

Impact Of Digital Media Competencies And Innovation On FMCG Marketing Towards Organisational Technological Sustainability In Malaysia

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Abstract

This study reconstructs the effects Digital media competencies and creativity have on FMCG company's marketing campaigns in Malaysia as far as long-term technological sustainability if considered. The main goal of this study is to understand how technology, innovation, and corporate environmentalism are connected in the processes of online advertising applied by brands in Malaysia studying the FMCG sector. This study uses a mixed methods design, involving both quantitative and qualitative data collecting techniques. The quantitative data was collected by using a survey tool sent to 370 people including marketers and IT professionals who are selected as the sample for this study whilst qualitative findings were drawn from ten experienced managers, marketers, and IT professionals who have been working in the definite sector more than 5 years through in-depth semi-structured interviews conducted. The results of this study suggest that there is a significant link between digital media capabilities and innovation and their influence on FMCG promotional activities, customer loyalty, and business longevity in Malaysia's market context. This statement highlights the importance of adapting to changing consumer behaviors, leveraging e-channels to enhance customer engagement, and making data-driven decisions to achieve technological sustainability.

Key Words: Customer engagement, marketing strategies, digital marketing, online promotional activities, blockchain technology, etc

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1. Introduction

The FMCG trade in Malaysia has grown tremendously over the past years. FMCG includes items ranging to food and beverages, to personal care, and household products. Fast-moving consumer goods (FMCG) have a high proportion of over 70% which is attributable to the wide array and affordable prices of these goods as compared to other products sold by retailers (Sprout Social, 2021). But this progress has resulted in greater rates of consumption which are disadvantageous to nature and the standard of living of people. Marketers are required to change their strategies since customers are getting more and more concerned about the environment. The entrance of digital media into the space of FMCG advertising in Malaysia has completely changed the landscape over recent years. Digital media, for instance, social networking, internet video and so on, are swiftly taking the place of others that have been in use for a long time. As a result FMCG companies have made more investments in online advertising to improve their reach to the target customer and maintain an edge over their competitors (Yuan et al., 2020). As a result, the marketing environment becomes even more complex and constantly changing than ever, in turn, requiring the constant adoption and implementation of innovative digital marketing tools.

The use of term, "digital marketing" refers to various methods and media that are used for the promotion of products or services online. It enables businesses to engage with their customers and in turn, boost their

loyalty levels while providing helpful data. It allows for customized contacts with the consumers and builds brand confidence. Knowledge and Creativity in online media are significant to the marketing tactics as well as "fast-moving consumer goods". This can help organizations develop some of these skills that may improve their advertising campaigns and give them a sustainable future. This research aspires to study the relationship between digital media capabilities, creativity and FMCG advertising in Malaysia to enhance the effectiveness of advertising strategies and secure the longevity of businesses within a highly competitive FMCG industry.

This discourse mainly focuses on the effects of online-based advertisement on building a brand and creating a bond between customers and the brand, as well as how it is being transferred within the 'Fast-moving consumer goods' (FMCG) sector in Malaysia. The evolution of digital channels and the intelligence they offer about consumers' preferences and purchasing behavior have propelled online marketing as a leader in the business.

By understanding client needs and adopting relationship-centered marketing approaches, companies are beginning to utilize online advertising channels for customer acquisition and growth of businesses. Because of the abundance of user-generated content on these sites, businesses may get valuable views into the thoughts of future consumers. Having this knowledge

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allows companies to develop of targeted marketing and networking initiatives.

Online advertising is essential for creating a successful company that caters to the needs of its target audience. It helps businesses put their wares in the right mental space for buyers. The proliferation of e-commerce platforms like Wal-Mart may be traced to the convenience, accessibility, and widespread usage of mobile phones.

Several organizational skills are highlighted as crucial for success in the fast-moving consumer goods business. Potential in areas like advertising, administration, technology, and resources all fall under this category. Companies that have strong marketing capacities are better equipped to monitor market trends, adapt to client feedback, and launch innovative goods and services (Zeraati et al., 2019). Capabilities associated with leadership enable executives to make the most of the organization's assets and personnel to achieve consistently high standards for excellence and strategic foresight. The ability to integrate novel practices and processes is facilitated by technological prowess and contributes to non-monetary benefit. The potential of a company's resources includes both the actual and intangible resources that the company will require to succeed. In order to create and sustain competitive advantages over the long term, firms must collaborate and share resources.

Intense rivalry and the necessity for businesses to enhance customer involvement, effective operational procedures, and rapid supply chain management are highlighted as distinguishing features of Malaysia's fast-moving consumer goods (FMCG) market. Brands like Nestle and PPB Corporation, both major players in the Malaysian FMCG market, are highlighted (Sprout Social, 2021).

The role of online advertising in boosting awareness, devotion, and willingness to buy is highlighted. Companies may connect with their consumers, encourage repeat purchases, and boost their brand's reputation by using the Internet and social networking channels. The debate overall emphasizes the significance that online advertising, organizational skills, and potential resources play in brand creation, customer interactions, and corporate performance within the fast-moving consumer goods (FMCG) sector, especially in Malaysia.

In the exploration of the impact of digital marketing and innovation on organizational technological sustainability within the FMCG industry, several research gaps emerge, encompassing knowledge, theoretical frameworks, practical applications, methodologies, and evidentiary support. The identification and understanding of these gaps are crucial for framing the research questions and guiding the trajectory of the study.

The research objectives for this analysis are focused on the way how FMCG companies adopt digital marketing strategies and how it impact technological sustainability. This research also evaluates digital marketing tools and their roles in brand management.

