

Article

Smart Digital Marketing Capabilities for Sustainable Property Development: A Case of Malaysia

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Abstract: Digital tools and marketing have been widely adopted in various industries throughout the world. These tools have enabled companies to obtain real-time customer insights and create and communicate value to customers more effectively. This study aims at understanding the principles and practices of sustainable digital marketing in the Malaysian property development industry by investigating the extent to which digital marketing has been adopted, the impediments to its adoption, and the strategies to improve digital capabilities for the local context. Digital marketing theories, practices, and models from other industries are adopted and applied to the local property development industry to lay the foundation for making it smart and sustainable. This paper proposes a marketing technology acceptance model (MTAM) for digital marketing strategy and capability development. The key factors used in the model are ease of use, perceived usefulness, perceived cost, higher return, efficiency, digital service quality, digital information quality, digital system quality, attitude towards use, and actual use. The model and hypothetical relationships of critical factors are tested using structural modeling, reliability, and validity techniques using a sample of 279 Malaysian property development sector representatives. A quantitative approach is adopted, using an online questionnaire tool to investigate the behavior of respondents on the current digital marketing practices and capabilities of Malaysian property development companies. The results show that the sample property development companies are driven by the benefit of easily obtaining real-time customer information for creating and communicating value to customers more effectively through the company brand. Further strategies, such as creating real-time interactions, creating key performance indicators to measure digital marketing, personalization, and encouraging innovation in digital marketing are most preferred by local professionals. An adoption framework is provided based on the reviewed models and results of the current study to help transform the Malaysian property development sector into a smart and sustainable property development sector by facilitating the adoption of digital technologies. The results, based on real-time data and pertinent strategies for improvement of the local property sector, are expected to pave the way for inducing sustainable digital marketing trends, enhancing capabilities, and uplifting the state of the property development sector in developing countries.

Keywords: smart digital marketing; sustainability; property digital technology; dynamic capabilities; smart property management; sustainable property development; COVID-19; smart real estate

1. Introduction

Digital marketing has enabled companies from various industries to obtain real-time customer insights and create and communicate value to customers more effectively. This has led to a significant

increase in customer base and associated top-line growth. Digital marketing research defines the types of media channels and highlights the goals of digital marketing by using online media to influence audiences and customer segments [1]. Khin et al. [2] have explored the stakeholders involved in digital marketing, including the four key stakeholders of the merchant, the network, the publisher, and the customer. Digital marketing emphasizes the customer through different media channels [3,4]. However, it lacks and, therefore, requires an integrated system and a strategic direction for these stakeholders to work upon and move towards smarter and more sustainable digital marketing. The practice of digitization is in line with the smart city concept that is promoted by scholars and governments to address the current needs of the community by utilizing a wider range of digital technologies from the internet to digital twin [5] and three-dimensional (3D) city modeling in geographic information systems (GIS) [6–10]. Companies, therefore, require smart and sustainable digital marketing strategies and models to guide them to ensure proper execution of such innovative and sustainable digital marketing techniques.

