normal distribution of corresponding variables.

Additionally, demographic characteristics such as gender, city level, marital status, and decoration experience are selected as controlled variables.

Table 4-4 Descriptive Statistics of Variables

Variable Name	Definition	Assignment	Mean	S.D.
Awareness	Aware of brand X before being prompted	0=No 1=Yes	0.884	0.321
ICS	Considered brand X in latest purchase	0=No 1=Yes	0.737	0.441
Purchased	Purchased brand X in latest purchase	0=No 1=Yes	0.470	0.499
PI	Consider brand X in the future purchase	0=No 1=Yes	0.461	0.499
TM	Traditional Media	Mathematically standardized processed based on the number of corresponding touch points of each information channel	0	1
DM	Digital Media		0	1
EC	E-Commerce		0	1
OS	Offline Store		0	1
WOM	Word-of-Mouth		0	1
PR	Professional Recommendations		0	1
Gender	Gender	1 = Male 2 = Female	1.511	0.500
City level	City level	1 = Tier 1 2 = Tier 2 3 = Tier 3 4 = Tier 4	2.150	0.937
Marital status	Marital status	1=Unmarried 2= Married without children 3= Married with children	2.613	0.701
Deco-experience	Decoration experience	0 = No 1 = Yes	0.290	0.454

4.3.2 Regression model and clustering

To empirically investigate the effects of each information channel on various stages of the consumer decision journey, we employ the following regression model as a general form, given by following equation:

Equation 4-1 Regression Model

$$Y_i = \beta_0 + \beta_1 TM_i + \beta_2 DM_i + \beta_3 EC_i + \beta_4 OS_i + \beta_5 WOM_i + \beta_6 PR_i + \sum_{j=1}^{4} \gamma_j X_{ij} + \varepsilon_i$$

The regression model is characterized by the coefficients β_1 through β_6, which represent the effects of users' exposure to traditional media (TM), digital media (DM), e-commerce (EC), offline stores (OS), word-of-mouth (WOM), and professional recommendations (PR), respectively. The intercept term is represented by β_0. The control variables of gender, city level, marital status, decoration level, and brand attention are included in the matrix X_{ij}. It is crucial to note that to control for consumers' historic purchase experience of brand X, we introduce the control variable *exp_isbuybefore*, which takes a value of 1 if the consumer has previously purchased brand X products during their historical decorating process except for their latest purchase, otherwise it takes a value of 0. The stochastic error is represented by ε_i.

The model is estimated for four dependent variables: awareness of brand X before being prompted (Awareness), consideration of brand X for the latest purchase (ICS), X as the latest purchased brand (Purchased), and purchase intention in the future (PI). As all dependent variables are binary, we employ logistic regression to estimate the model.

To further explore the heterogeneous effects of different consumer types, I differentiated consumers by clustering. Firstly, I used 10 demographic variables as cluster variables, including continuous variables such as Age and categorical variables like City Tier. To deal with diverse kinds of variables, I adopted the Gower distance matrix. Clustering is conducted using the Gower method, which can handle binary and ordinal categorical variables. This method can normalize vector, count the sample distance for logical, literal, and numeric variables (Gower JC, 1971). The cluster variables are described in detail in Appendix II.

4.3.3 Markov chain definition

The use of logit regression has some limitations. Firstly, it mainly focuses on one question: "what information channels did you use to obtain paint brands-related information during the process from your initial consideration to final purchase?" It only roughly measures the overall effects of these information channels on consumers' purchase decision-making, and it is challenging to determine rigorously the importance of each information channel to each consumer decision journey (CDJ) stage due to the incomplete utilization of questionnaire results on respective CDJ stages.

Secondly, the coefficient of each variable in the regression indicates its influence on the dependent variable, enabling a comparison of the relative influence of different information channels on a certain stage. However, it lacks comparability in terms of the effects of a specific information channel on different stages. To gain a more comprehensive understanding of the impacts of different information channels on each CDJ stage, it is necessary to map out the holistic journey and measure the contribution of each information channel at different stages.

The consumer purchase decision journey can be modelled using a Markov chain. Customers use various information channels to gather information during their decision-making process. For instance, they may first seek for WOM and EC, then resort to OS before finally making a purchase. As per the CDJ theory, consumers rely on different information channels at different stages, which affects their information channel browsing sequence.

The Markov chain, as a graph-based approach, can model and directly illustrate the holistic process of consumers' decision journey from initial consideration to final purchase (Archak et al., 2010). This approach has been applied in various scenarios, such as customer journey transitions (Anderl et al., 2016), customer lifetime value measurement (Romero et al., 2013), and customer-oriented supplier selection (Asadabadi, 2017). More importantly, in contrast to previous literature, this study

introduces different stages of the consumer decision journey and constructs "CDJ stage-information channel" paired states. This overcomes the aforementioned drawbacks of traditional regression methods and appropriately combines with fundamental theory to reveal the heterogeneous effects of each paired state.

Following Archak's approach (Archak et al., 2010), a directed Markov graph $M = <S, W>$ is defined with a set of states S and a transition probability matrix W.

a. State set

The S, "CDJ stage-information channel" paired states, is constructed to trace customers' information acquisition path through the whole decision journey. Specifically, there are 6 information channels: traditional media (TM), digital media (DM), e-commerce (EC), offline stores (OS), word-of-mouth (WOM), and professional recommendations (PR).

These information channels are distinguished among three CDJ stages. The subscripts (1, 2, 3) denote the corresponding stage of each information channel, and the three main CDJ stages are: 1) consumers' formation of the initial consideration set; 2) consumers' active evaluation stage; and 3) consumers' final purchase decision-making. For instance, TM_1 denotes the consumers' information search on traditional media during the first stage of CDJ.

Furthermore, there is a $Start$ state that represents the starting point of a customer journey. As the survey focuses on customers' latest paint purchase and decision-making process, their final state can be divided into two types according to whether they ultimately purchased brand X. Those who purchased brand X are labelled as $Purchased_X$, while those who purchased other paint brands are labelled as $Purchased_{others}$.

The full set of states S is defined as:

$$S = \{Start, TM_1, DM_1, EC_1, OS_1, WOM_1, PR_1, TM_2, DM_2, EC_2, OS_2, WOM_2, PR_2,$$
$$TM_3, DM_3, EC_3, OS_3, WOM_3, PR_3, Purchased_X, Purchased_{others}\}$$

b. Transition Probability Matrix

In Equation 4-2, transition probability w_{ij} denotes the probability of customers transitioning from state s_i to s_j. This probability can be calculated and normalized based on the frequency of corresponding states transitions, that is, the number of consumers transitioning to state s_j from state s_i.

Equation 4-2 Transition Probability

$$w_{ij} = \quad P(X_t = s_j | X_{t-1} = s_i),$$

$$where \quad s_i \in S, s_j \in S, 0 \le w_{ij} \le 1, \sum_{j=1}^{N} w_{ij} = 1 \quad \forall \ i.$$

The transition probabilities are obtained from Part C of the questionnaire, which pertains to the "latest paint purchase decision process". Part C records customers' browsing sequence of information channels based on the pivotal question "*please select the information channels in sequential order to represent your information acquisition process from your initial consideration to final purchase*". This allows me to construct customers' information acquisition paths based on their browsing sequence. Additionally, Part C asks customers to indicate the main purpose of their information channel selection, which can be information collecting, comparing, and confirming, or aiding final purchase. These purposes correspond to the three main CDJ stages: (1) formation of the initial consideration set; (2) active-evaluation stage; and (3) final purchase decision-making. Consequently, I can identify the stage transitions on the customer information acquisition path.

The construction process is detailed the appendix III.

According to Archak et al. (2010), after constructing Markov chain, the removal effect can be used to assess the importance of each information channel, and the

purchase rate of brand X is the probability from $Start$ state to $Purchased_x$ state. Removal effect of state s_i indicates the change in purchase rate before and after removing state s_i. Based on Anderl et al., (2016), it can be calculated with Equation 4-3.

Equation 4-3 Removal effect

$$Removal\ Effect_{s_i} = \ InflowConvertionRate_{s_i} * OutflowConvertionRate_{s_i}$$

where $InflowConvertionRate_{s_i}$ is the ratio of the number of consumers flowing in state s_i to all consumers. $OutflowConvertionRate_{s_i}$ is the proportion of the number of consumers that finally purchased brand X (namely $Purchased_X$) in the number of consumers flowing in state s_i .

To calibrate the impacts of different information channels on different CDJ stages, there are two methods for removing a focal information channel: 1) removing the focal information channel for all stages to obtain the entire removal effect of the information channel on the journey, and 2) removing the information channel separately at one stage (i.e., "CDJ stage-information channel" paired states) to obtain the removal effect of the information channel on a specific stage. The second method is mainly used in this study.

To identify the complementary effect of different information channels, we can calculate the removal effect of the combination of information channels and find the optimum for each stage. Similar to the removal effect of individual information channels, the removal effect of the combination of two information channels indicates the change in the purchase rate before and after removing both channels. This effect highlights the collaborative importance of the combination.

4.3.4 Complementarity between Markov Chain and Logit Regression

First, using the results of the logit regression, I can clearly determine the effect of each information channel on brand awareness in general. Additionally, I can explore the holistic effect on the formation of the initial consideration set, evaluation and

purchase, and future purchase intention. Subsequently, I can test propositions about the comprehensive effect on purchase.

The purpose of this paper is to elucidate the decision journey of consumers based on the CDJ theory. It is crucial to differentiate and illustrate the specific stage transition processes. By using a questionnaire that captures the browsing sequence of information channels and their corresponding purposes, such as gaining a brief understanding, conducting a careful evaluation, and making the final purchase decision, it is possible to map out the holistic decision journey using a graph-based approach. Thus, to obtain a more thorough understanding of the internal process of consumers' decision-making, I employed the Markov Chain method. Additionally, unlike the first regression part which measures each information channel by simply calculating the number of corresponding touchpoints, I distinguished the use of each information channel among different stages by constructing "CDJ stage-information channel" paired states.

As a graph-based approach, the Markov chain, in combination with the CDJ theory, can directly illustrate the entire information acquisition path of the consumer decision journey. Empirically, the "CDJ stage-information channel" paired states can differentiate the effects of each information channel at different stages. This method complements the logit regression method as it cannot directly illustrate the sequential transition of different stages in the entire journey or see the internal relationship of different states. Specifically, logit regression can compare the relative importance of different channels in each stage. The removal effect can measure the impact of each information channel on a focal stage and help compare the relative importance of different channels based on the paired states. I can compare the relative influence of different information channels in a certain stage and directly compare the effects of specific information channels across different stages. Furthermore, I can efficiently obtain the interactive effect of different information combinations by calculating the removal effect of information combinations.

To summarize, the complementarity between the logit regression and Markov chain approach helps address the research questions.

Chapter 5 Results

5.1 Main Results

The main results of the logit regression are presented in Table 5-1. The first column shows the effect of each information channel on consumers' awareness of brand X. The results indicate that the effects of TM, WOM, PR, DM, and OS are positive and significant for Awareness, which suggests that these channels can influence consumers' awareness of a paint brand. In terms of the size of the coefficient, the results suggest that WOM is the most important channel in shaping brand awareness for experience durable goods, followed by OS and DM.

The typical expectation is that people lack the intention to visit offline stores or seek professional recommendations prior to developing purchase demand, yet the results indicate that offline stores (OS) constitute the second most crucial information channel for fostering brand awareness. Although I still maintain that consumers are unlikely to enter offline stores without a clear objective, brand signage displayed atop paint shops situated on high-traffic streets can function as impactful outdoor billboards and an alternative to traditional media. Unintentionally, individuals may develop impressions of the brand while passing by these shops, thereby cultivating brand awareness. Traditional media's (TM) importance has waned, potentially due to consumers' shifting preferences toward diverse digital media formats in recent years, causing firms to reduce investments in traditional media in favour of digital alternatives. Traditional media accounted for 48% of total advertising expenditures in 2017 and is projected to constitute a mere 26% in 2022 (Publicis Group, 2021).

Without a specific purpose, consumers are unlikely to pursue professional advice. However, the results imply that simple cues from celebrity or professional endorsements accumulated over time can build brand awareness. This phenomenon may arise from prominent designers serving as celebrity endorsers via social networks. Such marketing tactics are widely employed across various industries, including skincare products that are endorsed by movie stars, toothpaste by dentists, and sports

gear by athletes. Some designers boast hundreds of thousands of followers on Weibo or Red social platforms, and many share information about the brands they use in their showcases, indirectly informing consumers and raising brand awareness.

The second column presents the results for consumers' formation of initial consideration sets during the initial information search. After generating their demands, consumers tend to leverage most channels available to help them build their consideration set. The results indicate that all information channels, except for TM, can significantly increase consumers' evaluation, with WOM and DM playing the most important role. This is because the message of most traditional media is usually short and simple. For example, TV advertising is usually limited to 15 or 30 seconds, with limited space in billboards, thus making a good visual or audio impact, but is less informative compared to other sources. While OS, PR, and e-commerce are also significant, they have comparatively smaller effects.

A possible explanation for these findings is that the information obtained through WOM is mostly generated by consumers or their friends and relatives who have historically gone through the entire decision-making journey and have had usage experience after making a purchase decision. This information is regarded as more reliable by consumers and is also easy to access. In the DM channel, consumers can directly search for the most related and professional information content about renovation, which are displayed in different formats such as text, picture, video, etc. The information in these two channels contains consumer and professional feedback and provides practical details that are sometimes overlooked in OS and PR but can be more useful for ordinary consumers.

E-commerce is only statistically significant for consumers' formation of the initial consideration set stage for the purchase of experience durables, due to the easy accessibility of reference prices and the convenience of comparison with other brands on e-commerce platforms.

During information searching, consumers tend to be actively involved and may evaluate and compare several different brands based on the information they collect. After gathering brand-related information, they may add or remove brands from their initial consideration set to make their final purchase decision. The findings presented in columns 4 and 5 suggest that WOM, PR, OS, DM, and TM can encourage consumers' final purchase behaviour and future purchase intention. In contrast, e-commerce has no significant effect on most stages of the decision journey. A potential explanation for this is that consumers prefer to base their decisions on information from their acquaintances, experts, and other experienced consumers, rather than on online product descriptions. Additionally, consumers' past purchases of brand X products have a significant effect on the entire decision journey.