Again, it also researches deeply to determine the impacts and implementations of sustainable marketing strategies in the Malaysian FMCG industry.

The research questions are-

1. How have Malaysian FMCG brands adapted their digital marketing strategies during telecom and information revolutions to enhance organizational technological sustainability?
2. What is the nature and impact of sustainable marketing campaigns implemented by FMCG brands in Malaysia, and how do they align with organizational technological sustainability practices?
3. What are the impacts of digital marketing strategies and innovation in technological sustainability in the FMCG companies?
4. Which digital media marketing tools are utilized by Malaysian FMCG brands, and how do they contribute to brand development and consumer relationships, enhancing organizational technological sustainability?

This research focuses on the moral impacts of digital marketing development in Malaysian FMCG lying out that despite its contemporary nature. In response to the challenging sales situation brought about by the pandemic of COVID 19, it is clear that Malaysian FMCG companies have come under considerable pressure and need a rebuild from apparent mistrust created among people as well as adapt quickly to other fast-changing economic parameters. This study focuses on the key role of digital platforms encompassing social media playing a critical part in building a meaningful connection between brands and clients, offering valuable insights, and ensuring improved customer service. The core element of this study is to determine how digital media marketing fosters the development of credibility and loyalty in FMCG industry customers. The designed research seeks to disentangle how digital marketing strategies ranging from direct brand-consumer linkages to utilization of online reviewing platforms and gather socioeconomic data through social media analytics help in enhancing the effectiveness of FMCG firms in Malaysia. By analyzing the ways of consumers' behavior in digital settings, this study offers practical ideas to FMCG companies that enable them to market their products and services online, as well as maintain established relations and lay a foundation for new customers.

This research concentration is on digital media marketing and its contribution to the growth and satisfaction of FMCG companies' customer base. The FMCG sector is a significant undefined to the economy of to each one commonwealth Dutta et al., (2020). The overall goal of the study is to determine the strength of digital media publicizing in influencing tauten performance, new users' acquisition, and repeat customers. It is a representation of the business enterprise stability of the FMCG sector and its ability to thrive in worldly meltdowns. The study reveals the formal outcomes of online advertising, which include favorable undefined opinions on the brand, brand loyalty, and buy up decisions. One of the underlying themes in the explore is that online advertising

strategies are necessary for the success of businesses from the FMCG industry.

2. Literature review

Globally, the digital revolution has had a significant influence on the fast-moving consumer goods (FMCG) sector (PRIYA & JAGADEESAN, 2023). According to Nipa et al., (2024), the FMCG industry has been utilizing digital technologies to improve customer experience since the last decade. FMCG sector in Malaysia has become one of the fastest-growing economic sectors, making a substantial contribution to the nation's GDP. This business includes a wide range of goods, including medications, food and drink, personal care and home care products, and more. But as the sector has developed, businesses have encountered more difficulties. Because of fierce competition and shifting consumer tastes, Malaysia's FMCG sector has struggled to attract and keep consumers.

According to Wei et al., (2022), the transition towards digital technology is transforming not only how firms run but also how consumers engage with them. Also, Sridevi (2021) stated that the growth of social media, mobile gadgets, and e-commerce portals has given buyers greater freedom and choice, enabling them to readily access and evaluate products and services from multiple firms. Millennials use the internet for social media, entertainment, news, and shopping. Digital marketing works properly for reaching teenagers and young generation because of their extensive use of online media.

According to Dastane (2020), online advertising is thought to be the most prospective medium for connecting with this generation. The process of advertising goods and services employing digital means of distribution on computers, smartphones, smartphoness, and other electronic gadgets is known as digital advertising. As stated by Fithry et al., (2021), for younger generations, laptops and smartphones are commonplace tools—some even consider them necessary. Digital marketing has indeed been the subject of countless studies, but little scholarly investigation has been done into the kinds of digital advertising tactics that millennial favor and which ones have an impact on their behavior.

As stated by Nipa & Chowdhury (2024), social media provides marketers with incredible opportunities to reach consumers in their online communities and build increasingly intimate relationships with these individuals. Yuan et al., (2020) stated that social media

platforms like Facebook, Instagram, Twitter, LinkedIn, and YouTube have transformed the production, distribution, and consumption of brand content by giving users' online relationships and content the ability to influence brand perceptions.

As stated by PRIYA & JAGADEESAN (2023), the innovative use of a range of social media channels to promote their products and company operations. Furthermore, it was determined that customers are happy when they purchase FMCG goods using social media marketing platforms.

According to Sridevi (2021), businesses must stay up to date with the ever changing technological landscape and have the marketing savvy required to properly advertise their products and services if they want to remain competitive. Every house now has a growing variety of automated devices, which is beneficial for social media marketing. According to Obeid (2023), higher-quality products and services can be delivered as a result of the consumers' ability to carefully analyze the company's cost and quality, swap out their items for roughly superior options, and discuss their personal encounters with other consumers.

Nevertheless, the study on 277 respondents conducted by Nipa & Chowdhury (2024) also reveals a nuanced link between overall efficacy and brand recognition outcomes, showing that improved digital marketing effectiveness is not always correlated with higher brand recognition. This implies that although brand awareness is important, its impact on marketing performance is complex and might entail other mediating variables or decreasing returns.

