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The impact of digital technology on changing consumer behaviours with special reference to the home furnishing sector in Singapore

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The impact of digital technology has altered consumers' choices for decades, which has fostered large amounts of eCommerce, including in the home furnishing business. Furthermore, due to the Coronavirus disease (COVID-19) pandemic, consumer behaviours have changed, with consumer satisfaction influencing purchasing initiatives and decision-making online. There is insufficient research on online purchasing behaviours in the home furnishing sector in the context of Singapore. The advent of digitisation and the emergence of marketing through digital platforms compared to offline marketing have changed purchasing behaviours regarding home furnishing in Singapore. Research designs and methods, including realism philosophies, deductive approaches, a quantitative research method, a cross-sectional analysis in a descriptive research design and a questionnaire research instrument, were applied to the current study. The findings show a critical trend: consumers prefer an omnichannel approach when purchasing furniture, thereby enhancing competitive costs and personalisation designs and services. Consumers expect advantages both online and offline to maximise the benefits of their purchasing.

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Introduction

According to the Singapore Economic Development Board (2018), due to an increase in the intensity of the competition in the global market, the ways in which retail markets operate have been changing rapidly. The rate of change from offline to online markets has been so so alarming that offline retail stores or traditional markets are now greatly threatened. Furthermore, with the disruption of the COVID-19 pandemic, the existing online retailers have become worried about the sudden influx of competitors who have turned to eCommerce. There has been a 50% increase in online shopping over the last 10 years, while the average purchasing value has decreased significantly, especially that for prices above 200 Singapore dollars, which has been reduced by 20% (Data.gov.sg, 2020). Unfortunately, home furnishing (furniture) products average a value above $200; thus, it is crucial to research Singapore's local online shopping characteristics in terms of the bulky home furnishing category to analyse the market and provide strategic advice for local furniture partners. Neither the Singapore Furniture Industries Council (SFIC) nor the Singapore Furniture Association can help local furniture partners adapt to innovation activities. Unfortunately, there is not enough information in terms of market trends or local consumer behaviours; thus, the gap analysis would involve both external and internal investigations to aid in filling the gaps for higher business potentials (Miller et al., 1998; Booth et al., 2003; Novy and Colomb, 2016).

Research problems have been recognised due to steady improvements, and advances in technologies have fostered market changes from traditional brick and mortar companies towards more click and mortar options, if not click-only options. Online and offline retail players are concerned about user experiences, including both online and offline experiences. Assumptions that the traditional physical retail store design will never be disrupted in regard to home furnishing products may therefore be reconsidered. While local consumers' attitudes will affect the business model in terms of home furnishings, it is important to research purchasing concerns regarding the pros and cons of both online and offline shopping. Additionally, it is crucial to analyse the current buyers' intentions and behaviours with regard to the changing COVID-19 situation. Furthermore, possibilities with regard to omnichannel feasibility analysis have led to this study, which focuses on the impact of digital technology on changing consumer behaviours, especially concerning home furnishing in Singapore as an essential sector.

Moreover, the COVID-19 pandemic has accelerated digitalisation trends and the possibility of the swift development of new digital technologies; thus, it is crucial for organisations to review their overarching digital transformation (Trenerry et al., 2021). Additionally, Singapore, which is one of the top smart cities in the world, has adopted such technology in most business sectors and applications and in almost all the projects led and supported by the government (Huseien and Shah, 2022). Furthermore, for businesses in Singapore, it is crucial that they apply digital technologies in their organisation, as was reported in a study on the application of digital technology (Whitelaw Sera, 2020). This argument was supported by Skare and Riberio Soriano (2021), who argued that globalisation influences the adoption of digital technologies. Considering the minimal research available regarding digital technology's impact on the changing consumer behaviours related to home furnishing in Singapore, there is an urgent and important need to conduct the present study. To analyse the problem mentioned previously and to achieve a positive result regarding the current research, the following research questions were asked in this study, which range from general online shopping to furniture eCommerce and focus on various concerns or variables that can alter consumers' decisions.

- Have there been any changes made in regard to consumer behaviours and attitudes towards furniture, especially regarding vertical eCommerce?
- What are the advantages and disadvantages of both offline and online furniture stores?
- Is the omnichannel (both online and offline) the most consumer-acceptable home furnishing (furniture) business model?