The importance of having a digital marketing strategy in a company can be seen from the significance of the internet as a medium for marketing through statistics in several research projects, especially for the property development or real estate industry [11]. The real estate industry in the United States shows that 10% of home buyers use the internet as their primary research tool, and 52% use it as one of their search tools. Further to this, there is an estimated 22% growth in internet-based searches annually [12]. Similarly, over the past year, it has been seen that 4,207,588,157 or 55.1% of the population in Asia access the internet daily, and 62% of residents in the Asia Pacific region purchase products online [13]. Following a similar trend, Malaysian statistics show a significant growth of web users from 2.9 million to 5 million between the years 2004 and 2016 [14]. With this rapid growth and increasing trend in web and internet usage, many industries are using the internet as an integral part of their marketing. It is used as a smart and sustainable digital advertising tool for promoting products and services due to its ease of targeting customers, reliability, and ease of assessing effectiveness. Thus, companies have formulated innovative digital marketing models and have worked on key capabilities to improve these models [15]. In the beverage industry, companies like Coca Cola have invested in capabilities such as optimized content and social influences as their smart digital marketing model. This model is focused on creating immersive digital multimedia experiences that connect consumers to the brand. In the airline industry, Virgin has invested in personalization as part of its digital marketing model that makes it easy for customers to customize and obtain the data they are looking for in a swift, smart, and efficient manner. This makes the business more sustainable for the company by keeping constant, if not increasing, the base of loyal and reliable customers. In other industries, effective and sustainable digital marketing includes a mix of communication efforts such as promotion, pricing, and distribution [12]. In the property and real estate sector, having an online presence is essential for real estate professionals to target a wider spectrum of buyers. Accordingly, statistics show that most homebuyers prefer to use the web to search for a house rather than using the traditional framework of approaching sales agents through appointment, as it shortens the sales cycle [11,16,17]. This enhances sustainability by reducing paper wastage, saving time, and reducing carbon emissions due to less commuting [18]. These approaches are becoming even more important in the era of lockdowns and bans on in-person inspections of properties due to coronavirus disease 2019 (COVID-19) outbreaks, especially in countries such as Australia, where inspections have been banned to curb the spread of the pandemic disease, as highlighted by Ullah and Sepasgozar [11]. Similarly, the increasing availability of digital real estate information has given the purchaser convenience and efficiency to purchase properties due to the proper communication of key messages to potential customers. Such clear messages can help reduce, if not eliminate, regret felt by real estate consumers regarding rent or purchase decisions of properties [11,19,20]. Additionally, the introduction of smart and sustainable disruptive digital technologies, such as the “Big 9” technologies highlighted by Ullah et al. [21], have serious potential for promoting smart property development and associated businesses. These technologies include artificial intelligence (AI), big data, robotics, 3D scanning

drones, clouds, software as a service (SaaS), virtual and augmented realities (VR and AR), and wearable technologies. As such, theoretical and practical frameworks have been proposed for handling the stakeholders of such smart and sustainable real estate and property management. These include buyers, sellers, agents, and associated organizations using the Big 9 technologies [6,20–25]. Similarly, in terms of creating and promoting a sustainable digital world, Linkov et al. [26] stress the use of digitalization technologies, including big data, AI and adaptive governance. Property developers have also used smart digital marketing to increase brand image through attractive web pages and increased online presence [17,27]. Strong customer interactions, better management through customer monitoring, and better information sharing are among the reasons cited by property developers from various countries for adopting smart and sustainable digital marketing strategies. Accordingly, processes such as listing, searching, evaluation, and negotiations have also been digitalized [20,22,28,29]. However, when it comes to smart digitalization of the property development and management sectors, according to Alias [30], the property industry is slow in adopting digitization and it may take a certain period of time before this trend becomes popular. Thus, property development companies in various countries face different challenges of implementing their services through online and offline channels. These include creating an omnichannel experience through various media like the brick and mortar sales center, and social media marketing [21,31]. Therefore, there is a dire need to explore country-wise property sectors and industries and the proposition of contextual solutions to deal with the lack of smart property digitization and associated sustainable development [16,22]. This is becoming even more important in the current time, where countries such as Australia and Malaysia have banned in-person visits to properties due to COVID-19 outbreaks. Digital sources and technologies may be one of the best approaches to deal with the effects of COVID-19 on the local real estate sectors [11]. As such, virtual tours, including 360° videos and virtual and augmented realities based immersive visualization of properties, may help keep the real estate and property industry up and running [16,24]. Thus, owing to this research gap, the current study explores the lack of research towards the Malaysian property development industry, especially on the use of digital marketing strategies. The study is aimed at laying the foundation for the adoption of smart and sustainable digital technologies for transforming the industry into a smart and sustainable property development sector.