Table 5-1 Results of Logit Regression

VARIABLES	(1) Awareness	(2) ICS	(3) Purchased	(4) PI
Traditional Media	0.324**	0.074	0.167**	0.112*
	(2.38)	(0.85)	(2.46)	(1.70)
Digital Media	0.513***	**0.664*****	0.299***	0.256***
	(3.15)	(5.73)	(3.92)	(3.54)
E-Commerce	0.308	0.313***	0.011	0.035
	(1.48)	(2.97)	(0.15)	(0.49)
Offline Store	**0.545*****	0.471***	0.177**	0.293***
	(3.61)	(4.94)	(2.41)	(4.20)
Word of Mouth	**0.686*****	**0.745*****	**0.684*****	**0.554*****
	(3.88)	(6.80)	(8.68)	(7.19)
Professional	0.314**	0.490***	**0.461*****	0.468***
Recommendation	(2.46)	(4.95)	(6.28)	(6.54)
Experience	1.579**	1.622***	2.167***	1.858***
	(2.36)	(4.27)	(8.13)	(7.24)

Gender	-0.015	0.039	-0.164	0.016
	(-0.08)	(0.25)	(-1.17)	(0.11)
Age	-0.286*	-0.186	-0.220**	-0.065
	(-1.85)	(-1.59)	(-2.19)	(-0.64)
City level	-0.232*	-0.172*	-0.052	-0.112
	(-1.89)	(-1.65)	(-0.53)	(-1.13)
Education	-0.107	-0.086	0.044	0.157*
	(-0.79)	(-0.83)	(0.49)	(1.75)
Income	0.093	-0.020	-0.101**	-0.141***
	(1.47)	(-0.40)	(-2.20)	(-3.17)
Married	-0.151	-0.072	-0.048	-0.230**
	(-0.68)	(-0.49)	(-0.42)	(-1.97)
Decoration level	-0.401**	-0.223*	0.011	-0.127
	(-2.43)	(-1.72)	(0.09)	(-1.08)
Decision cycle	-0.318***	-0.242***	0.002	-0.019
	(-3.09)	(-3.25)	(0.03)	(-0.30)
Brand attention	0.052	-0.003	0.012	0.001
	(1.19)	(-0.09)	(0.37)	(0.03)
Constant	5.308***	3.863***	0.819	1.011
	(4.60)	(4.35)	(1.06)	(1.34)
Observations	1,220	1,220	1,220	1,220

Note: Robust z-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Overall, the regression results in Table 5-1 demonstrate that consumers' decision-making behaviour is significantly influenced by various information channels at each stage of the decision journey. The effects of each channel, however, vary across different stages. WOM emerges as the most critical information channel, with the largest impact on consumers' decisional behaviours in all stages. DM and PR also play a crucial role, as they can provide feedback from consumers and experts to eliminate quality uncertainty for experience goods. Additionally, OS exhibits a robust effect

throughout the entire cycle of consumer decision journey, except for the purchasing stage.

5.2 Customer clustering and heterogeneity Analysis

Consumer type is an important consideration when analysing the effectiveness of information channels, as different characteristics can significantly impact their decision-making behaviours. For example, consumers with prior experience have accumulated fundamental knowledge about the products and do not need to spend as much time searching for information, while amateurs may require more time to make decisions. According to Broilo et al. (2015), consumers also tend to consider fewer sources of information based on their previous experience and their perception of the effectiveness of information channels. Young people are more likely to seek help externally through sources such as WOM from friends or relatives, experts, or online platforms. Educated people may also learn better from external sources. Other factors, such as consumers' purchasing habits, degree of involvement, and residence, also play a role in their decision-making process. It is thus important to identify the characteristics of different consumer groups and implement appropriate marketing strategies tailored to each group.

To investigate the heterogeneous effects, specifically the holistic impact of information channels on experiential durable goods purchases among diverse consumer types, I conducted additional consumer clustering to discern the consumer variations. With the Gower similarity matrix and Ward distance methods, four consumer clusters were identified, as displayed in

Table 5-2. Detailed characteristics of each cluster can be found in the descriptive statistics presented in

Table 5-3.

Table 5-2 Clustering Results by Gower Method

	Freq.	Percent	Cum.
1	352	28.85	28.85
2	221	18.11	46.97
3	416	34.10	81.07
4	231	18.93	100
Total	1220	100	

Group 1 is characterized by experience in home renovation, older age, residence in larger cities, and higher income levels. This demographic profile aligns with the Chinese real estate market development and the usage and attitude study results from Company X. Our 2019 questionnaire survey revealed that experienced individuals tend to reside in Tier 1 and Tier 2 cities due to the openness and growth of the real estate market. Usage and Attitude studies indicate that the initial use of paint and home renovation is often for marital purposes. Experienced individuals thus tend to be married, older, and more affluent, capable of purchasing second apartments or undertaking renovations. With prior experience and better knowledge of the renovation process and paint products, they select cost and time-effective information channels for paint product decisions, eliminating the need to explore all channels. In summary, this group utilizes fewer information channels and has the shortest decision-making period, attributed to their experience, knowledge, and efficiency in identifying effective channels.

Group 2 comprises younger individuals with the highest education levels, many of whom are single or married without children. Due to their youth, their decoration budgets are relatively lower than the first consumer group. Lacking decoration experience and possessing heightened brand attention, these highly educated consumers tend to use their information searching skills and the internet to aid their decision-making process. Additionally, they prioritize brand reputation and high-quality living environments, making them the second highest group in terms of brand

attention. Consequently, they utilize the most information channels and take the second longest period to reach a decision.

Table 5-3 Descriptive Statistics of Each Group

Group		Age	City level	Education level	Income	Marital status	Decoration spending*	Decoration experience	Decision period	Brand attention	No. information channels
1	Mean	2.412	1.741	4.153	5.997	2.713	1.915	1	2.341	10.24	2.310
Base: 352	SD	0.772	0.889	0.816	1.880	0.641	0.682	0	1.028	2.385	1.636
2	Mean	1.072	2.104	4.416	5.416	1.738	2.045	0.009	2.471	10.36	3.081
Base: 221	SD	0.322	0.838	0.673	1.662	0.811	0.511	0.095	1.077	2.456	1.735
3	Mean	2.325	1.918	4.192	6.188	2.834	1.853	0	2.450	10.53	2.774
Base: 416	SD	0.615	0.750	0.865	1.664	0.427	0.609	0	1.090	2.306	1.903
4	Mean	2.225	3.234	3.494	3.571	2.900	2.667	0	2.593	9.727	2.281
Base: 231	SD	0.840	0.473	0.823	1.326	0.314	0.482	0	1.029	2.210	1.804

*: A higher score indicates a lower expenditure.

Group 3 consists of consumers with the highest income, largest home renovation budgets, greatest brand sensitivity, and highest renovation requirements. They utilize the second-highest number of information channels to arrive at their brand choice. Their keen focus on brand and substantial budgets reflect their pursuit of a high-quality living environment.

Group 4 encompasses consumers with the lowest income, residing in Tier 3 and Tier 4 cities with less education. This group has limited ability to utilize information channels and newly developed technologies for decision-making, resulting in the fewest information channels used. Their constrained income and decoration budgets lead to lower brand attention. Considering the heightened information uncertainty and financial risk, they require the longest time to make a brand choice.

Based on this analysis, the four clustered consumer groups are labelled as *experienced high-end consumers*, *educated young consumers*, *inexperienced high-end consumers*, and *lower-educated low-end consumers*, with corresponding sample sizes of 352, 221, 416, and 231, respectively.

In the following sections, I will employ the same regression model in Equation 4-1 to examine the impact of information channels within each consumer cluster.

5.2.1 Experienced high-end consumers

Table 5-4 presents the results for Group 1 consumers, characterized as experienced high-end renovators. Intriguingly, despite that this cluster leverages the second fewest information channels, their behaviours appear influenced by various channels. Word-of-mouth (WOM) emerges as the most critical channel for this group, demonstrating a positive and significant effect across all decision journey stages with relatively large effect sizes. Digital media ranks as the second most important channel, influencing consumer behaviour throughout the stages and proving especially impactful during the initial consideration set formation stage. Professional recommendations also serve as effective motivators, although they fail to contribute to brand awareness, as evidenced by the results in Column (1).

Table 5-4 Regression Results for Group 1 Consumers

VARIABLES	(1) Awareness	(2) ICS	(3) Purchased	(4) PI
Traditional Media	0.592**	0.176	0.257*	0.001
	(2.45)	(1.17)	(1.92)	(0.01)
Digital Media	0.788**	**1.078***	0.441***	0.426***
	(2.46)	(4.08)	(3.05)	(2.58)
E-commerce	-0.136	0.795**	0.193	0.318*
	(-0.33)	(2.08)	(1.10)	(1.67)
Offline Store	0.530**	0.250	0.064	0.369**
	(1.97)	(1.14)	(0.41)	(2.28)
Word of Mouth	**0.817****	0.805***	**0.828***	**0.618***
	(2.00)	(4.30)	(5.94)	(4.67)
Professional	0.075	**0.935***	0.459***	0.475***
Recommendation	(0.32)	(3.72)	(3.21)	(3.42)
Gender	-0.332	0.030	-0.485*	0.019
	(-0.75)	(0.10)	(-1.80)	(0.07)
Age	-0.207	0.133	0.124	0.475*
	(-0.49)	(0.53)	(0.53)	(1.92)
City level	-1.113***	-0.684***	-0.459**	-0.609***
	(-3.77)	(-2.69)	(-2.33)	(-2.87)
Education	-0.184	0.246	0.058	0.311*
	(-0.64)	(1.21)	(0.32)	(1.69)
Income	-0.349***	-0.174	-0.082	-0.126
	(-2.58)	(-1.47)	(-0.97)	(-1.49)
Married	0.180	-0.205	-0.249	-0.612**
	(0.27)	(-0.65)	(-0.98)	(-2.43)
Decoration level	-0.902***	-0.258	0.295	0.317
	(-2.72)	(-1.01)	(1.48)	(1.49)
Experience	Omitted	Omitted	Omitted	Omitted
Decision cycle	-0.359*	-0.145	-0.110	-0.254**
	(-1.95)	(-1.07)	(-0.90)	(-1.97)
Brand attention	0.077	-0.018	0.092	0.053
	(0.76)	(-0.28)	(1.54)	(0.86)
Channel number	Omitted	Omitted	Omitted	Omitted
Constant	10.543***	4.551**	0.799	0.260
	(4.16)	(2.51)	(0.56)	(0.18)
Observations	352	352	352	352

Note: Robust z-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

5.2.2 Educated young consumers

For Group 2 consumers, despite their lack of decoration experience, their higher educational backgrounds indicate strong learning and information processing abilities. As shown in

Table 5-5, they primarily rely on Offline Stores and WOM to construct their consideration sets. In general, offline stores provide first-hand experience with experience durable goods, such as the colour and smell of various decorative paint categories. The high input costs of offline stores signal strong brand ability and capital accumulation, offering a sense of quality assurance. Moreover, store clerks can explain product instructions and quality certifications to customers, which appeals to educated consumers who value professional certification.

Interestingly, these customers do not prioritize digital media and e-commerce during the early stages of the decision-making journey, likely due to their perception of the information overload and the high processing demands that online platforms entail. It is difficult for these young amateurs to effectively process copious amounts of confusing information.

More importantly, they emphasize the significance of WOM during the initial consideration set formation stage, as well as the final and future purchase stages. As inexperienced and young individuals, they rely on the historical experiences and prior knowledge of their relatives and friends. Through recommendations from acquaintances, they effectively form brand recognition and impressions, ultimately influencing their final decisions. Furthermore, while painter recommendations are professional, consumers may perceive their advice as profit-driven, leading them to place greater trust in word-of-mouth.

Table 5-5 Regression Results for Group 2 Consumers

	(1)	(2)	(3)	(4)
VARIABLES	Awareness	ICS	Purchased	PI
Traditional Media	0.452	0.128	-0.019	-0.027
	(0.64)	(0.48)	(-0.11)	(-0.16)
Digital Media	0.404	0.520**	0.304*	0.253
	(0.79)	(2.40)	(1.89)	(1.57)
E-commerce	Omitted	0.304	-0.010	0.057
		(1.31)	(-0.06)	(0.34)
Offline Store	**3.128***	0.847***	0.346*	0.428**
	(3.02)	(3.23)	(1.83)	(2.32)
Word of Mouth	-0.506	**0.863****	**0.718****	**0.635****
	(-1.03)	(2.55)	(3.65)	(3.28)
Professional Recommendation	0.970	0.540*	0.399**	0.210
	(1.49)	(1.80)	(2.15)	(1.12)
Gender	0.029	0.302	0.583*	0.369
	(0.03)	(0.67)	(1.66)	(1.09)
Age	-1.419	-0.963	-0.421	-0.226
	(-1.19)	(-1.38)	(-0.67)	(-0.37)
City level	-0.661**	-0.376	-0.395	-0.400
	(-2.03)	(-1.44)	(-1.30)	(-1.28)
Education	1.771**	0.139	0.242	0.226
	(2.15)	(0.42)	(0.93)	(0.83)
Income	-0.035	-0.051	-0.312**	-0.419***
	(-0.14)	(-0.37)	(-2.07)	(-2.69)
Married	-0.636	-0.324	0.007	-0.061
	(-0.98)	(-1.10)	(0.03)	(-0.29)
Decoration level	0.203	0.420	0.123	-0.149
	(0.24)	(0.97)	(0.41)	(-0.50)
Experience	Omitted	0.602	1.339	0.603

	(0.37)	(0.88)	(0.39)	
Decision cycle	-0.652*	0.059	-0.053	-0.077
	(-1.68)	(0.28)	(-0.33)	(-0.48)
Brand attention	-0.023	-0.077	-0.062	-0.043
	(-0.14)	(-0.85)	(-0.91)	(-0.63)
Channel number	Omitted	Omitted	Omitted	Omitted
Constant	2.840	3.146	1.688	3.079
	(0.67)	(1.45)	(0.82)	(1.49)
Observations	153	221	221	221

Note: Robust z-statistics in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

5.2.3 Inexperienced high-end consumers

Table 5-6 presents the results for consumers in the third group. As previously mentioned, these high-income consumers seek a high-quality living environment and utilize various information channels to support their multi-stage decision-making process. In the initial brand awareness stage (i.e., Awareness), offline stores provide them with preliminary information. Digital media then assists them in expanding their consideration sets. They subsequently gather more information and reviews through WOM to compare and evaluate different paint brands. Lastly, they seek professional advice and guidance to finalize their purchase decisions. As a high-earning group, they are more likely to collaborate with professional decoration service companies and choose high-quality decoration products, making them highly susceptible to professional influence.