As stated by Ahmed et al., (2019), the FMCG (“Fast Moving Consumer Goods”) business, in particular, has undergone a number of considerable changes over the past years largely due to the shift from conventional television system commercials to the internet channels. The increment of technology, the step-up in the number of electronic media and mobile phones have influenced this change as well as consumers’ habits. By 2010, it was latent for businesses to realize there was a considerable audience reachable by mobile and web-based platforms. As such, these new mediums permitted brands to engage with their target audience and pass out highly targeted promotional materials. The development of social networking sites has been one of the main factors that have contributed to this trend, as it offered a more personal approach in which businesses could communicate directly with their potential consumers.

Table 1:

Authors	Descriptions	Citations	Research criteria
(Haghighi Kaffash et al., 2021)	This article would help to describe the models of marketing and sales strategies in details for the FMCG industry.	Haghighi Kaffash, M., Dehdashti Shahrokh, Z., Khashei, V., & Hajari, R. (2021). Designing and Explaining a Model of Marketing and Sales Strategies in the Food Distribution Industry. <i>Journal of Business Administration Researches</i> , 13(25), 331-369.	This article helped to evaluate sales and marketing strategies that FMCG companies are using.

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(Nipa & Chowdhury, 2024)	This article describes the relationship of brand recognition and business performance in the era of digital marketing.	Nipa, M. N., & Chowdhury, M. S. A. (2024). The Impact of Digital Marketing on Brand Awareness in the Multinational FMCG Sector.	Describes how FMCG companies use digital tools and strategies to improve brand recognition followed by business performance.
(Yuan et al., 2020)	Describes how digital marketing improves brand loyalty and awareness.	Yuan, D., Lin, Z., Filieri, R., Liu, R., & Zheng, M. (2020). Managing the product-harm crisis in the digital era: The role of consumer online brand community engagement. <i>Journal of Business Research</i> , 115, 38-47.	FMCG companies use the digital marketing described in this article.
(Das, 2020)	This article provides a lot of research on brand equity and consumer perceptions.	Das, S. (2020). Innovations in digital banking service brand equity and millennial consumerism. In <i>Digital transformation and innovative services for business and learning</i> (pp. 62-79). IGI Global.	This article is quiet useful for this research to understand brand equity and consumer perceptions.
(Dutta et al., 2020)	Challenges and application for maintaining a supply chain can be understood in-depth from this research analysis.	Dutta, P., Choi, T. M., Somani, S., & Butala, R. (2020). Blockchain technology in supply chain operations: Applications, challenges and research opportunities. <i>Transportation research part e: Logistics and transportation review</i> , 142, 102067.	This article is quiet beneficial to gather information and knowledge in supply chain operations and helped this research a lot.
(Fithry et al., 2021)	The article explores different corners of consumer behavior and product strategy of Unilever.	Fithry, A. N. I., Hariyanto, M. I. Z. P., & Utami, E. S. (2021). The Impact of Consumer Behaviour Megashift on Unilever's Product Strategy During COVID-19 Crisis. <i>UNEJ e-Proceeding</i> , 61-65.	This paper helps the research analysis in defining consumer behavior and impacts.
(Zandi et al., 2021)	This article analyses packaging and customer purchase intentions in the snack food market.	Zandi, G., Xiaokang, S., & Nellikunnel, S. INNOVATIVE PACKAGING ATTRIBUTES AND CUSTOMER PURCHASE INTENTION IN SNACK FOODS.	The article helps to understand the concept of packaging attributes and customer purchase.
(Wei et al., 2022)	This article defines the impact of user and firm generated content brand loyalty.	Wei, L.H., Huat, O.C., and Arumugam, P.V.(2022). Social media communication with intensified pandemic fears: evaluating the relative impact of user-and firm-generated content on brand loyalty. <i>Asia-Pacific Journal of Business Administration</i> .	The paper assists to explore wide range descriptions on brand loyalty that is also needful for this research.

According to (Das, 2020), in the contemporary marketplace, brand identity has become extremely vital for all organizations. A brand is a distinct identification of a company's product or service. It allows both the business and the customer to distinguish between comparable items or services provided by other companies. Also, Yuan et al., (2020) stated that in the context of competition, a brand name is more than just a distinctive identification. According to Wei et al.,

(2022), social media communication enables comparable brand users to exchange their opinions. They also added that whenever users create groups, brand trust grows.

As stated by Dutta et al., (2020), blockchain has enormous potential to alter all aspects of supply chain management, from obtaining raw materials to market distribution. It also facilitates supply chain reengineering by developing a blockchain-based BPR

(“Business Process Reengineering”) framework. According to Haghghi Kaffash et al., (2021), each interaction may be reconstructed using the blockchain system, making the trip more efficient and safe.

The rapid and widespread increase in internet connectivity and electronic media has altered the consumer packaged goods market to a great extent. Considering the number of internet users, which is approximately 2.7 billion people around the world, digital platforms have moved past their traditional counterparts to become a primary way for businesses to reach out to their desired audience and secure their loyalty. Social networking sites have, in particular, emerged as a powerful tool for FMCG companies to connect with their consumers and offer tailor-made experiences.

The technological development has also impacted the fast-moving consumer goods industry. Companies have incorporated automation, AI, along data analytics to enhance the efficiency of production, reduce costs, and understand customers’ behavior better. The use of cloud computing, big data methodologies, blockchain technology, and IoT technologies have improved operations and optimized distribution networks (Damirchi et al., 2022).

Sustainability is no longer limited to organizational and technical issues as FMCG businesses now give priority to both. Technical long-term sustainability is the reduction of the ecological impact of a firm by means of resource-efficient procedures, while organizational sustainability is maintaining competitive innovations. Environmental actions may help FMCG companies maintain their future and retain customers’ interests, which are in constant change.