The benefit of conducting the present research is to enable stakeholders to better understand the impact of digital technology on the changing purchasing behaviours towards home furnishing in Singapore. The study reveals customers' expectations towards future home furnishing services, which can be used to alter the furniture industry's strategies. The aim of the current study is to evaluate the digital characteristics that alter buyers' behaviours, i.e., to reveal the underlying demands that analyse the changing needs and desires regarding the purchase of furniture. Furthermore, the study aims to evaluate buyers' preferences for combining both online and offline advantages and to evaluate a potential successful model for the home furnishing business. The COVID-19 pandemic has led to the integration of both the offline and online approaches, which has created an omnichannel as a new competitive advantage that is now seen as the norm. Thus, the objectives of the present research are as follows:

- To evaluate consumer behaviour trends towards home furnishing (furniture) expansion, especially concerning vertical eCommerce in Singapore.
- To compare the advantages and disadvantages of traditional (offline) versus online home furnishing stores (furniture) in Singapore.
- To examine the future omnichannel (online + offline) of the home furnishing business model.

Literature review and conceptual gap. This research used a deductive approach. In doing so, the research reviewed the existing literature and determined the research gap in the existing conceptual models; it also determined the best business model/ theory to be used to examine home furnishing (furniture) eCommerce, i.e., applying a quantitative approach involving purchasing frequency, attitudes and so on (Cleveland and McCutcheon, 2022; Bell et al., 2018; Creswell, 2014). Important reviews related to the research are presented in this section.

It is crucial to investigate the components or variables, such as features, attitudes, behaviours, and involvement, in the context of their impact on buyer behaviour (O'leary, 2017). With such research variables influencing different components, such as advanced technology, the digital revolution, ageing, income levels, lifestyle changes, environmental concern, etc., there are changes made to consumer behaviours. Consumers are influenced by various factors that exert varying degrees of power on their decision to purchase furniture (Zwierzyński, 2018). In Poland, the main factors in such a decision are the buyer's family and financial situations. However, Singapore presents a different economic stage, in which the buyer's household income influences his or her desire for home furnishing purchase intentions, as confirmed by research conducted in 2012–2014 (Studio, 2012) in Poland.

As online shopping has become more prevalent and attractive, home furnishing has presented itself as one of the potential sectors; however, the lack of data regarding the related research, especially concerning Singapore, raises the importance of conducting a questionnaire based on the literature review. The current research ranges from macro digital impacts to consumer

buying behaviours to evaluate the pros and cons of both online and offline businesses by analysing the factors of the attitudes affected by specific home furnishing categories. A previous study (Moreno-Llamas et al., 2020) argued that digital technology development encourages higher levels of sedentary behaviour; however, this argument has not yet been confirmed. However, it was previously found that the ownership of an e-device (either a DVD player, CD player, desk computer, laptop, or an internet connection) was associated with a longer sitting time (>4.5 h/day) for the overall population, with slight differences by gender. Another study (Hoyer et al., 2020) highlighted that new technologies, such as the Internet of Things (IoT), augmented reality (AR), virtual reality (VR), mixed reality (MR), virtual assistants, chatbots and robots, which are typically powered by artificial intelligence (AI), are dramatically transforming the customer experience. This study also argued that the role of new technologies on the customer/shopper journey is crucial at each broad stage of the shopping journey (pretransaction, transaction, and posttransaction).

As highlighted by previous research, the local market for online furniture in Singapore has been changing and evolving (Lee, 2020). This study presented various drivers of change in the context of local markets in Singapore. The first of the market-changing drivers highlighted was the availability of retail space, which has been supported by the ongoing COVID-19 situation. Second, the local market has always supported the idea that there should be some form of a physical presence presented rather than only a fully online presence. This support, in turn, influences the value and recognition of retailers. Additionally, having a physical presence shows that the local retailers are better than the overseas retailers, who only have an online presence from whom customers may choose to import. Third, there has been a fundamental shift in consumer perception towards physical experiences in the context of the brand value of a product. Similarly, another previous study (Zwierzyński, 2018) highlighted that due to the COVID-19 pandemic, there would be significant ongoing innovations made throughout society during the pandemic, with many of these innovations having the possibility of long-term societal impacts. Digital technologies are seen as part of these large-scale systemic shifts.