The Malaysian property market is currently in the early stages of a promising growth that is attracting considerable foreign investment in its real estate and property development sectors. Subsequently, many worldwide property purchasers are currently looking at Malaysia as a lucrative property market. It has shown its potential by 6.8% growth in 2011 to 2014, and a direct contribution of 4.2% to Malaysian gross domestic product [32]. According to Rachmawati et al. [33], in 2017, property and real estate transactions contributed to 51.71% of the total volume of transactions in the first quarter. However, the number of unsold residential properties in the country has risen significantly in the first quarter of 2018. The unsold residential units stood at 100,459 units in 2018, increasing from 99,246 in 2017. Hew et al. [34] highlight that the Malaysian property market has been slumping since the start of the last decade. The present housing stock is mostly unsold, making the developers rethink their potential investments in this sector. Such trends cause property market imbalance and may initiate overbuilding, which can affect the stability of the financial system. Further to this, overbuilding or construction poses risks to the wider economy and is mainly associated with a lack of market studies, financial feasibility studies, and poor digital marketing. This situation can be further exacerbated due to the COVID-19-related restrictions that are significantly impacting all global industries and sectors. Furthermore, Malaysia is committed to sustainable development and has established Malaysia's Sustainable Development Policies to support sustainable development in the country [35]. This calls for a more efficient, sustainable, and transparent property sector to help the government realize this dream of sustainable development. However, currently, the system adopted by property developers is not digitalized and integrated, and may not be the best-suited approach to attain pertinent goals [35]. Similarly, socio-legal challenges in property financing and marketing [36], climate change as a threat to property development [32], imbalanced and slumping sales [34], ever-increasing property prices

and affordability [36], and sustainability [37] are other major challenges. Since Malaysia aspires to become one of the largest contributors to property development in the Asia-Pacific region [32], it is imperative to have a more modern, smart, and sustainable digital technology-based marketing practice to move towards a more globalized market. This way, more investments in the property market can be attracted, the sales can be balanced, and a positive image of the industry can be portrayed to potential customers. Thus, this study investigates the utilization of smart digital marketing tools and their extent of usage in the context of Malaysian property development to help the local industry develop and adopt smart digital marketing strategies.

Smart and sustainable digital marketing is influencing companies of different industries over the world. However, the Malaysian property development industry has never been explored in this context. This research fills the research gap by introducing digital marketing theories and smart practices used by other industries to the property development industry in Malaysia. It is expected that these will be valuable to Malaysian property developers and will transform the traditional industry into a smart and sustainable property development sector. The current study provides property developers with smart digital marketing strategies that can be applied locally to create more value for their company, by improving the effectiveness of digital marketing on a company level to make it more sustainable. Furthermore, most of the previous studies have focused on the website functions of property development companies in Malaysia [38]. There is no current academic research on whether Malaysian property development companies are encouraging or prioritizing smart and sustainable digital marketing as part of their company strategy or sustainability goals, which has been investigated in the current study. Additionally, the extent to which these companies use such smart digital marketing tools and strategies is also not known. Therefore, several research questions are raised, such as: Are Malaysian property development companies prioritizing smart digital marketing as part of their company's sustainability strategy? What are the key factors and impediments faced by Malaysian property development companies when adopting smart and sustainable digital marketing? Owing to these questions, the current study aims to understand and investigate the digital marketing practice selected and prioritized by property development companies in Malaysia. Further to this, the impediments to the adoption of sustainable digital marketing by property development companies in Malaysia are also explored. Moreover, smart strategies to improve digital marketing at the company level in Malaysian property development companies are presented based on the results of the current study.

This article reviews the pertinent literature on smart and sustainable digital marketing, technologies used for digital marketing, its usage for global property development and management, and the current practices in Malaysia. Based on the literature, six hypotheses are proposed that have their basis in the Technology Acceptance Model (TAM) and Digital Marketing Technology Acceptance Model (MTAM). A comprehensive questionnaire survey is developed with at least one question each targeting the six hypotheses, to validate or reject these hypotheses. Data are collected from 279 respondents based in Malaysia who are working in the marketing and IT sectors of local property development companies. Respondents' opinions are captured and comprehensively discussed to infer valid results for local contexts that have been compared with the existing digital marketing models. This comparison and the inferred results highlight the merger or deviation points for Malaysia and the global focus in terms of digital marketing. Statistical analyses and tests have been used to validate the results of the study based on the received responses, and conclusions are drawn accordingly. A smart digital marketing strategy has been proposed at the end of the paper to help the Malaysian property development sector develop, and subsequently, adopt the digital marketing practice best suited to the local industry.