Online media has been a strong influence of the fast-moving consumer goods industry in Malaysia. The shift from traditional to digital channels allows organizations to customize their advertising efforts for individual customers, and monitor the effectiveness of their initiatives in real-time. Malaysian marketers in the FMCG sector cannot continue to dismiss social networking sites, SEO, email campaigns, content promotion, or paid advertising. Traditional media is costly, ineffective and insufficient in comparison to online marketing mediums that give businesses the opportunity to interact with their target audiences efficiently and affordably.

Overall, the fast-moving consumer goods sector is transformed by digital media as well as other technical innovations. In fact, many firms today greatly concentrate on the web, relying on social networking sites, data statistical analysis, and online advertising to reach their target market and in turn increase sales. The success of FMCG organizations will be based on their ability to navigate the digital landscape and integrate sustainability.

Performance is a cornerstone of strategy development, and its importance is emphasized here for its significance in evaluating firms and their settings. Insights from customers, output, efficacy, advertisement, and functionality are just few of the

non-monetary performance indicators addressed by (Das et al., 2020). Because of the influence of social media, more and more companies are integrating online communities into their advertising campaigns. A company's capacity to grow and increase sales is dependent on the quality of its customer relationships and the brilliance of its employees. As one of the major industries, FMCG communicates with its massive number of customers all over the globe through the internet. Businesses need to be aware of evolving market conditions and flexible enough to quickly adjust to a new environment of competition as the globe recovers from the epidemic. Businesses now require investments in digital competence and creativity to keep up with customers' ever-evolving expectations, as seen by the rise in online shopping. Health and wellness advocacy in the fast-moving consumer goods sector is also addressed.

The market for fast-moving consumer goods (FMCG) has been profoundly affected by the rise of social networking sites and online advertising. These sites have transformed the ways in which FMCG businesses market their products to the end users and finally impact on increased sale.

Enhanced reach and visibility: Through such social media platforms, the FMCG companies can reach and interact with a large population in a short time (Elasrag, et al.,2022). They can increase their brand’s presence, penetrate previously unopened markets, and interact with consumers from anywhere in the world. The fact that this increase in exposure leads to an improvement of FMCG businesses’ market share and customer base is the main reason why it can be advantageous.

Direct customer engagement: (Zeraati et al., 2019) notes that the direct interaction between the consumers and FMCG businesses through online advertising is made possible. They are able to provide an instant response to questions, comments, and complaints from the customers. Personal involvement results in brand loyalty, customer links, and knowledge of personal choices and trends.

Targeted advertising: Through the use of social media platforms, targeting potential users of FMCG products can be done in a more detailed manner, using the advanced targeting features present on such platforms. The systematic strategy ensures that the right people are given what they need to facilitate increased conversion rates and ROI.

Influencer marketing: Companies that are in the fast-moving good consumer industry hire social media influencers to market their products to boost sales and reach a large market. FMCG firms can use influencers since they have already developed a large and loyal fan base; the influencers may help to increase the awareness and credibility of products.

Real-time analytics: FMCG institutions can quickly make use of information from online advertisement and analysis that may be derived from the same source (Fischer et al., 2021). They can verify the effectiveness of their ads, they can track the level of customer engagement, can calculate conversion rates and so on

that provides them with an opportunity to make data-driven decisions and improve their strategies.

As (Damirchi et al., 2022) have indicated, the FMCG industry has witnessed a substantial revolution in recent years through the use of social media sites and online advertisements, which has helped these firms reach their targeted consumers and grow their businesses. Therefore, firms in the FMCG domain cannot afford not to accommodate such online platforms if they are to be relevant in the modern market.

2.4 Importance of digital competencies to facilitate technological sustainability of the Malaysian FMCG market

The FMCG sector in Malaysia requires digital competencies as it is essential to ensuring the continued technical viability of the sector.

Adaptation to changing consumer behavior: The behavior of the customers in Malaysia's FMCG industry has also significantly changed where the demand for online purchases and communication is high. Companies in the FMCG industry that have established robust e-commerce web pages, implemented efficient internet advertisement strategies and delivered seamless online purchase experiences are better able to analyze and react to changes in consumer tastes. The ability to be able to adjust is essential in refines.

Enhanced customer engagement: Digital competence of FMCG firms is found to be directly related to their digital interfaces with their clients through various channels Haghghi Kaffash et al., (2021). Digital technologies like Social platforms, mobile apps etc help companies to work closely with customers pinpoint their needs and maintain long-term relations. This kind of interaction significantly increases customer satisfaction, loyalty, and in turn, sales.

Data-driven decision-making: The power to collect, analyze and interpret data on consumer behaviour trends market development and revenue growth is enabled by FMCG firms that have superior digital competencies. According to Elasrag et al., (2022), decision-making, marketing tactics and growth potentials can all benefit from this data-driven approach. The FMCG companies use their digital competencies to compete and provide solutions to their customers.

Operational efficiency: FMCG companies may benefit greatly from automated processes, the simplification of certain operations, and the digitization of others, particularly when their staff possesses strong digital skills. Adopting digital technologies may help businesses enhance operations like supply chain and inventory management in addition to increasing productivity and cutting expenses (Nipa & Chowdhury, 2024). The organizations can optimize their operational efficiency through the utilization of the digital tools and equipment. Businesses are able to more readily and successfully satisfy the demands of their clients as a result of this efficiency.