In the literature (Jafari-Sadeghi et al., 2021), researchers have studied the digital transformation, which has been broken into three categories, namely, technology readiness (e.g., ICT investments), digital technology exploration (e.g., research and development) and digital technology exploitation (e.g., patents and trademarks). Several significant relationships between constructs have been identified. The digital transformation of value creation has contributed to technology entrepreneurship and technological market expansion. Digital transformation assists as an innovative network in which the digital supply chain helps organisations establish an ecosystem and enhance the supply chain. These changes in the digital systems of an organisation help management make better tactical decisions and maximise the value for the organisation (Choudhury et al., 2021). This argument was agreed to and supported by Cruz-Cárdenas et al. (2021), who highlighted that the technology and measures adopted by governments and social media stand out as external factors that affect organisations. Furthermore, the authors argued that organisations should work on varied marketing strategies that reflect the technological changes made to consumer behaviour. As such, organisations must work on creating digital transformations that address such changes in the consumer and market.

Similar to earlier studies, Matarazzo et al. (2021) examined the impact of digital transformation on customer value creation and highlighted that digital channels contribute to the innovation of an organisation's business model. Such transformation also helps to create new distribution channels and new ways to create and deliver value to customer segments. Additionally, digital transformation impacts technological market expansion when organisations are seen as embracing digital innovation (Jafari-Sadeghi et al., 2021). Such conclusions and arguments indicate that the enhanced use of digital technologies increases an organisation's innovation performance (Usai et al., 2021). Another study (Jessen et al., 2020) empirically demonstrated the sequential mediation process connecting the use of technological advances with customer engagement, customer creativity and anticipated satisfaction. The study highlighted that such use was better in the early stages of customers' purchase journeys. Additionally, it has been emphasised that consumer involvement plays a central role in explaining the intention to participate in online buying (Sharma and Klein, 2020). Furthermore, it has been argued that consumer perceived value, trust, and susceptibility to interpersonal influence are significantly correlated with consumer involvement (Cruz-Cárdenas et al., 2021).

Customer involvement also depends on the level of convenience offered by organisations; when retailers enhance their level of service convenience, this affects the consumers' channel switching behaviour. When looking at the omnichannel retailing industry, both offline search convenience and online purchase convenience have impacts on motivating consumers' showroom behaviour (Shankar et al., 2021). Furthermore, these elements of convenience can also help identify motives, barriers, personality traits, and the role of culture in consumer adoption, which helps one recognise enablers and inhibitors (Jain et al., 2022). A meta-analysis conducted by Jayawardena et al. (2022) indicated that online engagement strategies based on gamification assist retailers in improving the engagement of customers and their level of involvement. This approach can further assist in enhancing online education, online brand engagement, and information system engagement.

Another study (Mims, 2017) argued that a company should work on enhancing their brand visibility before planning an overseas venture through an online presence. This study also stated that a lack of brand visibility may affect the company's physical and emotional connection with customers. It is crucial for Singapore firms to address these concerns locally before moving towards options of internationalisation or exploring the regional markets. Furthermore, the debates related to the waning efficacy of offline and online media advertising channels, especially in the context of increasing advertising budgets, cannot be ignored. As such, in the home furnishing industry, the role of the offline retail experience and the way in which the industry operates is different. With increasing levels of internet penetration, online shopping has maintained a competitive position since the 21st century, and the high risk of cybercrime has made it difficult to choose (Davis, 1989). Therefore, a vertical eCommerce approach could change the retail game for a sector such as home furnishing. Home furnishing, especially furniture purchasing, requires personally tailored products with a modern value. Simultaneously, cost sensitivity characteristics are another main factor of purchasing decisions (Bednarik and Pakainé Kováts, 2010). Personal relations with counselling are used to obtain a market share in Hungary; this approach may also be used in markets such as Singapore.

In the US, according to a study by Cisco (2012), 74% of customers conduct online research before they make an in-store purchasing decision; furthermore, it is stated that nearly 40% of American respondents use mobile phones to obtain onsite digital content information, while another 35% use tablets for the same purpose. In addition, research by Furniture Today has shown that nearly 50% of furniture store consumers use smartphones before

their visit to look up information, which means that customers hop from one single information channel to another. Such a "cross-channel" shopping experience demands a new approach to retain and win consumers for most retailers. For example, using in-store kiosks to provide potential buyers with fully displayed information provides a unique competitive advantage.

Another previous study (Ponder, 2013) also suggested that a significant shift, which includes shopping attitudes and online furniture purchasing, is occurring quite gradually. This study shows that the number of people who bought furniture online doubled to 21.6% within a span of only five years. Additionally, it shows that nearly 52% of people would be willing to order home furnishings, including bulky furniture, through the internet in the future; this means that "the retailer's standalone website" is the most crucial element of online home furnishing purchase consideration for the majority of such shoppers (78.31%). Furthermore, it is highlighted that the COVID-19 pandemic and the subsequent lockdown have disrupted consumer buying and shopping habits (Sheth, 2020). Consumers are learning to improvise and learn new habits, which also emerge from technological advances and the supply chain (Chowdhury et al., 2021).