2. Literature Review

Digital marketing and pertinent smart and sustainable approaches have been widely discussed across different industries in the world through published literature. The current study focuses on five major themes that repeatedly emerged throughout the reviewed literature. These themes include

the definitions of smart digital marketing, technologies used in smart digital marketing, smart and sustainable digital marketing applied by property development companies throughout the world, digital marketing applied by property development companies in Malaysia, and sustainable digital marketing models and strategies that have been applied successfully across various industries and companies in Malaysia. Furthermore, the published literature presents these themes in a variety of contexts; this study focuses mainly on the use of digital marketing models in the property development industry in the Malaysian context.

2.1. Smart and Sustainable Digital Marketing

Digital marketing is changing and shaping industry structure and customer behaviors. Ryan [39] argues that digital marketing is becoming increasingly complex, dynamic, and global. Furthermore, the concepts of smartness and sustainability in digital marketing are in their nascency. In terms of smart digital marketing, the majority of the published research is focused on its importance, functions, and types of approaches. In terms of the importance and sustainability of digital marketing, Chaffey and Ellis-Chadwick [1] argue that many industries, such as retail, manufacturing, wholesale trade, and others, are using smart digital marketing as part of their sustainable marketing strategies. The authors stress the importance of smart and sustainable digital marketing as an effective communication channel to understand customers' behavior and requirements. Pantano and Timmermans [40] have referred to the use of smart digital technologies and internet-based sustainable marketing as smart retailing. They argue that the future of retailing is in the exploration and applications of digital technologies that are smarter, sustainable, and have widespread applications. Similarly, Royle and Laing [41] referred to digital marketing as digital technology for measurable communication, while maintaining a strong relationship to retain existing customers. Other literature is focused on the importance of smart and sustainable digital marketing as a contributor to sales growth and a channel to reach out to customers [39,42]. Similarly, in terms of functions, Mazzarol [43] refers to smart digital marketing as the internet marketing or e-marketing tool that can help attract or retain more customers. Kannan [44] focuses on function by describing smart digital marketing as the process of using digital technologies to maintain a good relationship with customers by building customer preferences, promoting brands, larger retention, and increased sales. Therefore, internet-based marketing is a useful tool to accomplish certain business goals. According to Hwangbo and Kim [45], customers want to buy products or use services with sustainability and durability in mind. Therefore, companies need to suggest and introduce more sustainable products. The authors recommend using automated smart session-based recommender systems as sustainable digital marketing strategies that will ensure high performance and attract or retain more customers. Saura et al. [46] recently explored the sustainability aspects of digital marketing and argue that companies have started to see the digital ecosystem as not only their present but also their future. Thus, companies are concerned about sustainability and the growth of their business models. Therefore, companies have started to explore new business models on the internet that support social causes, new platforms aimed at supporting social and sustainable projects, and digital advertising campaigns promoting sustainability. The importance of such initiatives and tools to support sustainable business cannot be overstressed in the era of COVID-19-induced lockdowns and bans, where organizations are forced to shift towards digital platforms and web-based services for property sales and rent [11]. In this context, Linkov et al. [26] highlight the use of adaptive governance and pertinent digitalization as sustainability strategies for creating and promoting a sustainable world that is driven by the automation of information processing and delivery of services. Similarly, Royle and Laing [41] describe smart digital marketing as the placement of products or services in a more effective manner for making customers' experience easier, immersive, and more useful in terms of making better and informed decisions. Lastly, in terms of the types of approaches, Copulsky and Wolf [47] focused on digital marketing types and argue that the growth of customer relationship marketing is believed to be the future trend in digital marketing. To make this relation long-lasting and sustainable, and at the same time, be competitive in the market, companies must

focus on smart and sustainable digital marketing strategies. Similarly, Taiminen and Karjaluo [48] classify smart digital marketing into Search Engine Optimization (SEO), Search Engine Advertising (SEA), social media, e-mail newspaper, web-marketing, e-commerce, web communities, customer relationship management (CRM), affiliate marketing, radio advertising, and television advertising. While the literature has defined smart digital marketing in a broad manner, certain types of digital marketing procedures such as customer relationship marketing and other pertinent approaches may be more favored by some marketers compared to others.