Table 5-6 Regression Results for Group 3 Consumers

	(1)	(2)	(3)	(4)
VARIABLES	Awareness	ICS	Purchased	PI
Traditional Media	0.517	-0.038	0.151	0.128
	(1.36)	(-0.25)	(1.42)	(1.26)
Digital Media	0.641*	**0.903***	0.408***	0.361***
	(1.76)	(4.84)	(2.99)	(2.72)
E-commerce	0.209	0.183	-0.112	-0.154
	(0.74)	(0.97)	(-0.94)	(-1.27)
Offline Store	**1.426***	0.702***	0.009	0.048
	(3.38)	(4.26)	(0.08)	(0.42)
Word of Mouth	**1.139***	**0.859***	**0.518***	0.472***
	(2.72)	(4.06)	(4.11)	(3.81)
Professional	0.395	0.343**	**0.551***	**0.587***
Recommendation	(1.34)	(2.11)	(4.74)	(4.80)
Gender	0.374	-0.240	-0.524**	-0.354
	(0.95)	(-0.80)	(-2.15)	(-1.47)
Age	-0.830**	-0.206	0.156	0.098
	(-2.34)	(-0.85)	(0.79)	(0.49)
City level	-0.362	-0.122	-0.054	-0.039
	(-1.52)	(-0.63)	(-0.31)	(-0.23)
Education	-0.422	-0.194	-0.000	0.150
	(-1.39)	(-0.99)	(-0.00)	(1.02)
Income	0.089	-0.049	-0.100	-0.154**
	(0.66)	(-0.51)	(-1.28)	(-1.98)
Married	0.740*	0.573	0.051	-0.024
	(1.70)	(1.46)	(0.17)	(-0.08)
Decoration level	-0.378	-0.465*	-0.289	-0.433**
	(-0.99)	(-1.79)	(-1.48)	(-2.08)
Experience	Omitted	Omitted	Omitted	Omitted

Decision cycle	-0.233	-0.599***	-0.046	0.029
	(-1.25)	(-3.96)	(-0.44)	(0.27)
Brand attention	0.068	0.043	-0.001	-0.022
	(0.93)	(0.66)	(-0.02)	(-0.41)
Channel number	Omitted	Omitted	Omitted	Omitted
Constant	5.882**	4.086**	1.417	1.559
	(2.10)	(1.99)	(0.89)	(1.00)
Observations	416	416	416	416

Note: Robust z-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

5.2.4 Inexperienced small-town consumers

Consumers in Group 4 primarily reside in Tier 3 and Tier 4 cities, limiting their access to various information channels, such as physical chain stores, compared to other groups. Their information channels are relatively simplistic. As house building and decoration are crucial for them and their decoration budgets are limited, they tend to undertake the decoration process themselves. Simultaneously, these small-town amateurs place great importance on relationships and the opinions of their relatives. They also heavily rely on painter recommendations for paint purchase decisions due to their lack of home renovation experience. In summary, they maintain a strong reliance on recommendations from relatives and friends throughout the entire decision journey, as shown in

Table 5-7.

Table 5-7 Regression Results for Group 4 Consumers

	(1)	(2)	(3)	(4)
VARIABLES	Awareness	ICS	Purchased	PI
Traditional Media	0.156	0.297	0.144	0.214
	(0.65)	(1.47)	(0.83)	(1.25)
Digital Media	0.243	0.194	-0.072	-0.029
	(0.77)	(0.72)	(-0.31)	(-0.14)
E-commerce	0.358	0.438**	0.234	0.187
	(1.22)	(2.12)	(1.24)	(0.96)
Offline Store	0.302	0.321	0.339*	0.514***
	(1.17)	(1.45)	(1.72)	(3.06)
Word of Mouth	**0.898***	**0.801***	**0.986***	**0.809***
	(3.35)	(3.71)	(4.51)	(3.79)
Professional	0.209	0.422**	**0.524***	**0.608***
Recommendation	(0.93)	(1.98)	(2.90)	(3.46)
Gender	-0.189	0.117	0.013	0.107
	(-0.52)	(0.36)	(0.04)	(0.32)
Age	0.149	0.146	-0.288	0.038
	(0.77)	(0.73)	(-1.42)	(0.18)
City level	1.839***	0.520	0.165	0.138
	(3.84)	(1.44)	(0.46)	(0.39)
Education	0.076	-0.012	-0.052	-0.055
	(0.31)	(-0.06)	(-0.23)	(-0.25)
Income	0.117	0.133	-0.046	0.044
	(0.80)	(0.98)	(-0.37)	(0.35)
Married	-1.819*	-0.799	-0.474	-0.726
	(-1.79)	(-1.36)	(-0.83)	(-1.23)
Decoration level	0.190	-0.256	0.049	0.118
	(0.52)	(-0.74)	(0.14)	(0.31)
Experience	Omitted	Omitted	Omitted	Omitted

Decision cycle	0.042	-0.026	0.060	-0.007
	(0.21)	(-0.15)	(0.35)	(-0.04)
Brand attention	0.017	0.006	0.011	0.041
	(0.20)	(0.07)	(0.15)	(0.56)
Channel number	Omitted	Omitted	Omitted	Omitted
Constant	-0.202	1.474	1.226	0.319
	(-0.05)	(0.50)	(0.44)	(0.12)
Observations	231	231	231	231

Note: Robust z-statistics in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

5.3 Markov Chain and Removal Effect Analysis

5.3.1 Markov graph

Figure 5-1 depicts the Markov chain for all survey samples. Each node represents a state, with its size indicating the weighted in-degree. A higher weighted in-degree for a node signifies a greater probability of transitioning to that state from other states. The directed edge size also represents the transition probability between two states. For the detailed transition matrix, please refer to Appendix IV.

This study concentrates on three primary CDJ stages: 1) formation of consumers' initial consideration sets; 2) active evaluation; and 3) final purchase decision-making. During the first stage, WOM and DM hold greater importance for consumers' initial consideration set formation than other channels. Based on the directed edge sizes, we observe that consumers initially turn to WOM and DM. PR also serves as a crucial information channel, with high transition probabilities between DM, WOM, and PR at this stage. As consumers initiate active evaluation, WOM and PR play the most significant roles. OS aids consumers in their final purchases, regardless of product brand, during both the second and third stages. Likewise, WOM and PR prove essential for consumers' purchase decision-making.
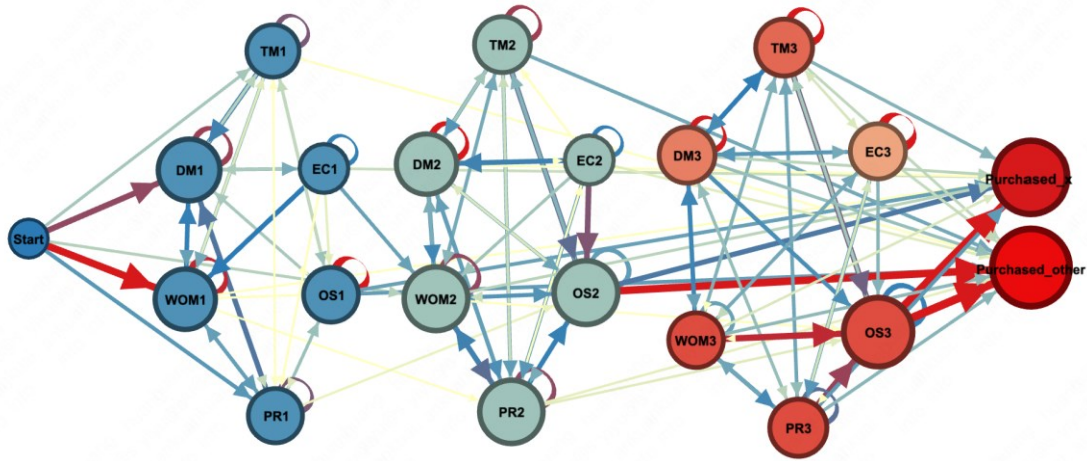
Figure 5-1 Markov Chain Graph

Note: Only the edges with a weight greater than 0.05 are kept.

The colour bar reflects the intensity of transition probability.

5.3.2 Removal effects of individual information channel

The results of the removal effects for the six main information channels are displayed in Table 5-, aligning with the logit regression results shown in Table 5-1. More importantly, we further discern the contribution of information channels at each stage using removal effects, as demonstrated in Table 5-, which mostly supports my Proposition 2. Throughout the entire journey, we can directly compare the removal effects of each "CDJ stage-information channel" paired state. Generally, when considering individual states, WOM_1 has the most significant contribution to the holistic journey, with a value of 0.184. The second most important information channel is DM_1, with a removal effect of 0.173. Thus, initial WOM and DM leave a strong impression on consumers. Additionally, WOM_2 and PR_2 play roles in the entire journey, with removal effects of 0.13 and 0.124, respectively.

For each stage, consistent with the graph results in Figure 5-1, WOM and DM contribute the most to consumers' formation of initial consideration sets, followed by PR. WOM, OS, and PR greatly influence consumers' active evaluation. OS has the most significant impact on consumers' purchase decision-making, with WOM and PR

exerting smaller effects. Consequently, results from Markov removal effects align with Proposition 2a and Proposition 2c. However, the results also show that WOM remains more critical than OS and PR during active evaluation. Consumers predominantly rely on WOM when assessing product attributes, as it aids in evaluating quality among brands for experience durable goods. This suggests that WOM, as an information channel, is not only accessible and discernible but also more trustworthy than OS and PR, given that acquaintances' opinions are deemed more reliable than those of store sales personnel or industry professionals, whose interests may not entirely align with consumers'.

Similar to the logit regression results, WOM is the most crucial information channel in all of the decision-making stages, with PR also playing an important role. Nonetheless, the significance of OS and DM should not be overlooked, as they help consumers engage with and practically evaluate experience durables, while DM provides easily accessible information.

In general, DM and WOM are accessible and economical sources of information for forming initial consideration sets in the first stage. During the second stage, visiting OS to see and touch real products and receiving input from store promoters helps reduce the gap in assessing product quality and diminish uncertainty before purchase. WOM and professional recommendations also aid in alleviating product uncertainty. In the final stage, OS plays the most critical role for experience durables by allowing consumers to obtain additional information, such as final colour finishing results, required complimentary products, delivery, and application services, ultimately facilitating purchase decisions.

Table 5-8 Removal Effect of information channels' impacts on purchase.

	Removal Effect	Removal Effect in %
TM	0.1672	11.45%
DM	0.2779	19.04%
EC	0.1148	7.86%
OS	0.2779	19.04%
WOM	0.3418	23.41%
PR	0.2803	19.20%
Total	**1.4599**	**100.00%**

Table 5-9 Contribution of each information channel

CDJ Stage	State	Removal effect
Consumers' formation of initial consideration set	TM1	0.087
	DM1	0.173
	EC1	0.063
	OS1	0.065
	WOM1	0.184
	PR1	0.120
Consumers' active-evaluation	TM2	0.063
	DM2	0.098
	EC2	0.039
	OS2	0.115
	WOM2	0.130
	PR2	0.124
Consumers' final purchase decision-making	TM3	0.039
	DM3	0.036
	EC3	0.024
	OS3	0.112
	WOM3	0.061
	PR3	0.054

5.3.3 Removal effects of information channel combination

First, I calculate the removal effect for situations where consumers engage with one or another information channel in combination, as shown in Appendix Table A-5. This approach allows us to compare the importance of information channel combinations with their individual significance. Generally, the removal effect of

combinations is higher than that of individual information channels in each CDJ stage, consistent with the significant complementary effect between two information channels.

Next, to determine the net complementary effect of information channel combinations, I calculated the removal effect for situations where consumers interact with both information channels in the combination. As shown in Table 5-9, the "DM+WOM" combination holds the utmost importance in the stage of forming the initial consideration set, with an integrated removal effect of 0.0844. In the stage of active evaluation, "WOM+PR" combination plays the most significant role with an integrated removal effect of 0.0656. In stage three, just before consumers make a purchase, "OS+WOM" is the most influential information channel, followed by "OS+PR" and "WOM+PR". In short, the information channel combinations of any two of OS, WOM, and PR are the most influential channel mixes at this stage.

Table 5-10 Removal effect of information channel combinations

Combinations	Stage 1	Stage 2	Stage 3
TM+DM	0.0303	0.0287	0.0197
TM+EC	0.0131	0.0082	0.0107
TM+OS	0.0254	0.0287	0.0197
TM+WOM	0.0451	0.0303	0.0189
TM+PR	0.027	0.0344	0.0172
DM+EC	0.0311	0.0139	0.0131
DM+OS	0.0344	0.0311	0.018
DM+WOM	**0.0844**	0.0426	0.0213
DM+PR	0.0557	0.0467	0.0156
EC+OS	0.0164	0.0172	0.0115
EC+WOM	0.0287	0.0172	0.0156
EC+PR	0.027	0.0213	0.0098
OS+WOM	**0.0311**	**0.0525**	**0.0295**
OS+PR	0.0287	**0.0533**	**0.0238**
WOM+PR	**0.059**	0.0656	**0.0254**
Total	**0.5374**	**0.4917**	**0.2698**

Chapter 6   Discussion

Using existing marketing survey data from the paint brand X, I empirically examined the impacts of information channels on experience durable goods purchases based on the consumer decision journey theory. Results from both logit regression (Table 5-1) and the Markov model (Table 5-) consistently demonstrate that word-of-mouth (WOM) is the most influential information channel for experience durable goods purchases. Yang et al. (2012) suggest that WOM is the most cited and effective form of communication in influencing consumers. In line with previous research, I find that WOM plays the most crucial role in the initial consideration set and active evaluation stages, and remains the second most important factor even right before purchase.

Professional recommendation (PR) is the second most important channel for purchases. As shown in Table 5-, it ranks second in the active evaluation stage when consumers are highly involved in comparing brands within the consideration set and thus seek professional recommendations. Since consumers require further design, installation, and application services from professionals, PR is important and holds the third most important role in both the initial consideration set and moments right before purchase.

E-commerce (EC) is the least important channel according to both results and has no significant impact on purchases based on logit regression. Due to the nature of experience durable goods, which are difficult to assess in terms of quality before purchase and involve high financial risk, very few purchases are made online. Only 2% of sales for Brand X are generated through e-commerce platforms.

Traditional media (TM) has a positive and significant impact on purchases. TM is one of the information channels that build brand awareness, which is the first input when consumers start their internal search to form an initial consideration set. Due to the limited information provided by TM, which is not sufficient when consumers increase their involvement and undertake central route persuasion, TM has a low

influence in the active evaluation stage in the CDJ. Therefore, TM is the second least important channel based on both logit regression and Markov Chain results.

Digital media (DM) and offline stores (OS) have similar importance for purchases according to the Markov Chain results in Table 5-. Although both are positive and significant for purchases, DM plays a more significant role than OS based on logit regression results. Examining the consumer journey in Table 5-, DM has a more substantial influence than OS in the early stage of the CDJ (initial consideration set). In contrast, OS plays a more critical role than DM from active evaluation onwards and holds the most important role at the stage right before purchase. This is because experience durable goods have fewer digital attributes that consumers can assess through DM, and they require physical interaction with the product in OS from active evaluation onwards to reduce uncertainty about product quality before making a purchase. As technology continues to develop, more attributes of experience durables will likely be available online, and we may expect DM to become even more important in influencing purchases.

Regarding the complementary effect of information channel combinations, the results of removal effect combinations show that combinations involving WOM are dominant at each stage. As shown in Table 5-, the combination of "DM+WOM" has the most significant importance in the stage of forming the initial consideration set. The combination "WOM+PR" plays the most prominent role in the active evaluation stage, and "OS+WOM" is the most influential mix in the final decision stage. We also observe that information mixes containing OS are the most influential in affecting consumers' purchase decisions right before purchase. My Proposition 3 is thus supported.