Innovation and product development: New digital capabilities are flowing into the consumer packaged goods market, which offers a lot of possibilities for development and innovation. Innovative moves not only improve strategies but also develop digital marketing tools to effectively adopt the digital marketing strategies for the technological sustainability. AI-prompted devices, advanced data analytics, machine learning, and the IoT allow enterprises to produce novel products, tailor their services to specific consumers, and stay competitive over a long time (Elasrag et al., 2022).

2.5 Theoretical Views

Resource-based View Theory

According to Freeman et al., (2021), the Resource-Based View (RBV) theory, central to this research, posits that a firm's sustained competitive advantage emanates from possessing unique and valuable resources. This theoretical view demonstrates that the competitive edge of a business is not derived from outside marketplace circumstances instead comes from its own internal assets and expertise. To get a long-term edge over rivals in digital marketing, this means concentrating on internal capabilities such as proficiency in data-driven analysis, customer experience, CRM, or social media advertising. In the context of the FMCG industry, digital marketing capabilities and innovative practices stand out as integral resources influencing organizational technological sustainability. RBV directs attention to the strategic assessment of these resources, urging researchers to delve into their uniqueness, rarity, and contribution to a sustainable competitive advantage (Shibin et al., 2020). As stated by Yang et al., (2019), RBV directs attention to the identification of specific digital marketing capabilities that contribute to technological sustainability. In the context of the FMCG industry, this implies an exploration of how organizations evolve their digital marketing and innovation practices over time. The theory prompts an analysis of organizational strategies for staying abreast of technological advancements and industry trends.

Technological Acceptance Model

The "Technological Acceptance Model" (TAM) emerges as a crucial theoretical framework for understanding the acceptance and utilization of technology within organizations, and its implications for the research on the impact of digital marketing and innovation on organizational technological sustainability in the FMCG industry are significant. Research on the use of social media platforms for marketing, the firm's recognition and reaction to "technological opportunism", and the proactive adoption of useful, inter-firm technologies like radio frequency identification (RFID), Global Positioning Systems (GPS), and other supply chain technologies are just a few examples of how the TAM has been applied to businesses (Susanti & Astuti, 2019). TAM is well-suited for this study due to its foundational

emphasis on user perceptions and attitudes toward technology. In the context of the FMCG industry, where the integration of digital marketing and innovative practices is rapidly evolving, understanding how these technologies are accepted by users becomes pivotal. TAM, developed by Davis in the 1980s, posits that perceived ease of use and perceived usefulness are critical determinants of an individual's intention to use a technology. According to Kalayou et al., (2020), the theory prompts researchers to analyze the perceived ease of use of digital technologies employed in marketing practices and the perceived usefulness of these technologies in contributing to organizational objectives, particularly those related to technological sustainability.

Innovation Diffusion Theory

The Innovation Diffusion Theory, developed by Everett Rogers, provides a valuable lens for understanding how innovations spread within a social system. Rogers defined 5 steps in the innovation-decision process and those steps are: knowledge, persuasion, decision, implementation and confirmation. This theory helps to understand how technological innovations help to promote sustainability in the company functions. According to Dillon (2023), an innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption. Based on this concept, an invention can still be deemed innovative even if it is novel to the individual. For this research, the DOI theory serves as a conceptual framework for exploring how digital marketing and innovative practices permeate the FMCG industry. Moreover, this theoretical concept aligns with the multifaceted nature of digital marketing and innovation in the FMCG industry by (Omri et al., 2020). This sector often witnesses the introduction of diverse technologies and practices, ranging from new communication channels to novel sustainability initiatives. The theory encourages researchers to analyse how internal factors within organizations, such as leadership support and organizational culture, intersect with external factors, such as market trends and consumer preferences, to shape the diffusion process.

The implications of the various digital media capabilities and innovations in Malaysia have been done so by most researchers today but not without question; there appears to be very little that is known about how some specific implementations affect the marketing strategies of FMCG companies using this mantle, particularly under technological sustainability. While the body of literature on the broader impact of digital marketing and innovation across industries is increasing, including case studies describing examples from different countries, research addressing FMCG with a focus solely on Malaysia is virtually non-existent (Shibin et al., 2020). This oversight is leaving several important questions unanswered about being a unique challenge, opportunity, and how to leverage digital media and innovation in this sector.

Mirutza, Friedman & Palcic-Mijić, (2016) revealed the lack of research and knowledge regarding digital media capabilities, innovation and organizational technological sustainability in Malaysia's FMCG industry. How these elements interact and support the resilience, as well as the long-term sustainability of FMCG companies amid rapid technological developments has a strategic importance to immediately innovate based on the development. The next step in the future of research, therefore, should turn to studies with an empirical perspective aimed at investigating the impact that digital media competencies and innovations have on FMCG marketing within the Malaysian paradigm. One of the types of such concentrated investigations is burrowing into actionable insights that could allow FMCG input in Malaysia. These findings will be very relevant for the FMCG corporations wishing to make sense of this complex phenomenon as digital marketers, and hence improve their competitiveness with a mindful approach towards technological sustainability amid rapid market changes.

Literature gap

The prior study had several limitations, including: 1. The influence of digitalization on the FMCG business has not received much attention. 2. No particular study has been done on how to communicate with the target audience. 3. Insufficient data on customer base, brand awareness, and income to make use of digital media.

3. Research methodology

Research variables

Independent variables: Email Marketing, Mobile Marketing, Social Networking & Search Engine Optimization and Website Traffic.

Mediating variables: Innovation in Telecommunication Technology (Smartphone Technology & Generation Technology) & Innovation in Information Technology (Fiber optics Technology & Processor Speed).