The existing research highlights that there is a lack of data concerning Singapore furniture authorities; the related reviews that are used as references for further localisation verification come from either the US or Poland. All of the data indications reveal the development of successful local furniture models from end users' opinions, which can help guide local players to meet the existing demands. It is crucial in a research study to review the available literature to understand the research topic more clearly, and a further in-depth literature review is needed to identify the research gaps; the valuable data gathered during these processes have made this research more relevant to the current requirements of stakeholders and market players. Thus, researching the local market for home furnishing online purchasing in terms of consumer behaviours is in high demand, especially for local furniture dealers.

A conceptual framework has been developed to address these research gaps with the aim of also studying local consumer behaviours with a digital lifestyle to better understand the local market by utilising analogies. Other studies (Moreno et al., 2014;

Berman and Pollack, 2021) have analysed changing factors to help formalise the omnichannel strategy with adopted consumer attitudes, thereby enhancing the strengths from both online and offline models to a new vertical eCommerce business model. This framework (Fig. 1) has been developed with two main factors, namely, external technology's impact on digital life and internal customers' attitudes and behaviours. These factors have been analysed mostly in demographic segments to evaluate the final hypotheses regarding the omnichannel for home furnishing in Singapore. Hypotheses derived from this conceptual model need to address the demographic characteristics of the consumers that contribute to their behaviours and attitudes in regard to purchasing furniture either online or offline. Online shopping frequency and purchasing time duration are also seen as contributing factors. Keeping in mind the limited resources available to analyse these purchasing behaviours in regard to how they change along with the digital life, especially in the home furnishing sector, the following hypotheses are tested using the data collected:

- H1: There is no significant relationship between gender and consumer behaviours towards purchasing furniture either online or offline.
- H2: There is no significant relationship between gender and consumer attitudes towards having either a showroom or a purely online presence.
- H3: There is no significant relationship between marital status and consumer attitudes towards having either a showroom or a purely online presence.
- H4: There is no significant relationship between income levels and consumer behaviours regarding online shopping frequency.
- H5: There is no significant relationship between income levels and consumer attitudes towards having either a showroom or a purely online presence.
- H6: There is no significant relationship between education and consumer behaviours regarding purchasing time duration.

The present study about home furnishing in Singapore is examined in the context of the impact of digital technology, changes in home furnishings and changes in buyer behaviours.
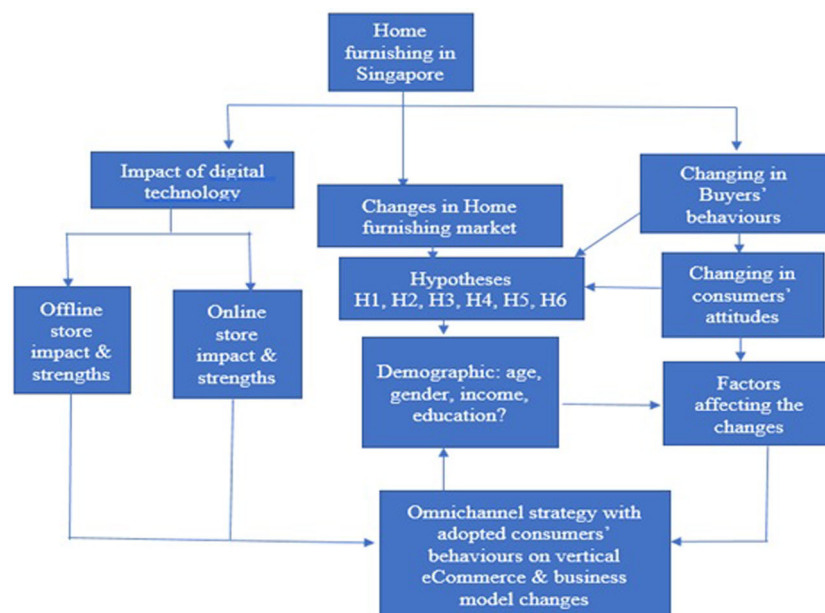