In summary, this study empirically explored and validated the importance of each information channel at different stages by disentangling the black box of consumers' purchase decision journey for experience durable goods. The research results show that WOM is the most important information channel influencing consumers' decisions. Furthermore, DM is the second most important channel for the initial consideration set,

while PR and OS become more critical as consumers proceed further into active evaluation. OS has the most significant effect at the moment right before purchase.

6.1 Managerial Implication

Our research findings hold significant implications for marketing and managerial professionals, particularly in the experience durable goods industry. The effects of information channels on consumer decisions at each stage of the Consumer Decision Journey (CDJ) enhance understanding of dynamic purchasing behaviour in an information-rich environment. Moreover, the heterogeneous and synergistic effects of information channels offer invaluable guidance for devising optimal advertising mix strategies during critical stages of the CDJ. This enables interaction with target consumers and tailoring communication mixes for distinct groups to maximize advertising investment returns within budget constraints.

Building brand awareness and preference is crucial, as it encourages consumers to consider the brand during need formation. Our logit regression results reveal that word-of-mouth (WOM) is the most important channel for building brand awareness, followed by offline stores (OS). WOM primarily involves informal communication between individuals about their evaluations of products or services, encompassing the holistic experience from purchase to after-sales service. For experience durable goods marketers, every touchpoint is vital in accumulating positive consumer experiences, as consumers make such purchases very infrequently. Developing and reinforcing WOM drivers will be a continuous effort for marketers.

For emerging experience durable goods marketers, OS is an optimal starting point for marketing activities. Regression results indicate that OS is the second most important channel for building brand awareness, particularly among young, educated, and inexperienced high-end consumers. Although OS's effect on brand awareness for low-educated and low-end consumers is insignificant, it likely has an impact on all groups. The insignificance may result from the scarcity of OS in Tier 3 and Tier 4 cities.

Markov removal effect results also highlight the increasing importance of OS in later CDJ stages, culminating as the most influential channel immediately before purchasing experience durable goods.

Offline stores are essential for both new and existing brands of all sizes, as they allow consumers to see, touch, try, and test products and engage in Q&A sessions and product demonstrations with sales staff and store owners. For experience durables that require installation and application, it is crucial to exhibit the final product layout in offline stores. Detailed demonstrations, testing, and effective interaction in OS can reduce associated risks and uncertainties. Implementing training and incentive programs for sales staff and store owners is critical as well, as they serve as brand ambassadors that influence consumer decisions. In addition to assessing product features, quality, price, delivery, complementary products, and required services, consumers must also be assured of after-sales service in OS for experience durables purchases.

PR is the second most influential channel for experience durable goods purchases. While it has no significant impact on brand awareness, it becomes increasingly important during the formation of consumers' consideration sets and active evaluations in the CDJ, applying to all consumer groups as per our clustering analysis. Paint brands like Brand X are part of the home and architectural renovation industry where consumers typically purchase design, application (painting), and installation services along with products, referred to as design and contract (D&C). Consumers' choices of related products are strongly influenced by PR during these service purchases.

Furthermore, the growing trend of professionals offering service-plus-product packages simplifies consumer decision-making by reducing uncertainty. Brands and products included in these packages are pre-selected by professionals. Experience durable companies should consider incorporating professional services into product design, emphasizing appealing design elements, effortless installation, product availability, comprehensive technical support, and robust problem-solving services

during the process. To engage professionals, companies can develop various programs such as training, credit provision, and brand loyalty initiatives for using or recommending products to consumers. Implementing engagement programs targeting professionals is essential for experience durable goods manufacturers, regardless of their size, market position, or brand maturity.

Our research results also demonstrate that DM significantly impacts brand awareness at every stage of the CDJ. According to both logit regression and Markov removal effect analyses, DM ranks second in influencing consumers' formation of initial consideration sets. However, DM usage varies among consumer groups identified through clustering analysis. Experienced consumers tend to rely on DM for brand awareness at all CDJ stages, as they have prior experience and understand the attributes and criteria for evaluating brands and products. Conversely, DM has no significant effect on low-educated and low-end consumers due to limited internet penetration in Tier 3 and Tier 4 cities and lower skill levels in acquiring information through DM. Apart from brands' own websites, new formats and applications, including social media and category-focused vertical websites, are emerging online. These platforms allow motivated consumers and those gathering information for their purchase decisions to read, discuss, and share product information and experiences. Marketers should create and share relevant content while actively engaging with users seeking information.

Prior to the popularization of the internet, the industry consensus was that traditional media (TM) could effectively raise brand awareness. It is well known that early TV viewers have now shifted a considerable amount of TV viewing time to various DM platforms, and newspapers and magazines have also moved to digital formats. The empirical results from this study, however, indicate that TM still significantly impacts brand awareness, contributing 11.45% to purchases among information channels according to Markov removal effect analysis. Radio and outdoor advertising have also maintained stable positions, as constant urban traffic jams have

increased the listenership of car radio and improving living standards have led to more frequent and more diversified outdoor activities. Marketers with ample resources can incorporate TM into their marketing campaigns for brand awareness building. Small or new brands can start with offline stores (OS) alongside professional loyalty programs and location-based TM. Offering OS for consumer trials and testing, engaging professionals to drive PR, and increasing brand visibility in the short term will help accumulate organic word-of-mouth (OWM) for long-term success.

While e-commerce (EC) has the least impact on experience durable goods purchases in our research, the transition from offline to online or hybrid purchasing for search goods with digital attributes underscores the need to leverage technology to reduce uncertainty and facilitate online purchases of experience durable goods.

Marketers usually form a mix of information channels in their marketing initiatives to increase impact on consumers' choices. WOM, the most important channel leading to consumer purchases of experience durable goods, requires continuous and cumulative efforts to build. As firms have limited resources to invest in all information channels, marketers should instead strategically combine OS, PR, and DM at different CDJ stages in addition to WOM. Marketers should use PR+DM when forming initial consideration sets, OS+PR for active evaluation, and OS+PR immediately before consumers purchase products.

Experience durable goods are typically characterized by long purchase intervals, difficulty in assessing quality before purchase, high risk in decision-making, and consumer cautiousness. Marketers must seize opportunities to influence consumer decisions throughout the decision-making process. Brand X's internal research reveals that the typical paint purchase decision cycle lasts 9.1 days, with varying roles and significance for different information channels in facilitating consumer decisions. Consequently, marketers should analyse consumer purchasing behaviours and determine the most critical information channels and content at each Consumer Decision Journey (CDJ) stage to optimize positioning and drive purchase decisions.

The foremost task for marketers is continuous investment in the right channels to influence consumer choices. However, with finite resources, marketers must select the most effective channel mix for marketing investment based on their company size and resources to impact consumer decisions in the CDJ process. For experience durable goods, initial efforts should focus on offline stores.

6.2 Theoretical Contribution

To my knowledge, this study represents one of the first empirical investigations into the impact of information channels on experience durable goods purchase decision-making, with a threefold theoretical contribution.

First, it expands our understanding of consumer information search and usage behaviour in the era of the internet and new media. While numerous studies have examined consumer product consideration set formation and its influence on final purchase decisions, most have treated decision-making as a linear, funnel-like process (Lindsay et al., 2003; Hudson & Thal, 2013; Choi, 2020). However, the omnichannel environment has rendered the consumer decision process more flexible and complex, necessitating further research to capture the dynamic nature of the consumer decision journey and the impact of different information channels (Court et al., 2009; Edelman and Singer, 2016; Lemon and Verhoef, 2016). Addressing this gap in the literature, this study employs a more intricate and cyclical CDJ framework combined with the Elaboration Likelihood Model (ELM) to better explain contemporary consumer behaviour. With regression and Markov chain methods, which are inherently dynamic, the study captures the effects of various information channels while considering consumer stage objectives and the accessibility-diagnosticity of the different channels.

Specifically, this paper, in conjunction with the CDJ theory, unravels the black box of the consumer decision journey. It emphasizes three primary stages: initial consideration set formation, active evaluation, and final purchase decision-making (Court et al., 2009). However, to effectively reach target consumers through diverse

information channels, it is crucial not to focus solely on their decision-making process when purchase demand is generated. Instead, it is essential to subtly influence and shape consumers' minds, particularly with regard to brand awareness, before they form specific intentions. Brand awareness plays a significant role in forming consumers' initial consideration sets. Consequently, this study supplements the CDJ theory by proposing that brand awareness serves as an antecedent to the consumer decision journey, fundamentally affecting consumer considerations.

More importantly, this study meticulously examines consumers' decision reasoning processes in light of information channel influences based on the ELM framework (Petty and Cacioppo, 1986). ELM distinguishes between the peripheral and central routes in the persuasive communication process, with key factors including consumers' interests and demands, active involvement, and information processing abilities (Wang et al., 2009; Lee, Chen, and Ilie, 2012). In this study, I proposed that before consumers develop specific interests in a product or brand, they tend to adopt a peripheral route approach to form their brand awareness. Furthermore, information channels with higher accessibility inadvertently generate consumers' brand awareness, such as digital media. Once consumers develop demand and interest, they initiate the brand purchase decision process and engage the central route.

On the central route, consumers carefully consider the objectives of each stage in the CDJ and the characteristics of different information channels, while simultaneously accumulating brand-related knowledge and information-processing abilities over time. Specifically, during the initial stage of forming the initial consideration set, consumers aim to quickly familiarize themselves with product-related information. Word-of-mouth and digital media are easily accessible, and interpersonal communications with friends and relatives offer greater perceived diagnosticity. During the active evaluation stage, professional recommendations and offline stores provide consumers with more advanced information to facilitate detailed investigation. When making final purchase

decisions, consumers prefer to visit offline stores to interact with physical products, reducing risk through high involvement.

In short, this paper expands the traditional CDJ theory by introducing an antecedent, namely consumers' brand awareness. The study effectively combines the ELM framework and the CDJ theory, using them complementarily to illuminate consumers' information searching behaviours and objectives during the staged decision-making process.

Second, this study further explored the heterogeneity and interaction effects of information channels on purchase decision-making. While previous literature has examined interactive effects, such as spillover, carryover, and synergy in marketing media and online/offline retailers (Naik and Raman, 2003; Todri-Adamopoulos, 2016; Köhler et al., 2017; Chang et al., 2018), the impact of information channels that are not initiated by companies has largely been overlooked. Such channels are gaining increasing power to affect consumers' purchase decisions. The primary empirical method used in these previous studies has also solely been regression. To address these gaps, this paper considers information channels initiated by customers and third parties, and uses a more dynamic Markov chain method to examine the interactive effects of information channel combinations. This approach can provide inspiration for further study. Additionally, the method of clustering is leveraged to identify the most influential characteristics of customers on search behaviour and channel preference throughout their purchase journey.

Finally, this study also contributes to the limited literature on consumers' purchase decision-making for experience durable goods. The decision-making process for durables is more information-intensive due to their low frequency and high cost, requiring a more rational approach. Many scholars have attempted to understand consumers' behaviour and to predict the timing of their durable goods purchases (Lansing, 1955; Raymond et al., 1993; Guiltinan, 2010). However, most studies have focused on search durables, whose attributes can be well understood before the final

purchase, such as automobiles, rather than experience durables that consumers can only evaluate through physical trials (Nelson, 1974; Weathers & Makienko, 2006). This study addresses the gap in the literature by exploring the usage and effects of information channels throughout the purchasing process of experience durables, which meets consumers' great need for information when they make a purchase choice of such goods.

6.3 Limitations and Future Research

Nonetheless, this paper has certain limitations that warrant further exploration in future research.

First, data was gathered via a questionnaire in collaboration with Brand X, which relies on consumers' recollection of their past experiences. Memory bias may arise if participants struggle to accurately recall previous purchasing experiences. A potential complementary approach is to conduct laboratory experiments that simulate real purchase processes and gather immediate feedback on consumer behaviour.

Second, the circularity of consumers' decision journeys - specifically, the influence of past experiences and search behaviours on new purchase decisions - was not formally assessed. Given the long-lasting nature of experience durable goods, future purchases remain distant. As such, the study focuses on the overall impact on future purchases without considering the connections between different stages. Future research could employ more robust methods to elucidate the links between these stages.

Third, the customer clustering primarily relied on demographic data. However, consumers may prioritize various paint attributes, such as price, quality, environmental impact, and performance, based on their experiences. Incorporating these factors could enhance the accuracy of customer segmentation.

Lastly, while the most efficient combination of information channels was identified from an information conversion perspective, additional complexities, such as the input-output ratio, should be considered in real-world applications. The returns on specific

information combinations may be less than the required investment, emphasizing the need to evaluate net benefits when applying these findings in practice.

Chapter 7 Conclusion

This study focused on the experience durable goods market and empirically investigates the impact of information channels across various stages of the consumer decision journey using a unique dataset from a leading paint firm. I employed regression analysis to examine the holistic effects of different information channels on consumers' consideration set changes and final purchase decisions. The findings reveal that non-firm-controlled information channels, including word-of-mouth recommendations, online reviews, and third-party professional recommendations, are the most influential for consumers' brand awareness, evaluation, purchase decisions, and future purchase intentions. These channels largely stem from consumers' post-purchase experiences and have grown significantly due to the proliferation of new media. Traditional marketing approaches, such as advertising through traditional media and physical stores, also encourage consumers to purchase but with lower effectiveness, while brand's online stores primarily influence the evaluation stage of decision-making.

I have also investigated the heterogeneous effects of information channels among different consumer groups, characterized by demographic information and identified through clustering. Surprisingly, descriptive analysis and regression results indicate that consumers' search behaviours across information channels do not necessarily correspond to the channels' effectiveness. The findings reveal that higher-income consumers are more likely to be influenced by various non-firm-controlled information channels, while inexperienced consumers search more and are influenced by offline stores in terms of brand awareness and evaluation. However, for educated young consumers and less-educated consumers with lower income, both groups are influenced by relatively fewer information channels, primarily by recommendations from acquaintances or professionals. Educated young consumers search significantly more than less-educated, low-end consumers.

Furthermore, I have modelled consumers' use of information channels throughout the entire decision-making process to better understand how each channel and their

combinations dynamically influence the consumer decision journey. I found that customer-initiated information channels, such as word-of-mouth, play a crucial role in most stages. Digital media, professional recommendations, and offline stores have greater effects when combined with word-of-mouth during the initial consideration, active evaluation, and final purchase stages, respectively.

References

Akalamkam, K., & Mitra, J. K. (2018). Consumer Pre-purchase Search in Online Shopping: Role of Offline and Online Information Sources. Business Perspectives and Research, 6(1), 42–60.

Akerlof, G. (1970). The Market for 'Lemons': Quality Uncertainty and the Market Mechanism. Quarterly Journal of Economics. 84(3), 488–500.

Anderl, E., Becker, I., Wangeheim, F., & Schumann, J. (2016). Mapping the customer journey: Lessons learned from graph-based online attribution modelling. International Journal of Research in Marketing, 33(3).