Moderating Variables: Advertisement characteristics (Design, Duration & Quality) & Customer attitude (WOM, Previous Purchase Experience & Brand loyalty).

Dependent variables: Organizational Technological Sustainability.

Research Hypothesis

Digital marketing contributes significantly to organizational technological sustainability by utilizing data-driven methods and environmentally friendly platforms. It eliminates the necessity for physical marketing materials, ensuring minimal environmental degradation. Through the use of tools like social media, email marketing, and SEO, organizations can access greater audiences with decreased resource usage. Moreover, digital marketing promotes the use of advanced analytics and automation, enhancing long-term technological innovation. It enables real-time interaction and feedback, enabling companies to

quickly respond to market trends and consumer behavior. Overall, digital marketing enables sustainable operations while increasing operational effectiveness and technological vulnerability within a competitive digital environment. Therefore, it can be hypothesized that-

H1: Digital marketing helps to promote organizational technological sustainability.

To analyze a wide range of article and journals is also necessary for this research as it would help to understand things with more extensive and deeper information of the topic. Therefore, inclusion and exclusion criteria are also necessary for the research to get validated and thorough information in a standardized parameter.

Table 2:

Research criteria	Descriptions
Inclusion criteria	IT professionals and FMCG marketers aged between 25 and 65 will participate in this research who have minimum 5 years experience in IT and marketing domain in the FMCG industry.
Exclusion criteria	Experience less than 5 years and aged below 25 and above 65.

A mixed-method approach or research strategy that includes both quantitative research on survey responses, qualitative analysis on interview responses will be employed in this study to assess the impact of digital media on the FMCG industry in Malaysia, user satisfaction, and customer loyalty. This approach answers questions such as "when, how, what, who, and where," providing both statistical data and descriptive information on the state and progress of digital media. To complement the quantitative data, primary research will be conducted to explore participants' perspectives on their thoughts, choices, and behaviors. On the other hand, primary data will be collected from the interviewee that will also help in providing grassroots-level descriptions by qualitative analysis on issues faced by FMCG in implementing digital media marketing, significance of medium, effective strategies to mitigate the challenges, etc., that will be helpful to gather accurate and authentic data from the managers, marketers, etc., in the FMCG sector in Malaysia. The advantages and drawbacks of this method will be considered, along with its application in understanding consumer behavior and acquiring natural data.

This research is centered on private-sector employees in the Fast Moving Consumer Goods (FMCG) sector of Malaysia. The study estimates a population size (N) of 12520, which comprises IT and managerial personnel in Malaysia's FMCG business. The research randomly selected respondents to gather their opinions on a certain issue. If the population percentage of the sample is 50% and the margin of error is 5%, the sample size is 370 at 95% confidence level. The objective of this is to give useful information on the influence of digital marketing on Malaysia's FMCG sector. This strategy gives a population that is representative as respondents are selected at random from the main sub groups in the broader FMCG labor force like different organizations or areas of location and hence improves the representativeness of sample. In the qualitative aspect, purposive sampling has been employed with purposive sampling selection of 10 very knowledgeable marketers and IT professionals among other FMCG companies in Malaysia. The approach concerns participants focused

on a great deal of experience and knowledge in digital marketing, innovations and practices of advertising their sector; thus, the leaders can give valuable details and suggestions about topic from their perspective. Primary data was collected using a questionnaire poll directed at web surfers and prospective FMCG buyers in Malaysia. In order to capture information quickly and accurately, the survey included both open-ended and closed-ended inquiries. To learn more and verify the study's assumptions, in-depth semi-structured interviews were also performed. The condition of the FMCG business in Malaysia plus the effects of online advertising thanks to the primary data that are gathered via questionnaires and interviews can be understood to its core.

Limitation and future recommendations

This study has a caveat of not being able to generalize results from these. However, this research was designed to apply only in the FMCG sector of Malaysia; thus, the findings may not be applicable in other settings. The number of participants is not large, with the questionnaire being filled out by 370 marketers and IT professionals and only 10experienced executives being interviewed. The findings may not be an example of other cases because the sample is small. The use of a questionnaire survey is also open to the problem of response bias since the survey relies on data from respondents. Limitations include less number of participants as limits the opinions and data collection. This research would help the marketers and entrepreneurs to adopt the digital marketing strategies for the FMCG industry. Again, it would help to understand the digital marketing tools and their roles in the sustainability. Therefore, this research would be beneficial for the digital marketers, researchers, and FMCG companies to streamline their sustainability innovations.

4. Research Findings and Discussion

The research findings from the analyzed data highlight the critical effect of internet media capabilities and development on the showcasing techniques of FMCG

organizations in Malaysia, and how these add to technical sustainability. The quantitative data gathered from 370 advertisers and IT experts, alongside qualitative data from semi-structured interviews with 10 experienced chiefs and experts, give an exhaustive comprehension of this relationship.

The review features the basic job of computerized media abilities and development in driving the advertising outcome of FMCG organizations in Malaysia. The discoveries uncover that the incorporation of advanced promoting procedures has altogether changed the manner in which FMCG brands draw in their clients, prompting further developed brand devotion and consumer loyalty.

Technological Advancements and Marketing Efficiency

The adoption of telecommunication technology has given FMCG organizations the devices expected to execute exceptionally powerful advertising efforts. The utilization of smartphone and innovation and high velocity web has empowered advertisers to contact a more extensive crowd with more prominent accuracy (Elasrag., 2022). This has brought about more customized and drawing-in-promoting endeavors, which are essential for building enduring client connections in the computerized age.