Fig. 1 Conceptual framework for a study on the impact of digital technology on changing consumer behaviours.
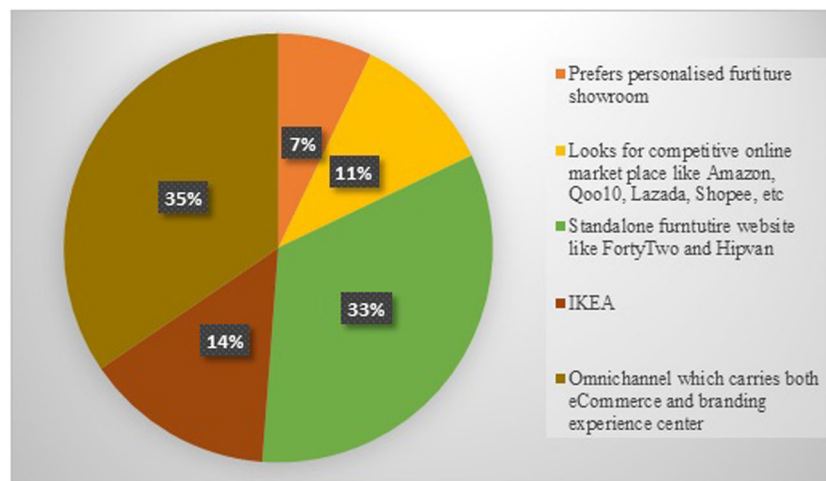
Fig. 2 Consumer shopping behaviour on home furnishings.

Table 1 Cross-tabulation—gender and furniture purchasing offline or online.					
Consumer behaviours	**Furniture purchasing offline or online**			**Number of respondents**	**Percentage**
	Purely online	**Purely offline**	**Purchased on seller's website after viewing the physical items**		
Gender Female	11	4	19	34	43
Male	6	1	36	43	54
No Response	0	1	2	3	4
Total	17	6	57	80	100
Percentage	21	8	71	100	

Table 2 Chi-square test results.			
Details	**Value**	**df**	**Asymptotic significance (2-sided)**
Pearson's Chi-square	10.791[a]	4	0.029
Likelihood ratio	10.558	4	0.032
Linear-by-linear association	5.284	1	0.022
No. of valid cases	80		

[a]Five cells (55.6%) had an expected count of <0.5. The minimum expected count was 0.22.

Impact in digital technology is studied in both offline and online store impact strengths. Changes in buyer behaviours lead to the study of the attitudes and factors that affect these changes. These changes are, in turn, studied along with the omnichannel strategy of adopted consumer behaviours concerning vertical eCommerce and business model changes. Various demographic characteristics, such as age, gender, income and education, are also studied along with the hypotheses that are developed and tested.

Methods

The present quantitative research used a deductive approach based on the literature (Bell et al., 2018; Creswell, 2014). The research also applied realism to the study process, which is a philosophy based on the scientific approach to developing knowledge (Saunders et al., 2009). A cross-sectional analysis was applied, with participants being arranged in different groups; this approach did not require an extended monitoring period of longitudinal research (Jackson, 2015). The research design used in this study was descriptive in manner, which means that it aimed to accurately portray the character of a group or situation.

The primary data (Corbin and Strauss, 2014) were collected using convenience sampling as the technique method. The research instrument used was a questionnaire consisting of four parts: sociodemographic information, buying behaviour, behavioural intention to purchase furniture, and external influences of purchasing. Eighty-four respondents were selected to participate in the study. The participants were aged 18–75, with miscellaneous income and education levels and specified sexes and marital statuses. To minimise the discrepancy of the sample, the research was carried out using nonprobability sampling, in which everyone had an equal chance of being selected and selection was based on the individual's availability and having enough time to complete the questionnaire (Bryman, 2016).

Data were collected from the respondents, who were members of the general public in Singapore who had internet access. The survey questionnaire was posted on social media and responded to anonymously via Google Forms between October and November 2020. Validity tests were conducted for the research instrument. Content validity was assessed by seeking feedback from two information technology professionals, two marketing professionals and two experts in the home furnishing industry. Construct validity was assessed by consulting a statistician to ensure that appropriate variable types, such as nominal, ordinal and categorical, as well as appropriate intervals, were chosen. Reliability analysis was performed using Cronbach's alpha measure, where a score of at least 0.73 or above is considered reliable (Bell et al., 2018). The Cronbach's alpha reliability score for the current research instrument is 0.749. As this score is >0.73, the research instrument used in the study is considered to be reliable.