Antonides, G. (1991). An economic-psychological model of scrapping behavior. Journal of Economic Psychology, 12(2), 357–379.

Archak, N., Mirrokni, V. S., & Muthukrishnan, S. (2010). Mining advertiser-specific user behavior using adfactors. In Proceedings of the 19th international conference on World wide web (pp. 31-40).

Asadabadi, M. R. (2017). A customer-based supplier selection process that combines quality function deployment, the analytic network process and a Markov chain. European Journal of Operational Research, 263(3), 1049-1062.

Assael, H. (2011). From Silos to Synergy: A Fifty-year Review of Cross-media Research Shows Synergy Has Yet to Achieve its Full Potential. Journal of Advertising Research, 51(150th Anniversary Supplement), 42–58.

Bag, S., Tiwari, M. K., & Chan, F. T. S. (2019). Predicting the consumer's purchase intention of durable goods: an attribute-level analysis. Journal of Business Research, 94(JAN.), 408-419.

Barry, T. E., & Howard, D. J. (1990). A Review and Critique of the Hierarchy of Effects in Advertising. International Journal of Advertising, 9(2), 121-135.

Barwitz, N., & Maas, P. (2018). Understanding the omnichannel customer journey: determinants of interaction choice. Journal of Interactive Marketing, 43(AUG), 116-133.

Batra, R., & Keller, K. L. (2016). Integrating Marketing Communications: New Findings, New Lessons, and New Ideas. Journal of Marketing, 80(6), 122–145.

Beatty, S., & Smith, M. S. (1987). External Search Effort: An Investigation Across Several Product Categories. Journal of Consumer Research, 14(1), 83-95.

Bettman, J. R. (1979). Memory factors in consumer choice: a review. Journal of Marketing, 43(2), 37-53.

Bhatnagar, A., & Ghose, S. (2004). A latent class segmentation analysis of e-shoppers. Journal of Business Research, 57(7), 758–767.

Borah, A., & Tellis, G. J. (2016). Halo (Spillover) Effects in social media: Do product recalls of one brand hurt or help rival brands? Journal of Marketing Research, 53, 143–160.

Bronnenberg, B. J., Kim, J. B., & Mela, C. F. (2016). Zooming In on Choice: How Do Consumers Search for Cameras Online? Marketing Science (Providence, R.I.), 35(5), 693–712.

Bruyn, A. D., & Lilien, G. L. (2008). A multi-stage model of word-of-mouth influence through viral marketing. International Journal of Research in Marketing, 25(3), 151-163.

Bureau of Economic Analysis. Chapter 5: Personal Consumption Expenditures. Overview of source data and estimating methods (bea.gov). Retrieved Jan. 28, 2022.

Cacioppo, J. T. , & Petty, R. E. . (1984). The elaboration likelihood model of persuasion. Advances in Consumer Research, 19(4), 123-205.

Carter, R.E., & Curry, D.J. (2013). Perceptions versus performance when managing extensions: new evidence about the role of fit between a parent brand and an extension. Journal of the Academy of Marketing Science, 41(2), 253-269.

Cassab, H., & MacLachlan, D. L. (2009). A consumer-based view of multi-channel service. Journal of Service Management, 20(1), 52–75.

Chang, Y. W., Hsu, P. Y., & Yang, Q. M. (2018). Integration of online and offline channels: a view of O2O commerce. Internet Research, 28(4), 926-945.

Chang, Y. & Thorson, E. (2004). TELEVISION AND WEB ADVERTISING SYNERGIES. Journal of Advertising, 33(2), 75–84.

Chen, Teng, L., Yu, Y., & Yu, X. (2016). The effect of online information sources on purchase intentions between consumers with high and low susceptibility to informational influence. Journal of Business Research, 69(2), 467–475.

Court, D., Elzinga, D., Mulder, S., & Vetvik, O. J. (2009). The consumer decision journey. McKinsey Quarterly, 3(3), 1-11.

Coase, R. (1972). Durability and Monopoly. Journal of Law and Economics, 15(1), 143–49.

Cowley, E., & Mitchell, A. A. (2003). The moderating effect of product knowledge on the learning and organization of product information. Journal of consumer research, 30(3), 443-454.

Danaher, J. P., & Dagger, S. T. (2013). Comparing the Relative Effectiveness of Advertising Channels: A Case Study of a Multimedia Blitz Campaign. Journal of Marketing Research, 50(4), 517-534.

Darby, M. R., & Karni, E. (1973). Free Competition and the Optimal Amount of Fraud. Journal of Lawand Economics, 16(1), 67-88.

de Kluyver, A. C., & Brodie, J. R. (1987). Advertising-versus-marketing mix carryover effects: An empirical evaluation. Journal of Business Research, 15(3), 269-287

Du Plessis, P. J., Rousseau, G. G., & Blem, N. H. (1991). Consumer behaviour. A South African perspective Pretoria, Sigma.

Engel, J. F., Blackwell, R. D., & Miniard, P. W. (1986). Consumer behaviour (5th ed.) New York: The Dryden Press.

Enoch, G., & Johnson, K. (2010). Cracking the cross-media code: How to use single-source measures to examine media cannibalization and convergence. Journal of Advertising Research, 50(2), 125-136.

Farah, M. F., Ramadan, Z. B., & Harb, D. H.. (2019). The examination of virtual reality at the intersection of consumer experience, shopping journey and physical retailing. Journal of Retailing and Consumer Services, 48(MAY), 136-143.

Feldman, M. J., & Lynch, G. J. (1988). Self-generated validity and other effects of measurement on belief, attitude, intention, and behavior. Journal of Applied Psychology, 73(3), 421-435.

Følstad, A., & Kvale, K. (2018). Customer journeys: a systematic literature review. Journal of Service Theory and Practice, 28(2).

Fornari, E., Fornari, D., Grandi, S., Menegatti, M., & Hofacker, C. F. (2016). Adding store to web: Migration and synergy effects in multi-channel retailing. International Journal of Retail and Distribution Management, 44(6), 658–674.

Gao, X. H., Melero, I., Sese, F. J. (2019). Multichannel integration along the customer journey: a systematic review and research agenda. Service Industries Journal, 40(1), 1-32.

Gerrita, V. D. V., & Van Ossenbruggen, R.. (2015). Mapping out the customer's journey: customer search strategy as a basis for channel management. Journal of Marketing Channels, 22(3), 202-213.

Ghose, A. , & V Todri-Adamopoulos. (2016). Toward a digital attribution model: measuring the impact of display advertising on online consumer behavior. MIS Quarterly, 40(4), 889-910.

Giannetti, V., & Srinivasan, R. (2021). The cloud and its silver lining: negative and positive spillovers from automotive recalls. Marketing Letters, 32(4), 1-13.

Girard, T., & Dion, P. (2010). Validating the Search, Experience, and Credence Product Classification Framework. Journey of Business Research, 63(9-10), 1079-1087.

Godes. (2017). Product Policy in Markets with Word-of-Mouth Communication. Management Science, 63(1), 267–278.

Godey, B., Manthiou, A., Pederzoli, D., Rokka, J., Aiello, G., Donvito, R., & Singh, R. (2016). Social media marketing efforts of luxury brands: Influence on brand equity and consumer behaviour. Journal of Business Research, 69(12), 5833-5841.

Grewal, Mehta, R., & Kardes, F. R. (2004). The Timing of Repeat Purchases of Consumer Durable Goods: The Role of Functional Bases of Consumer Attitudes. Journal of Marketing Research, 41(1), 101–115.

Guiltinan. (2010). Consumer durables replacement decision-making: An overview and research agenda. Marketing Letters, 21(2), 163–174.

Gower J C. A general coefficient of similarity and some of its properties[J]. Biometrics, 1971: 857-871.

Greenwood, Seshadri, A., & Yorukoglu, M. (2005). Engines of Liberation. The Review of Economic Studies, 72(1), 109–133.

Haldar, S., & Rao, V. R. (1998). A micro-analytic threshold model for the timing of first purchases of durable goods. Applied Economics, 30(7), 959–974.

Hem, L.E., de Chernatony, L. & Iversen, N.M. (2003). Factors influencing successful brand extensions, Journal of Marketing Management, 19(7-8), 781-806.

Herhausen, D., Kleinlercher, K., Verhoef, P. C., Emrich, O., & Rudolph, T. (2019). Loyalty Formation for Different Customer Journey Segments. Journal of Retailing, 95(3), 9–29.

Holden, S. J., & Lutz, R. J. (1992). Ask not what the brand can evoke; ask what can evoke the brand?. ACR North American Advances.

Herr, P. M., Kardes, F. R., & Kim, J. (1991). Effects of word-of-mouth and product-attribute information on persuasion: An accessibility-diagnosticity perspective. Journal of consumer research, 17(4), 454-462.

Holmlid, S., & Evenson, S. (2008). Bringing Service Design to Service Sciences. Management and Engineering, 28(10), 341-345.

Hosseini, S., Merz, M., Roglinger, M., & Wenninger, A. (2018). Mindfully going omni-channel: An economic decision model for evaluating omni-channel strategies. Decision Support Systems, 109, 74–88.

Hoyer, W. D. (1984). An examination of consumer decision making for a common repeat purchase product. Journal of Consumer Research (3), 822-829.

Hu, T.-I., & Tracogna, A. (2020). Multichannel customer journeys and their determinants: Evidence from motor insurance. Journal of Retailing and Consumer Services, 54.

Huffman, C., & Barbara, E. K. (1998). Variety for Sale: Mass Customization or Mass Confusion. Journal of Retailing, 74(4), 491-513.

Hur´e, E., Picot-Coupey, K., & Ackermann, C. L. (2017). Understanding omni-channel shopping value: A mixed-method study. Journal of Retailing and Consumer Services, 39, 314–330.

Jacoby, J., & Fisher, C.. (1978). A behavioural process approach to information acquisition in nondurable purchasing. Journal of Marketing Research, 15(4), 532-544.

Jahn, B., & Kunz, W. H. (2012). How to transform consumers into fans of your brand. Journal of Service Management, 23(3), 344-361.

Janakiraman, R., Sismeiro, C., & Dutta, S. (2009). Perception spillovers across competing brands: adisaggregate model of how and when. Journal of Marketing Research, 46(4), 467-481.

J. Kitchen, P., Kerr, G., E. Schultz, D., McColl, R., & Pals, H. (2014). The elaboration likelihood model: review, critique and research agenda. European Journal of marketing, 48(11/12), 2033-2050.

Jayson, B., M. P., & Chen, Y. (2018). How Synergy Effects of Paid and Digital Owned Media Influence Brand Sales: Considerations for Marketers When Balancing Media Spend. Journal of Advertising Research, 58(1), 77–89.

Joo, M., Kenneth C. W., & Zhu, Y. (2016), Effects of TV advertising on keyword search. International Journal of Research in Marketing, 33(3), 508-523.

Kannan, P. K., Reinartz, W., & Verhoef, P. C. (2016). The path to purchase and attribution modeling: introduction to special section. International Journal of Research in Marketing, 33(3), 449-456.

Karimi, S., Papamichail, K. N., & Holland, C. P. (2015). The effect of prior knowledge and decision-making style on the online purchase decision-making process: a typology of consumer shopping behaviour. Decision Support Systems, 77(SEP.), 137–147.

Keeney, R. L. (1982). Decision analysis: an overview. Operations Research, 30(5), 803-838.

Kerr, G., & Kelly, L. (2019). Travel insurance: The attributes, consequences, and values of using travel insurance as a risk-reduction strategy. Journal of Travel & Tourism Marketing, 36(2), 191–203.

Kim, H., Jiang, J. C., & Bruce, N. I. (2020). Discovering Heterogeneous Consumer Journeys in Online Platforms: Implications for Networking Investment. Journal of the Academy of Marketing Science.

Kim, S. J., & Ratchford, T. B. (2012). Consumer Choice and Use of Multiple Information Sources for Automobile Purchases. International Journal of Electronic Commerce, 16(3), 7-39.

Klein, J. F., Zhang, Y., Falk, T., Aspara, J., & Luo, X. (2020). Customer journey analyses in digital media: exploring the impact of cross-media exposure on customers' purchase decisions. Journal of Service Management.

Klein, R. L., & Ford, T. G. (2003). Consumer Search for Information in the Digital Age: An Empirical Study of Prepurchase Search for Automobiles. Journal of Interactive Marketing, 17(3), 29-49.

Klein, R. L., & Lansing, J. B. (1955). Decisions to Purchase Consumer Durable Goods. Journal of Marketing, 20(2), 109–132.

Kline, J. P. (1998). Another opening in the explanatory gap. Consciousness & Cognition, 7(2), 185-9.

Kohli, R., Devaraj, S., & Mahmood, M. A. (2004). Understanding determinants of online consumer satisfaction: a decision process perspective. Journal of Management Information Systems, 21(1), 115-136.

Konuş, U., Verhoef, P.C., & Neslin, S.A. (2008). Multichannel shopper segments and their covariates. Journal of Retailing, 84(4), 398–413.

Kulkarni, A., Dumais, T. S., Teevan, J., & Svore, M. K. (2012). Creating temporally dynamic web search snippets. ACM SIGIR conference on research and development in information retrieval.

Lal, R., & Sarvary, M. (1999). When and How Is the Internet Likely to Decrease Price Competition? Marketing Science, 18(4), 485-503.

Lamb, C., Hair, J., & McDaniel, C. (2013). MKTG 7. Cengage Learning.

Lavidge, J. R., & Steiner, A. G. (1961). A Model of Predictive Measurements of Advertising Effectiveness. Journal of Marketing, 25(6), 59-62.

Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. Journal of Marketing, 80(6), 69-96.

Leone, P. R. (1995). Generalizing What Is Known About Temporal Aggregation and Advertising Carryover. Marketing Science 14(3), 141-141.

Lesscher, L., Lobschat, L., & Verhoef, P. C. (2021). Do offline and online go hand in hand? Cross-channel and synergy effects of direct mailing and display advertising. International Journal of Research in Marketing, 38(3), 678–697.

Lee, Y., Chen, A. N., & Ilie, V. (2012). Can online wait be managed? The effect of filler interfaces and presentation modes on perceived waiting time online. Mis Quarterly, 365-394.

Li, A., & Kannan, P. K. (2014). Attributing Conversions in a Multichannel Online Marketing Environment: An Empirical Model and a Field Experiment. Journal of Marketing Research, 51(1), 40-56.

Li, H. A., & Kannan, P. K. (2017). Digital marketing: a framework, review and research agenda. International Journal of Research in Marketing, 34(1), 22-45.

Lichters, M. H., Sarstedt, M., & Vogt, B. (2016). How durable are compromise effects? Journal of Business Research, 69(10), 4056–4064.

Lim, J. S., Ri, S. Y., Egan, B. D., & Biocca, F. A. (2015). The cross-platform synergies of digital video advertising: implications for cross-media campaigns in television, internet and mobile TV. Computers in Human Behavior, 48(JUL.), 463-472.