Sustainable Marketing Practices

The shift towards maintainable promoting practices shows a more extensive pattern inside the FMCG business to meet purchaser assumptions for natural obligation. By incorporating eco-accommodating messages and advancing practical items, FMCG organizations upgrade their brand recognition as well as add to more extensive environmental objectives (Yuliastari et al., 2022). This arrangement with sustainability practices is fundamental for long haul innovative supportability, as it guarantees that promoting endeavors are both compelling and morally sound.

Challenges in Digital Marketing Implementation

The research findings also additionally recognize a few difficulties in the execution of social media promotional techniques. Significant expenses and the requirement for constant development present critical obstacles for FMCG organizations. Also, the estimation of advanced promoting viability stays complex, requiring refined instruments and investigation (Wei et al., 2022). Tending to these difficulties will be urgent for FMCG organizations to use the capability of social media advertising completely.

Future Prospects

Looking forward, the consistent advancement of social media promotional instruments and methods presents various opportunities for the FMCG industry. Embracing big data analytics and AI can additionally improve the adequacy of promoting efforts, taking into consideration significantly more designated and

proficient client commitment (Haenlein et al., 2020). Moreover, progressing interest in advanced media abilities will be fundamental for FMCG organizations to keep up with their strategic advantage and accomplish technological sustainability.

5. Conclusion and suggestions for future study

Finally, it can be stated that the review exhibits that advanced media abilities and development are urgent for promoting achievement and mechanical manageability of FMCG organizations in Malaysia. By embracing these apparatuses and practices, FMCG brands can accomplish more prominent client steadfastness, further developed brand improvement, and long haul business feasibility in a quickly changing computerized scene.

The research conclusion must discuss how research findings and results establish the research hypothesis; otherwise the research can't be concluded successfully obtaining research aim and final considerations. In this case the research hypothesis is related to technological sustainability promoted by digital marketing strategies. From the research findings it can be stated that digital marketing encourages automation and the use of advanced analytics, which advances long-term technical innovation. It allows for real-time communication and feedback, which helps businesses react swiftly to customer and industry developments. All things considered, in a competitive digital world, digital marketing increases operational effectiveness and technology vulnerability while facilitating sustainable operations.

Future examinations ought to investigate the long-term effects of computerized advertising on FMCG firms' monetary stands or market dominance in Malaysia. Researching the functionality of advanced technology, for example, machine learning and AI, in upgrading social media promotional procedures would be important. Furthermore, this research also describes how digital marketing strategies affect consumer behavior in different Malaysian socioeconomic groups and regions might provide more insights.

7. References

1. Adanan, S., & Rasid, S. Z. A. (2021). Organizational Capabilities, Competitiveness and Business Performance of Mara Digital in Malaysia. *Journal of Advanced Research in Business and Management Studies*, 24(1), 17-33.
2. Ahmed, R. R., Streimikiene, D., Berchtold, G., Vveinhardt, J., Channar, Z. A., & Soomro, R. H. (2019). Effectiveness of online digital media advertising as a strategic tool for building brand sustainability: Evidence from FMCGs and services sectors of Pakistan. *Sustainability*, 11(12), 3436.
3. Chowdhury, S. A. (2024). Navigating the Challenges and Opportunities of Digital Marketing Adoption in the Multinational FMCG Sector.