Lin X. Y. (2022). Review the Architectural Coatings Market in 2021 and Outlook of 2022. China Coatings Magazine, 37(03).

Liu, F., Xiao, B., Lim, E.T.K., & Tan, C. W. (2017), The art of appeal in electronic commerce: understanding the impact of product and website quality on online purchases. Internet Research, 27(4), 752-771.

Lohse, G.L., Bellman, S., & Johnson, E.J. (2000). Consumer Buying Behavior on the Internet: Findings from Banel Bata. Journal of Interactive Marketing, 14(1), 15-29.

Loudon, D. L., & Della Bitta, A. J. (1993). CONSUMER BEHAVIOR: CONCEPTS AND APPLICATIONS. McGraw-Hill.

Luo, J. , Ba, S. , & Zhang, H. . The effectiveness of online shopping characteristics and well-designed websites on satisfaction. MIS Quarterly, 36(4), 1131-1144.

Lynch, S., & Barnes, L. (2020). Omnichannel fashion retailing: Examining the customer decision-making journey. Journal of Fashion Marketing and Management: An International Journal.

Lynch Jr, J. G., Marmorstein, H., & Weigold, M. F. (1988). Choices from sets including remembered brands: Use of recalled attributes and prior overall evaluations. Journal of Consumer Research, 15(2), 169-184.

Meroni, A., & Sangiorgi, D. (2011). Design for Services. Gower Publishing Ltd. ISBN: 9781315576657.

Michaelson, D., & Stacks, W. D. (2011). Standardization in public relations measurement and evaluation standardization. Public Relations Journal, 5(2).

Mintzberg, H., Raisinghani, D., & Theoret, A. (1976). The Structure of Unstructured Decision Process. Administrative Science Quarterly, 21(2).

Moon, B. J. (2004). Consumer adoption of the internet as an information search and product purchase channel: some research hypotheses. International Journal of Internet Marketing and Advertising, 104-118.

Naik, P.A. & Raman, K. (2003). Understanding the impact of synergy in multimedia communications. Journal of Marketing Research, 40(4), 375-388.

Naik, P. A., & Peters, K. (2009). A hierarchical marketing communications model of online and offline media synergies. Journal of Interactive Marketing, 23(4), 288-299.

National Bureau of Statistics, China. (2021). Personal Income Expenditure. Retrieved on Jan28 2022, from http://www.stats.gov.cn/tjsj/zxfb/202201/t20220117_1826591.html.

Nelson, P. (1970). Information and consumer behaviour. J. Polit. Econ., 78, 311-329.

Nelson, P. (1974). Advertising as information. J. Polit. Econ., 82, 729-754.

Ostrom A.L., Parasuraman A., Bowen D.E., Patricio L., & Voss C.A. (2015). Service research priorities in a rapidly changing context. J Serv Res 18(2), 127–159.

Peng, H., Lurie, N. H., & Mitra, S. (2009). Searching for experience on the web: an empirical examination of consumer behavior for search and experience goods. Journal of Marketing, 73(1), 55-69.

Petty, R. E., Cacioppo, J. T., & Schumann, D. (1983). Central and peripheral routes to advertising effectiveness: The moderating role of involvement. Journal of consumer research, 10(2), 135-146.

Powers, D., Advincula, D., Austin, M., Graiko, S., & Snyder J. (2012). Digital and social media in the purchase decision process. A special report from the advertising research foundation. Journal of Advertising Research.

Pucinelli, N. M., Ronald C. G., Dhruv G., Robert P., Priya R., & David S. (2009). Customer Experience Management in Retailing: Understanding the Buying Process. Journal of Retailing, 85(March), 15–30.

Ratchford, B., Pan, X., & Shankar, V. (2003). On the efficiency of internet markets for consumer goods. Journal of Public Policy & Marketing, 22(1), 4–16.

Raymond, E. J., Beard, T. R., & Gropper, D. M. (1993). Modelling the consumer's decision to replace durable goods: a hazard function approach. Applied Economics, 25(10), 1287–1292.

Rigby. (2011). The future of shopping. Harvard Business Review, 89(12).

Rosario, Sotgiu, F., De Valck, K., & Bijmolt, T. H. A. (2016). The Effect of Electronic Word of Mouth on Sales: A Meta-Analytic Review of Platform, Product, and Metric Factors. Journal of Marketing Research, 53(3), 297–318.

Ruppel, E. K., & Rains, S. A. (2012). Information sources and the health information-seeking process: An application and extension of channel complementarity theory. Communication Monographs, 79(3), 385-405.

Santos, S., & Gonalves, H. M. (2021). The consumer decision journey: a literature review of the foundational models and theories and a future perspective. Technological Forecasting and Social Change, 173.

Romero, J., Van der Lans, R., & Wierenga, B. (2013). A partially hidden Markov model of customer dynamics for CLV measurement. Journal of interactive Marketing, 27(3), 185-208.

Schiffman, L., & Kanuk, L. (1997). Consumer Behavior (6 ed.). Prentice-Hall, Upper Saddle River, NJ.

Scholten, M. (1996). Lost and found: The information-processing model of advertising effectiveness. Journal of Business Research, 37(2), 97-104.

Schultz, D. E., Martin P. B., & Kaylan R. (2012). Understanding consumer-created media synergy. Journal of Marketing Communications, 18(3), 173-187.

Shavitt, S., & Barnes, A. J. (2020). Culture and the consumer journey. Journal of Retailing, 96(1).

Siebert, A., Gopaldas, A., Lindridge, A., & Simes, C. (2020). Customer experience journeys: loyalty loops versus involvement spirals. Journal of Marketing, 84(4), 45-66.

Simon, H. D., & Kadiyali, V. (2007). The effect of a magazine's free digital content on its print circulation: Cannibalization or complementarity? Information Economics and Policy, 19(3-4), 344-361

Strebel, E., Erdem, T., & Swait, J. (2004). Consumer Search in High Technology Markets: Exploring the Use of Traditional Information Channels. Journal of Consumer Psychology, 14(1), 96–104.

Sieper, E., & Swan, P. (1973). Monopoly and Competition in the Market for Durable Goods. Review of Economic Studies. 40(3), 333–51.

Sproule, S., & Archer, N.. (2000). A buyer behaviour framework for the development and design of software agents in e-commerce. Internet Research, 10(5), 396-405.

Swan, P. (1970). Durability of Consumption Goods. American Economic Review, 60(5), 884–94.

Trusov, M., Bucklin, E. R., & Pauwels, K. (2009). Effects of Word-of-Mouth Versus Traditional Marketing: Findings from an Internet Social Networking Site. Journal of Marketing, 73(5).

Tueanrat, Y., Papagiannidis, S., & Alamanos, E. (2021). Going on a journey: A review of the customer journey literature. Journal of Business Research, 125(March), 336-353.

Van R., Farla, J., & Dijst, M. J. (2009). Consumer car preferences and information search channels. Transportation Research Part D: Transport and Environment, 14(5), 334–342.

Vandermeer, D., Dutta, K., & Datta, A. (2012). A cost-based database request distribution technique for online e-commerce applications. MIS Quarterly, 36(2), 479-507.

Vazquez, S., Munoz-Garcia, O., Campanella, L., Poch, M., Fisas, B., Bel, N., & Andreu, G. (2014). A classification of user-generated content into consumer decision journey stages. Neural Networks, 58, 31-41.

Verhoef, Kannan, P., & Inman, J. (2015). From Multi-Channel Retailing to Omni-Channel Retailing: Introduction to the Special Issue on Multi-Channel Retailing. Journal of Retailing, 91(2), 174–181.

Voorveld, H. (2011). Media multitasking and the effectiveness of combining online and radio advertising. Computers in Human Behavior, 27(6), 2200-2206.

Waldman, M. (2003). Durable Goods Theory for Real World Markets. The Journal of Economic Perspectives, 17(1), 131–154.

Wang, Y. B. & Xue, Y. H. (2019). Income uncertainty, consumer durables investments, and home production: evidence from China. Contemporary Economic Policy, 37(2), 312–331.

Wang, K., Wang, E. T., & Farn, C. K. (2009). Influence of web advertising strategies, consumer goal-directedness, and consumer involvement on web advertising effectiveness. International Journal of Electronic Commerce, 13(4), 67-96.

Wijaya, S. B. (2012). The Development of Hierarchy of Effects Model in Advertising. International Research Journal of Business Studies, 5(1), 73-85.

Wolny, J., & Charoensuksai, N. (2014). Mapping customer journeys in multichannel decision-making. Journal of Direct Data and Digital Marketing Practice, 15(4), 317–326.

Woo, J. R., Ahn, J., Lee, J., & Koo, Y. (2015). Media channels and consumer purchasing decisions. Industrial Management + Data Systems, 115(8), 1510–1528.

X & Kantar SH. (2020). Consumer Usage and Attitude on Paint Study report.

Yang, Hu, M. (Mandy), Winer, R. S., Assael, H., & Chen, X. (2012). An Empirical Study of Word-of-Mouth Generation and Consumption. Marketing Science (Providence, R.I.), 31(6), 952–963. https://doi.org/10.1287/mksc.1120.0738

Yang, S. C., Hung, W. C., Sung, K., & Farn, C. K. (2006). Investigating initial trust toward e-tailers from the elaboration likelihood model perspective. Psychology & Marketing, 23(5), 429-445.

Zaichkowsky, J. L. (1985). Measuring the involvement construct. Journal of Consumer Research, 12, 341–352.

Zhai, Q., Cao, X., Mokhtarian, P. L., & Zhen, F. (2016). The interactions between e-shopping and store shopping in the shopping process for search goods and experience goods. Transportation (Dordrecht), 44(5), 885–904.

Appendix

I. Questionnaire content

Screening Part

S0. City

Which city do you live in now? (Single choice)

S1. Sensitive industries

Do you and your family members work in any of the following institutions or industries? (Multiple

choices)

Marketing research consulting company or marketing department of other companies	
Advertising company or advertising department of other companies	
Public relations company or public relations department of other companies	
News unit	**End**
Producer, wholesaler and retailer, research and development unit of oil paint/coating	
Have no idea/refuse to answer	
Food production and manufacturing industry	
Banking or Financial Institutions	
None of the above	

S2. Experience of participating in investigation and survey

Have you participated in the market survey on oil paint/coating in the past 6 months? (Yes/No)

S3. Period of resident

How many years have you lived in this city continuously? (Single choice)

Less than 2 years	**End**
2 years and above	

S4. Age

How old are you? Age: _____ (fill in the number)

S5. Decoration time

When was the last time you decorated your house? Decoration here includes entire house decoration, partial house decoration, simple decoration and wall-painting, excluding the repairs of details (such as replacing a floor). (Single choice)

October 2018 or earlier	**End**
November 2018 to present	

S6. Person in charge of decoration

Were you mainly responsible for this decoration? (Yes/No)

S6-1. Personal really in charge of decoration

We'd like to have a talk with your family member responsible for this decoration, and would you please ask him/her to answer our questions? (Yes/No)

S7. Use of coating

In this decoration of your home, did you use the coating (wall emulsion) paint products? (Yes/No)

S8. Coating progress

What is the coating progress of coating (wall emulsion)? (Single choice)

Coating has been completed	
Products have been purchased but have not been coated/coating is in progress	**Quota≤5%**

S9. Right to decide the purchase of coating

Which of the following options is most suitable for describing the condition of making decision on brand/product of coating (wall emulsion) during this decoration of your home? (Single choice)

In the full/half-contracting contract, decoration company/labour contractor made the decision and purchased, and I did not have the right to decide	**Quota≤25%**
Mainly recommended by the designer	
Mainly recommended by the labour contractor	
I consulted the decoration company/designer/labour contractor, but I made the decision mainly by myself at last	

I directly decided the brand/product purchased	

Part A Decoration

O1. Type of decorated housing

Which of the following circumstances does this house you have decorated recently belong to?

(Single choice)

A new house and rough house
A new house and finely decorated house
A second-hand house but a rough house (it has not been decorated before)
A second-hand house decorated previously
A house I have lived in
A previously rented or vacant house
Others. Please specify _____ .

O2. Decoration type

Which of the following circumstances does this recent decoration of your home belong to?

Entire decoration (including all areas; decoration of each working procedure)
Partial house decoration (individual room/area was decorated, such as only decorating the kitchen or bathroom)
Simple wall painting (only painted the entire or partial walls, without replacing the floors and other parts)
Others. (Please specify: _____)

O3. Decoration method

Which of the following options is most suitable for describing the status of your recent decoration?

I directly asked a labour contractor/ construction team/ worker to help me with the construction	1
I invited a decoration company to be responsible for the decoration (designer of the decoration company helped the design/construction, but I did not separately pay the design fee)	2
I invited a decoration company to be responsible for the decoration (designer of the decoration company helped the design/construction, and I separately paid the design fee)	3

I invited an independent designer to be responsible for the design (I separately paid the design fee), and carried out the construction.	4
Others. (Please specify:)	98

O4. Subcontracting way

Which of the following options is most suitable for describing the subcontracting way of your recent decoration? (Single choice)

Full-contracting, package: The decoration company/labour contractor is responsible for contracting of construction and materials (mainly including accessories and main materials), but materials or brands are designated and the owner does not have the right to choose on its own.	1
Full-contracting, but not package: The decoration company/labour contractor is responsible for contracting of construction and materials (mainly including accessories and main materials), and they have the right to choose most materials and brands on their owns.	2
Half-contacting: Decoration company/labour contractor contracts for laborers and is responsible for buying the accessories, but did not contract for main materials.	3
Labour contracting: Decoration company/labour contractor contracts laborers but do not contract materials.	4
Fully done by the owner	5
Others. (Please specify _____)	98

O4-1. Degree of participating in the purchase of coating [O4=1/2/3]

You just mentioned that you chose the full-contracting/half-contracting for decoration. Which of the following options is the most suitable for describing your purchase of coating this time?

I was mainly responsible for the purchase, and no others participated in	1
I was mainly responsible for the purchase, and others participated in suggestions/recommendations	2
Decoration company/labour contractor/paint worker purchased on behalf, but I also participated in the purchase process	3
Decoration company/labour contractor/paint worker purchased on behalf, and I did not participate in the purchase process.	4
Others. (Please specify _____)	98

O5. Area of the housing

What is the overall floorage of this house you have decorated recently?