4. Damirchi, S., Öney, E., & Sahranavard, S. A. (2022, April). The effects of social media influencers on consumers' buying intentions with the mediating role of consumer attitude. In *New Dynamics in Banking and Finance: 5th International Conference on Banking and Finance Perspectives, Famagusta, Cyprus* (pp. 45-72). Cham: Springer International Publishing.
5. Das, S. (2020). Innovations in digital banking service brand equity and millennial consumerism. In *Digital transformation and innovative services for business and learning* (pp. 62-79). IGI Global.
6. Dash, M., & Sharma, K. (2019). Marketing response modelling: Impact of digital marketing for a luxury car brand. *Journal of Creative Communications, 14*(3), 254-270.
7. Dastane, D. O. (2020). Impact of digital marketing on online purchase intention: Mediation effect of customer relationship management. *Journal of Asian Business Strategy, DOI, 10*, 142-158.
8. Dillon, H. (2023). *Digital marketing technology adoption by fashion retail Small and Medium Enterprises (SMEs) in the context of the pandemic: an analysis based on the diffusion of innovations theory* (Doctoral dissertation, University of Limerick).
9. Dutta, P., Choi, T. M., Somani, S., & Butala, R. (2020). Blockchain technology in supply chain operations: Applications, challenges and research opportunities. *Transportation research part e: Logistics and transportation review, 142*, 102067.
10. Elasrag., H.(2022). *Blockchain for Halal Industry*. Hussein Elasrag.
11. Elheddad, M., Benjasak, C., Deljavan, R., Alharthi, M., & Almabrok, J. M. (2021). The effect of the Fourth Industrial Revolution on the environment: The relationship between electronic finance and pollution in OECD countries. *Technological Forecasting and Social Change, 163*, 120485.
12. Faems, D. (2020). Moving forward quantitative research on innovation management: A call for an inductive turn on using and presenting quantitative research. *R&D Management, 50*(3), 352-363.
13. Fischer, T., Reuter, M., & Riedl, R. (2021). The digital stressors scale: development and validation of a new survey instrument to measure digital stress perceptions in the workplace context. *Frontiers in Psychology, 12*, 607598.
14. Fithry, A. N. I., Hariyanto, M. I. Z. P., & Utami, E. S. (2021). The Impact of Consumer Behaviour Megashift on Unilever's Product Strategy During COVID-19 Crisis. *UNEJ e-Proceeding*, 61-65.
15. Fong, S. W. L., Kian, T. P., Fern, Y. S., & Vincent, W. (2015). Monetary and image influences on the purchase decision of private label products in Malaysia. *Journal of Advanced Management Science, 3*(4).
16. Freeman, R. E., Dmytriiev, S. D., & Phillips, R. A. (2021). Stakeholder theory and the resource-based view of the firm. *Journal of management, 47*(7), 1757-1770.
17. George, A. S., & George, A. H. (2023). FMCG's digital dilemma: The consequences of insufficient IT expertise in the fast-moving consumer goods industry. *Partners Universal International Innovation Journal, 1*(3), 46-69.
18. Haenlein, M., Anadol, E., Farnsworth, T., Hugo, H., Hunichen, J., & Welte, D. (2020). Navigating the New Era of Influencer Marketing: How to be Successful on Instagram, TikTok, & Co. *California management review, 63*(1), 5-25.
19. Haghighi Kaffash, M., Dehdashti Shahrokh, Z., Khashei, V., & Hajari, R. (2021). Designing and Explaining a Model of Marketing and Sales Strategies in the Food Distribution Industry. *Journal of Business Administration Researches, 13*(25), 331-369.
20. Karina, A. P., & Astuti, R. D. (2022, July). The role of digital orientation, digital capability and digital innovation on the relationship of environmental dynamism towards FMCG SME's performance. In *Proceeding of the international conference on family business and entrepreneurship* (Vol. 3, No. 1).
21. Low, S., Ullah, F., Shirowzhan, S., Sepasgozar, S. M., & Lin Lee, C. (2020). Smart digital marketing capabilities for sustainable property development: A case of Malaysia. *Sustainability, 12*(13), 5402.
22. *medicine, 18*(1), 1-13.
23. Nimfa, H. M. D. T., Maimako, L. N., & Idris, I. R. (2020). Effect of digital manufacturing and consumer behaviour on firm sustainability in Malaysia. *CURRENT ISSUES IN ENTREPRENEURSHIP AND BUSINESS, 70*.
24. Nipa, M. N., & Chowdhury, M. S. A. (2024). The Impact of Digital Marketing on Brand Awareness in the Multinational FMCG Sector.
25. Nipa, M. N., Nath, A., & Chowdhury, S. A. (2024). The Influence Of Digital Marketing On Brand Awareness In The Multinational FMCG Sector.
26. Obeid, C. (2023). Exploring digital marketing optimization: Enhancing company performance with a focus on the FMCG industry in Lebanon. *Dutch Journal of Finance and Management, 6*.
27. PRIYA, K., & JAGADEESAN, P. (2023). EFFECTS OF SOCIAL MEDIA MARKETING ON SUBSEQUENT FMCG PERFORMANCE. *International Journal of Scientific Research in Modern Science and Technology, 2*(8), 63-75.
28. Rashid, A., Rasheed, R., Rahi, S., & Amirah, N. A. (2025). Impact of supplier trust and integrated technology on supply chain resilience for sustainable supply chain in FMCG sector. *Journal of Science and Technology Policy Management*.

29. Sprout Social (2021). "The Rise of Social Media in 2021."
30. Sridevi, K. B. (2021). Study on Customer's Perception towards a Digital Marketing Company. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12(11), 4631-4635.
31. Susanti, E., & Astuti, F. D. (2019). Technology acceptance model for digital marketing analysis. In *Proceedings of the International Conferences on Information System and Technology (CONRIST)* (pp. 85-91). SCITEPRESS–Science and Technology Publications, Lda..
32. Wahab, S. N., Osman, L. H., Koay, S. B., & Long, K. T. (2021). Exploring green packaging acceptance in fast moving consumer goods in emerging economy: The case of Malaysia. *Logforum*, 17(4).
33. Waste Management World. (2021). The Waste Hierarchy: Reducing, Reusing and Recycling.
34. Wei, L.H., Huat, O.C., and Arumugam, P.V.(2022). Social media communication with intensified pandemic fears: evaluating the relative impact of user-and firm-generated content on brand loyalty. *Asia-Pacific Journal of Business Administration*.
35. Williams, L.C., and Reddish, M.J.(2018). Integrating primary research into the teaching lab: Benefits and impacts of a one-semester CURE for physical chemistry. *Journal of Chemical Education*, 95(6), pp.928-938.
36. Yuan, D., Lin, Z., Filieri, R., Liu, R., & Zheng, M. (2020). Managing the product-harm crisis in the digital era: The role of consumer online brand community engagement. *Journal of Business Research*, 115, 38-47.
37. Yulastari, M., Najmudin, N., and Dewi, M.K.(2022). The Influence of Financial Ratios and Macroeconomic Indicators in Predicting Financial Distress (Empirical Study in the Consumer Goods Sector Companies). *Sustainable Competitive Advantage (SCA)*, 11(1).
38. Zandi, G., Xiaokang, S., & Nellikunnel, S. INNOVATIVE PACKAGING ATTRIBUTES AND CUSTOMER PURCHASE INTENTION IN SNACK FOODS.
39. Zeraati, H., Rajabion, L., Molavi, H., & Navimipour, N. J. (2020). A model for examining the effect of knowledge sharing and new IT-based technologies on the success of the supply chain management systems. *Kybernetes*, 49(2), 229-251.
40. Zhe, B. O. M., & Hamid, N. A. (2021). The impact of digital technology, digital capability and digital innovation on small business performance. *Research in Management of Technology and Business*, 2(1), 499-509.