O6. Decoration cost

How much have you spent in your recent decoration? It mainly refers to costs of interior finish and main materials, including floors, bathroom and building materials, but excluding the home appliances, furniture/sofa, and other furnishing). Record the decoration cost: _____ RMB.

| Below RMB 500/㎡ |
| RMB 500 – RMB 999/㎡ |
| RMB 1,000 – RMB 1,499/㎡ |
| RMB 1,500 – RMB 1,999/㎡ |
| RMB 2,000 – RMB 2,999/㎡ |
| RMB 3,000 – RMB 3,999/㎡ |
| RMB 4,000 – RMB 4,999/㎡ |
| Above RMB 5,000/㎡ |

O7. Decoration experience

Did you have other decoration experience before this decoration? (Yes/No)

Part B Brand Diagnosis

B1. First mention/Top of Mind

What brand will you first think of when the coating (wall emulsion) is mentioned? (Single choice)

B2. Mention before the prompt

What other brands will you think of? (Multiple choice)

B3. Mention after the prompt

Which of following coating (wall emulsion) brands do you know? (Multiple choice)

B4. Brand consideration

Which coating (wall emulsion) brands did you consider before the purchase? (Multiple choice)

B5. Brand purchase this time

What coating (wall emulsion) brand did you finally buy? (Multiple choice available)

B6. Brand purchased last time [O7=1]

Which brand/brands of coating (wall emulsion) did you purchase in your last decoration? (Multiple choice available)

B7. Future brand consideration

What brand of latex paint will you most possibly consider buying if you paint the interior of your house again in the future? (Single choice)

List of B3-B7

Nippon Paint
Dulux
Sherwin-Williams (Huarun)
Bauhinia Paints
Carpoly
3Trees
Maydos
Chenyang
Taiho
düfa
PPG (Master's Mark)
Flugger
Tikkurila
Jotun
Alpina
Caparol
Others, please specify
Others, not remember, local brands
Others, not remember, international brands

None of the above

Part C Purchase and decision-making process

R1. Decision time

How long did it take you from the time when you had the idea of buying the coating (wall emulsion) to the time when you finally placed the order? (Single choice)

Within 3 days
4-6 days
1–2 weeks
2 – 4 weeks
1-3 months
Over 3 months

R21. Online / offline channels

During the decoration, have you been used to collecting information from online channels (related websites/mobile software) or offline channels (TV advertisement/poster/expo/recommendation by others)? (Single choice)

Online channels (related websites/mobile software)	1
Offline channels (TV advertisement/poster/expo/recommendation by others)	2
Combination of online and offline channels	3

R2. Home decoration information channel 1

R21=1: In the whole process of your decoration, which **online channels** did you use to learn about the information related to **home decoration**? Please choose all the channels you have contacted. (Multiple choice)

R21=2: In the whole process of your decoration, which **offline channels** did you use to learn about the information related to **home decoration**? Please choose all the channels you have contacted. (Multiple choice)

R21=3: In the whole process of your decoration, which channels did you use to learn about the information related to **home decoration**? Please choose all the channels you have contacted. (Multiple choice)

R2b. Detailed online media channel 1 [R2=7/13/21/27/31/36/40/47/52]

R21=1: You said that you learnt about information related to **home decoration** through _____. What are they specifically? (Multiple choice)

R21=3: You said that you learnt about information related to **home decoration** through _____. What are they specifically? (Multiple choice)

R2-1. Home decoration information channel 2

R21=1: Have you used the following **offline channels** to learn about the information related to **home decoration**? Please choose all the channels you have contacted. (Multiple choice)

R21=2: Have you used the following **online channels** to learn about the information related to **home decoration**? Please choose all the channels you have contacted. (Multiple choice)

R2-1b. Detailed online media channel 2　[R2=7/13/21/27/31/36/40/47/52]

R21=2: You said that you learnt about information related to **home decoration** through _____. What are they specifically? (Multiple choice)

R3. Coating information channel 1

R21=1: What **online channels** did you use to learn about the information of coating (wall emulsion) from the time when you considered buying coating (wall emulsion) to the time when you finally purchased? (Multiple choice)

R21=2: What **offline channels** did you use to learn about the information of coating (wall emulsion) from the time when you considered buying coating (wall emulsion) to the time when you finally purchased? (Multiple choice)

R21=3: Which channels did you use to learn about the coating (wall emulsion) information from the time when you considered buying the coating (wall emulsion) to the time when you finally purchased? (multiple choice)

R3-1. Coating information channel 2 [R2-1≠99]

R21=1: What **offline channels** did you use to learn about the information of coating (wall emulsion) from the time when you considered buying coating (wall emulsion) to the time when you finally purchased? (Multiple choice)

R21=2: What **online channels** did you use to learn about the information of coating (wall emulsion) from the time when you considered buying coating (wall emulsion) to the time when you finally purchased? (Multiple choice)

R4. Coating information contact sequence

Please recall the recent process of buying the coating (wall emulsion). Please select the information channels you visited or contacted in the order from the initial idea of purchase to the final purchase completion, to present your information acquisition process at that time. (Multiple choice)

For example: Designer recommended the brand first, then you searched for the evaluation on Baidu, and then you purchased from the wall emulsion retail store/exclusive shop. Check the result as follows: Order 1: Home decoration company/designer; Order 2: Search engine; Order 3: retail store/exclusive shop

Please refer to the following rules:

- *Information channels need to be sorted in the order from the initial idea of purchase to the final purchase.*

- *All information channels you visited or contacted previously shall be selected once at least.*

- *If you have visited one or some information channels for multiple times, then you may select it or them for multiple times.*

It is the ___ [insert the times selected by the interviewee +1] information channel

R5. Coating brand information channels

Which brands-related information did you see through different channels you contacted in the process from the time when you considered buying coating (wall emulsion) to the time when you finally purchased? (Lateral multiple choice)

	Nippon Paint	Dulux	Sherwin-Williams (Huarun)	3Trees	Chenyang	düfa	PPG (Master's Mark)	Tikkurila	Insert B5 selections	None
Touchpoint 1										
Touchpoint 2										
Touchpoint 3										
…										

R6. Channel evaluation

Did such channels influence your view or attitude towards _____ coating (wall emulsion)?

Please score. The score of -5 represents the very negative effect, and the score of +5 represents very positive effect. (Single choice)

	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Touchpoint 1											
Touchpoint 2											
Touchpoint 3											
…											

R7. Positive evaluation on channels

You just mentioned that _____ enabled you to generate the **positive effect** on _____. What are the specific aspects? (Open)

R8. Negative evaluation on channels

You just mentioned that _____ enabled you to generate the **negative effect** on _____. What are the specific aspects? (Open)

R9. Purpose of information channels

You contacted many channels in the process from the time when you considered buying coating (wall paint/latex paint) to the time when you finally purchased. What was your main purpose to select and contact such channels? (Longitudinal/lateral multiple choice)

	In the early period, to collect or to learn about the information such as coating brand/ product/ price/ colour	After collecting the information, to compare/ confirm the coating brand/ product / price/colour	At the final stage, to help decide the coating brand/ product finally purchased
Touchpoint 1	1	2	3
Touchpoint 2	1	2	3
…			

R10. Information acquisition stage – channel importance

You **acquired** information related to coating (wall emulsion) through multiple channels. Which channel was the most useful for you? (Single choice)

R11. Information comparison/confirmation stage – channel importance

You **compared/confirmed** information related to coating (wall emulsion) through multiple channels. Which channel was the most useful for you? (Single choice)

R12. Decision-making and purchase stage – channel importance

You **made decision and purchased** information related to coating (wall emulsion) through multiple channels. Which channel was the most useful for you? (Single choice)

List of R2-R12

Traditional media	
TV (such as TV advertisement, variety title sponsorship and placement in TV series)	1
Outdoor advertising (such as bus stop, subway station and building exterior advertising)	2

Building interior advertising (such as advertising at the elevator and inside the corridor in the community)	3
Advertising in building material market/building material supermarket (such as brand advertising in the shopping malls such as B&T Home and Easyhome)	4
Newspaper/Magazine	5
Digital media	
Search engine (such as Baidu, Sogou and Bing)	6
Content platform (such as Zhihu, Baidu Zhidao, Baidu Tieba and Dianping)	7
Zhihu	8
Baidu Zhidao/Tieba	9
Dianping	10
Xiaohongshu	11
Other content platforms	12
Home decoration design platforms (such as liba.com, www.hrbwoniu.com, Haohaozhu and Yidoutang)	13
liba.com	14
www.hrbwoniu.com	15
Haohaozhu	16
Yidoutang	17
Kujiale	18
Zuimei Decoration	19
Other home decoration design platforms	20
Internet home decoration websites (such as to8to.com and Jia.com)	21
to8to.com	22
jia.com	23
zhuangxintong/zx123.cn	24
17house.com	25
Other Internet home decoration websites	26

Social networking (such as WeChat, Weibo and RED)	27
WeChat	28
Weibo	29
Other social networks	30
Video websites (such as youku.com, www.qq.com and www.iqiyi.com) or their APPs	31
youku.com	32
www.qq.com	33
www.iqiyi.com	34
Other video websites	35
Short video (such as TikTok, Xigua, Huoshan, Kuaishou and Miaopai)	36
Tik Tok	37
Kuaishou	38
Other short videos	39
Vertical home decoration platforms (home.163.com, PChouse, jiaju.sina.com.cn and jia360.com)	40
home.163.com	41
PChouse	42
jiaju.sina.com.cn	43
jia360.com	44
jz.hc360.com	45
Other vertical home decoration platforms	46
News platforms (Toutiao, new.qq.com) or their APPs	47
Toutiao	48
new.qq.com	49
Other news platforms	50
Brands' official websites such as Nippon Paint/Dulux/3Trees	51
Shopping websites (such as Taobao/Tmall, JD)	52

Taobao/Tmall	53
JD	54
Online malls of home decoration (such as online stores of B&T Home and Easyhome)	55
Other shopping websites	56
Offline terminals	
Home decoration expo (exhibition)/brand manufacturer exhibition	57
Retail store/exclusive store	58
Word of mouth/experience	
Introduction/recommendation by relatives and friends	59
My own/family's previous use experience	60
House under decoration from neighbourhood	61
Recommended by professionals	
Designer of decoration company	62
Independent designer (has his/her own studio)	65
Labour contractor / project manager	63
Painter	64
Others, please specify	98
None of the above	99

R13. Information desired

What information do you need to learn about when you buy the coating (wall emulsion)?

R14. Information actually obtained

Recall your experience in deciding the purchase of coating (wall emulsion). Which information did

you learn about from _____ at that time? (Multiple choice)

List of R13-R14

Brand		

Learn about the brand sales ranking	1	1
Learn about the information of new brands	2	2
Learn about the history, reputation, and characteristics of brands	3	3
Learn about the brand evaluation and word of mouth	21	21
Product		
Learn about the product inspection report and certification	4	4
Learn about product specification/usage	5	5
Learn about product series	6	6
Learn about the products' ingredients (such as excluding formaldehyde)	7	7
Learn about the matching/display effect	8	8
Learn about the product function (scrub resistance/slip resistance)	9	9
Learn about how to identify the authenticity of products	10	10
Learn about the source areas of products	11	11
View the products' model room/model house	12	12
Learn about the products' colours	13	13
Price		
Learn about prices of different products	14	14
Learn about the promotions and special offers	15	15
Service		
Acquire the information related to product repair and after-sales services	17	17
Acquire the information related to product delivery	18	18
Acquire painting-related information	16	16
Comments		
Learn about the viewpoints and comments of the designer	19	19
Learn about the viewpoints and comments of labour contractors/paint workers	22	22
Learn about the comments or use feedbacks of other decoration owners	20	20
Others, please specify	98	98

R15. Whether to be present in the store

O4=1/2: You selected full-contracting in this decoration. Did you go to the offline coating stores in the whole process from the time when you considered buying the coating (wall emulsion) to the time when you finally purchased? (Single choice)

O4≠1/2: You selected half-contracting/labour contracting in this decoration. Did you go to the offline coating stores in the whole process from the time when you considered buying the coating (wall emulsion) to the time when you finally purchased? (Single choice)

I did not go to any coating store
I visited the coating stores by the way when I bought other building materials
I have specially gone to the coating store.

R16. Conditions of being in the store [R15=2/3]

At which stage did you go to the coating stores? (Multiple choice)

At the time of collecting information related to coating (wall emulsion) in early period
At the time of collecting information related to coating (wall emulsion) in interim period
At the time of finally deciding to buy the coating (wall emulsion)

R17. Reasons for being in the store   [R15=2/3]

O4=1/2: You selected full-contracting in this decoration. Why did you go to the offline coating stores? (Multiple choice)

O4≠1/2: You selected half-contracting/labour contracting in this decoration. Why did you go to the offline coating stores? (Multiple choice)

To learn about/collect coating brand information in stores
To learn about/collect coating product series information in stores
To learn about/collect coating price information in stores
To learn about/collect coating colour information in stores
To confirm the authenticity of products in stores
To select the specific product series in stores

To confirm/select colours in stores
To buy coating and pick up the goods
O4=1/2: To confirm the brands/products recommended by decoration company/labour contractor and their prices
To check the painting effect in stores
Others, please specify_____

R18. Purchase of coating (wall emulsion) [O4=4/5 or O4-1=1/2]

Which of the following options is most suitable for describing the condition of purchase of coating (wall emulsion) during this decoration of your home? (Single choice)

I bought online and did not go to the physical store
I bought in the offline physical store, and was not accompanied by the designer/labour contractor/painter or other relevant personnel of decoration company
I bought in the offline physical store and was accompanied by the designer
I bought in the offline physical store and was accompanied by the labour contractor/painters
O3=2/3: I directly selected and bought in the exhibition hall of decoration company

R19. Purchase channels

R18=1/2/3/4: R19-1. Which of the following channels did you use to buy coating (wall emulsion) finally?

(Single choice)

O4-1=3: R19-2. You mentioned that your coating (wall emulsion) was bought by decoration company/labour contractor/painter as agent this time. What is the specific channel? (Single choice)

Offline channels [R18=2/3/4]
Manufacturers' brand exclusive store – in the building material market/building material street
Manufacturers' brand exclusive store – not in the building material market/building material street
Multi-brand exclusive paint store – in the building material market/building material street
Multi-brand exclusive paint store – not in the building material market/building material street

Large-scale building material supermarket (such as B&T Home and Easyhome)
Order at home decoration expo/trade fair
Other offline channels (Please specify _____)
Online channels [R18=1]
Online malls of home decoration and building materials (such as online stores of B&T Home and Easyhome)
Group purchase meeting organized by Internet home decoration platforms/BBS group purchase (Jia.com)
Brands' official websites
E-commerce platforms (such as Taobao/Tmall, Jingdong)
Other online channels (Please specify _____)
Others (Please specify _____)

R20. Purchase behavior attitude

Which of the following descriptions can best describe your purchase?

I bought on impulse	1	2	3	4	5	6	7	I bought as planned
I bought mainly due to the promotion activity	1	2	3	4	5	6	7	I bought mainly due to the product itself
I learnt about the coating enough before the purchase	1	2	3	4	5	6	7	I knew little about the coating before the purchase
Coating is important to me	1	2	3	4	5	6	7	Coating is not so important to me
There is no big difference between the brands, and any of them is all right.	1	2	3	4	5	6	7	Selection of the brand is very important to me.
I hold the open attitude towards the most brands.	1	2	3	4	5	6	7	I have my own brand preference.
I'm always curious about new products	1	2	3	4	5	6	7	I only pay attention to the product I am most familiar with
I tend to make quick decisions, even if the information is relatively limited	1	2	3	4	5	6	7	I tend to make prudent decisions and try to have comprehensive information

Part G Background information

G1. Gender

Record the gender of the interviewee (Single choice)

G2. Degree of education

What is your education level? (Single choice)

Have never received formal education
Primary school / junior high school
Senior high school (including technical school and vocation school)/technical secondary school
Junior college
Bachelor's degree
Master and above
Refuse to answer

G3. Marital status

What about your marital status? (Single choice)

Single
Married without children
Married with children

G4. Occupation

What is your job/who is your employer? (Single choice)

Cadre of government organs and public institution
Management personnel
Professional (engineer/technician/teacher/doctor/lawyer)
General employee (sales personnel/marketing personnel/secretary/clerk)
Shop assistant/waiter
Worker
Private enterprise owner
Individual household/individual store owner
Retired / outgone personnel

Unemployed/wait for employment/laid-off
Others, please specify _____
Refuse to answer

G5. Residence type

Which type is the house you have recently decorated? (Single choice)

Bungalow
Multilayer (less than 8 floors)
Small high-rise/high-rise (8 floors or above)
Townhouse/single-family villa
Private house (built by myself, regardless of the floors)
Others, please specify _____

G6. Number of rooms, living rooms and bathrooms

How many rooms, living rooms and bathrooms does the house you decorated this time have?

G7. Monthly household income

Which of the following options can mostly represent your monthly household income? Please include all wages, allowances, bonuses, and other incomes. (Single choice)

RMB 5,000 and below
RMB 5,000 – RMB 7,999
RMB 8,000 – RMB 9,999
RMB 10,000 – RMB 11,999
RMB 12,000 – RMB 14,999
RMB 15,000 – RMB 19,999
RMB 20,000 – RMB 29,999
RMB 30,000 – RMB 39,999
RMB 40,000 – RMB 49,999
RMB 50,000 and above

Have no idea/refuse to answer		

II. Definition of cluster variables

The Definition of cluster variable shown as below.

Appendix Table A-1 Definition of cluster variable

Definition	Variable Name	Assignment
Age	age	1 = 25-29 years old
		2 = 30-34 years old
		3 = 35-54 years old
City level	city level	1 = Tier 1
		2 = Tier 2
		3 = Tier 3
		4 = Tier 4
Marital status	married	1 = Unmarried
		2 = Married without children
		3 = Married with children
Monthly household income	Income	1 = CNY 5,000 and below
		2 = CNY 5,000-7,999
		3 = CNY 8,000-9,999
		4 = CNY 10,000-11,999
		5 = CNY 12,000-14,999
		6 = CNY 15,000-19,999
		7 = CNY 20,000-29,999
		8 = CNY 30,000-39,999
		9 = CNY 40,000-49,999
		10 = CNY 50,000 and above
Education level	Edu	1 = Uneducated

		2 = Primary school / junior high school
		3 = High school (including technical school, vocational school) / vocational secondary school
		4 = Junior college
		5 = University
		6 = Master or above
Decoration spending per square meter	Decolevel	1 = High-end (above CNY 2000)
		2 = Middle-end (CNY 1000-2000)
		3 = Low-end (less than CNY 1000)
Decoration experience	Experience	0 = No
		1 = Yes
Decision period	Decicycle	1 = Within 3 days
		2 = 4-6 days
		3 = 1-2 weeks
		4 = 2-4 weeks
		5 = 1-3 months
		6 = More than 3 months
Brand attention	Brandattn	0~14
The number of information channels used	channelnum	≥0

III. The construction of Markov chain and illustration

The directed Markov graph $M = <S, W>$ with a set of states S,

$$S = \{Start, TM_1, DM_1, EC_1, OS_1, WOM_1, PR_1, TM_2, DM_2, EC_2, OS_2, WOM_2, PR_2,$$

$$TM_3, DM_3, EC_3, OS_3, WOM_3, PR_3, Purchased_X, Purchased_{others}\}$$

and transition probability matrix W,

$$w_{ij} = P(X_t = s_j | X_{t-1} = s_i),$$

$$where \quad s_i \in S, s_j \in S, 0 \le w_{ij} \le 1, \sum_{j=1}^{N} w_{ij} = 1 \quad \forall \ i.$$

As demonstrated by the example Markov chain, there are six information channels at each stage of the Consumer Decision Journey (CDJ). Consumers' states can transition between different stages or within a stage. A consumer's decision journey begins with the $Start$ state and progresses through several stages before reaching the final purchase state. The key to tracing consumers' journeys lies in distinguishing their CDJ stages based on their information acquisition paths.

As previously mentioned, the first step in constructing customers' information acquisition paths involves collecting their browsing sequences of information channels based on the question "please select the information channels in sequential order to represent your information acquisition process from your initial consideration to final purchase". Next, to identify stage transitions in the customer information acquisition path, the survey also collected customers' intentions for choosing specific information channels based on the question, "What is the main purpose of your choice for these information channels?" The options included collecting information, comparing, and confirming, and aiding final purchase. When combined with the CDJ framework, these purposes correspond to the three main CDJ stages: 1) formation of consumers' initial consideration set; 2) consumers' active evaluation stage; and 3) consumers' final purchase decision-making.
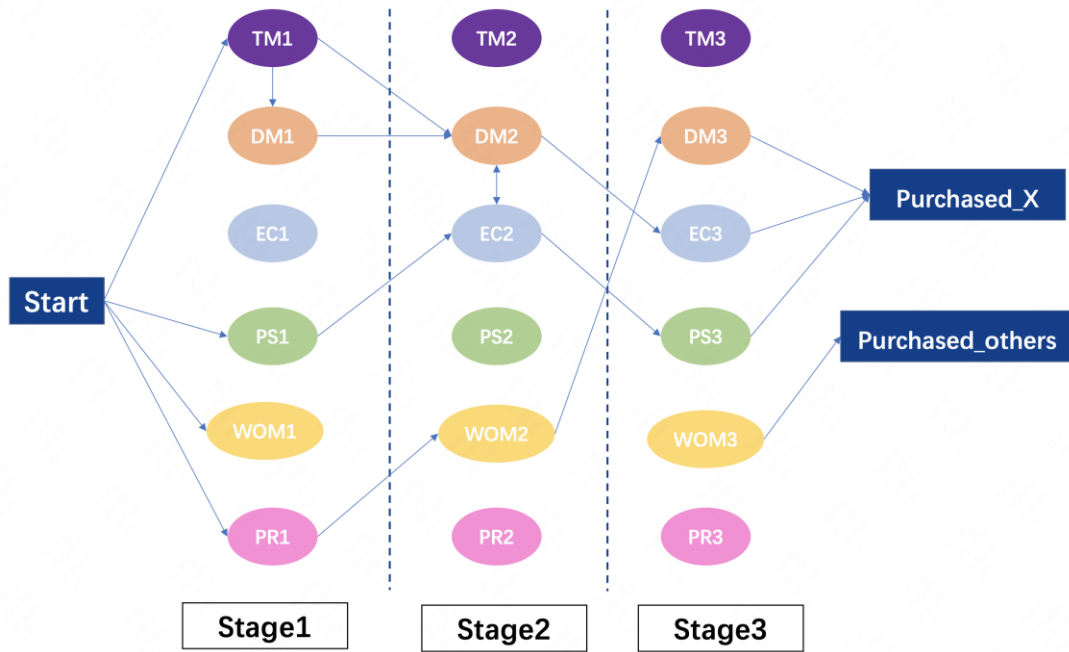
Appendix Figure A-1 Exemplary Markov Chain

Specifically, based on customers' information acquisition paths and their intentions (i.e., decision stages) for choosing corresponding information channels, I defined stage transitions. These transitions begin when any information channel from the next stage appears, prompting the consumer's state to transfer to the subsequent stage. Consumers' states transition internally within a stage before the stage transition occurs.

For example, consider a customer's information acquisition path as $WOM - DM - PS - PR$ and their intentions for selecting corresponding information channels. We can divide $WOM - DM$ into Stage 1, PS into Stage 2, and PR into Stage 3, adding stage numbers as subscripts. Some modifications may be necessary based on issues encountered during the actual coding process.

Appendix Table A-2 Consumer's intention and choice of different information channels

Intention	Collecting information (Stage 1)	Comparing and confirming (Stage 2)	Aid final purchase (Stage 3)
TM	0	0	0

DM	1	0	0
EC	0	0	0
PS	0	1	0
WOM	1	0	0
PR	0	0	1

Using each consumer's information acquisition path, we can derive the state transition matrix. As illustrated below, the starting state is $Start$, transitioning from $Start$ to WOM_1 in Stage 1, then from WOM_1 to DM_1, DM_1 to PS_2, PS_2 to PR_3, and finally PR_3 to the end state, representing the purchase of Brand X paint.

To calculate the probability of transitioning from one state to the next, we sum the consumers' state transition matrices and normalize them by rows. This process indicates the percentage of consumers who begin at state s_i and transition to state s_j.

Appendix Table A-3 Consumer's states transition matrix

From \ To		Start	TM1	DM1	EC1	PS1	WOM1	PR1	TM2	DM2	EC2	PS2	WOM2	PR2	TM3	DM3	EC3	PS3	WOM3	PR3	Purchased_X	Purchased_others
	Start						1															
Stage 1	TM1																					
	DM1											1										
	EC1																					
	PS1																					
	WOM1			1																		
	PR1																					
Stage 2	TM2																					
	DM2																					
	EC2																					
	PS2																			1		
	WOM2																					
	PR2																					
Stage 3	TM3																					
	DM3																					
	EC3																					
	PS3																					
	WOM3																					
	PR3																				1	

Notes: States in row represent the starting states, while states in column are the arrival states.

IV. The transition matrix of Markov chain

The transition matrix of all samples shown as below.

Appendix Table A-4: The transition matrix

	Start	TM1	DM1	EC1	OS1	WOM1	PR1	TM2	DM2	EC2	OS2	WOM2	PR2	TM3	DM3	EC3	OS3	WOM3	PR3	Purchased_X	Purchased_other
Start	0.000	0.094	0.193	0.029	0.037	0.241	0.125	0.019	0.029	0.007	0.026	0.089	0.034	0.004	0.004	0.000	0.010	0.042	0.019	0.000	0.000
TM1	0.000	0.185	0.164	0.023	0.097	0.111	0.062	0.021	0.038	0.006	0.038	0.053	0.056	0.000	0.003	0.003	0.023	0.018	0.006	0.029	0.065
DM1	0.000	0.088	0.196	0.110	0.069	0.116	0.083	0.019	0.019	0.026	0.043	0.030	0.045	0.002	0.000	0.003	0.026	0.013	0.008	0.046	0.059
EC1	0.000	0.043	0.091	0.159	0.072	0.154	0.067	0.024	0.024	0.005	0.043	0.115	0.048	0.005	0.000	0.000	0.014	0.019	0.005	0.082	0.029
OS1	0.000	0.084	0.094	0.039	0.314	0.045	0.074	0.006	0.013	0.010	0.006	0.026	0.026	0.003	0.000	0.000	0.003	0.006	0.013	0.117	0.120
WOM1	0.000	0.074	0.148	0.046	0.055	0.210	0.122	0.027	0.021	0.003	0.041	0.030	0.062	0.003	0.003	0.000	0.019	0.003	0.002	0.063	0.068
PR1	0.000	0.062	0.170	0.053	0.098	0.118	0.185	0.017	0.034	0.012	0.070	0.029	0.007	0.000	0.002	0.000	0.022	0.002	0.002	0.058	0.060
TM2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.198	0.129	0.037	0.175	0.103	0.120	0.003	0.003	0.003	0.040	0.014	0.020	0.043	0.112
DM2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.095	0.221	0.064	0.114	0.140	0.133	0.005	0.007	0.007	0.059	0.010	0.021	0.067	0.057
EC2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.068	0.164	0.158	0.186	0.096	0.124	0.000	0.000	0.000	0.040	0.023	0.017	0.051	0.073
OS2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.106	0.075	0.043	0.120	0.081	0.110	0.008	0.004	0.000	0.006	0.016	0.010	0.169	0.252
WOM2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.111	0.109	0.031	0.129	0.192	0.174	0.007	0.004	0.000	0.064	0.005	0.027	0.087	0.060

PR2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.081	0.118	0.066	0.159	0.164	0.191	0.004	0.000	0.000	0.074	0.008	0.006	0.058	0.072
TM3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.251	0.136	0.075	0.181	0.065	0.101	0.106	0.085
DM3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.151	0.215	0.110	0.134	0.116	0.087	0.087	0.099
EC3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.077	0.126	0.343	0.105	0.084	0.126	0.056	0.084
OS3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.094	0.043	0.024	0.159	0.063	0.065	0.277	0.275
WOM3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.107	0.142	0.111	0.209	0.116	0.138	0.076	0.102
PR3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.113	0.100	0.078	0.196	0.113	0.174	0.122	0.104

V. The removal effect of information channel combinations

The results of removal effect when consumers either get on touch with one or another information channel in the combination shown as below.

In stage 1, the combination of "DM+WOM" plays a greatest role and its removal effect is 0.273. In stage 2 and stage 3, "OS+WOM" is the most important combinations, and the removal effect are 0.1926 and 0.1426 respectively.

Appendix Table A-5 Removal effect

Combinations	Removal Effect			Removal Effect in %		
	STAGE_1	STAGE_2	STAGE_3	STAGE_1	STAGE_2	STAGE_3
TM+DM	0.2295	0.132	0.0557	7.86%	5.61%	4.10%
TM+EC	0.1369	0.0943	0.0525	4.69%	4.01%	3.87%
TM+OS	0.1262	0.1492	0.1311	4.32%	6.34%	9.66%
TM+WOM	0.2262	0.1631	0.0811	7.74%	6.93%	5.98%
TM+PR	0.1795	0.1525	0.0762	6.14%	6.48%	5.61%
DM+EC	0.2049	0.123	0.0467	7.01%	5.23%	3.44%
DM+OS	0.2033	0.1811	0.1295	6.96%	7.70%	9.54%
DM+WOM	**0.273**	0.1852	0.0754	9.35%	7.87%	5.56%
DM+PR	0.2369	0.1746	0.0746	8.11%	7.42%	5.50%
EC+OS	0.1115	0.1369	0.1238	3.82%	5.82%	9.12%
EC+WOM	0.2189	0.1525	0.0689	7.49%	6.48%	5.08%
EC+PR	0.1557	0.1418	0.068	5.33%	6.03%	5.01%
OS+WOM	0.218	**0.1926**	**0.1426**	7.46%	8.19%	10.51%
OS+PR	0.1557	0.1852	0.1418	5.33%	7.87%	10.45%
WOM+PR	0.2451	0.1885	0.0893	8.39%	8.01%	6.58%
Total	**2.9213**	**2.3525**	**1.3572**	**100.00%**	**100.00%**	**100.00%**