2.2. Technologies Used for Smart Digital Marketing

Table 1 shows a summary, the implications, and success assessments of various smart digital marketing technologies used by different companies and industries covered by the reviewed literature. While the implications and success metrics may be different, each company has successfully applied and adopted smart and sustainable digital marketing tools and technologies. Regardless of the company age, the listed companies have applied digital marketing to stay relevant, improve company branding, and penetrate their target market. As a result, the listed companies have been able to stay relevant, reduce carbon footprints, and be more sustainable.

Table 1. Summary and implications of various digital marketing technologies across industries.

Technology	Function	Company	Example of Usage	Results and Sustainability Impact
Search Engine Optimization (SEO)	A technique used to obtain a high-ranking placement in the search results page of the search engine	Fed-Ex (courier delivery services)	To examine online rankings, measure traffic numbers and amounts of page views or visits and formulate keyword categories	50% increase in traffic and 20% conversion rate (page visits and clicks); less face to face meeting required
Search Engine Advertising (SEA)	Paid advertising based on the number of site visits and ranking	Hutch (interior design app)	Optimized Facebook ads on users viewing newsfeed, videos, slideshows and on platforms of Facebook and Instagram to boost app installs	Tenfold increase in app installs, 81% conversion rate; reducing the need for paper-based advertisements to save trees and reduce CO2 emissions
E-mail/ Newsletter	Use of e-mail lists or third-party ads to communicate with the potential customer	Politico (political journal)	Political newsletter with an international perspective and focuses on politics from a non-partisan view	30,000 subscribers within launch in a year, the highest rate of growth; reducing the need for paper-based advertisements to save trees and reduce CO2 emissions
E-service/E-commerce	Conduct the commerce of goods with the assistance of telecommunication tools	FUGOO (speaker company)	Debuted and launched the product in conversion-friendly online shopping experience and campaigns that are highly targeted by featuring direct product comparisons	300% revenue increase every year; Reduced travel, CO2 emissions, time-saving and cost

In terms of other technologies used in smart and sustainable digital marketing, the use of recommenders, such as the Session-Based Recommender (ISBR) and the Attribute Session-Based Recommenders (ASBRs) that use item and attribute session data independently, are highlighted [45]. Similarly, Feature-Weighted Session-Based Recommenders (FWSBRs) that combine multiple ASBRs with various feature weighting schemes are also recommended technologies for smart and sustainable digital marketing. Likewise, for inducing sustainability in digital marketing, the use of disruptive Big9

technologies has been discussed in the literature [21,23]. As such, internet of things and virtual and augmented realities can help visualize the properties. Similarly, 4D advertisements can be used for an immersive experience that can help property and real estate organizations keep their business up and running during lockdowns and COVID-19-induced business disruptions [21]. Other techniques include gamification, geo-targeting, big data analytics, artificial intelligence-based voice bots, drones and scanners, and bitcoins, generating smart houses that can help the companies with smart digital marketing [22,23,49]. Further to this, the development and subsequent adoption of smart online platforms, marketing automation such as CRM, behavioral e-mail marketing, web personalization, social media marketing, search engine optimization and the other latest smart digital marketing techniques can help elevate the state of existing digital marketing strategies used globally and make the property business more sustainable [17,40,49].

2.3. Global Digital Marketing for Smart and Sustainable Property Development and Management

Digital marketing has been applied in various countries in multiple ways in both property development and real estate sectors [24]. Dumitriu et al. [50] discuss the role of brand awareness and sustainability using digital marketing tools and techniques. The authors highlight three essential aspects of brand awareness as brand equity management, sustainable growth management, and long term sustainability in economic, social, and environmental perspectives, which can pave the way for sustainable development in small and medium enterprises. Similarly, Wang et al. [51] discuss the effectiveness of social media marketing efforts in a digital marketing context. The authors argue that interaction, entertainment, customization, electronic word of mouth, and trendiness can impact digital marketing through brand loyalty, brand preference, brand attachment, brand association, and buying commitment. Diez-Martin et al. [52] highlight the main challenges for the digital marketing and sustainability field as six key issues, which are (1) customer orientation and value proposition, (2) the digital consumer's behavior, (3) digital green marketing, (4) competitive advantage, (5) supply chain, and (6) digital capabilities.

In country-specific perspectives, there have been developments in areas of digital marketing. In China, digitization and e-commerce have been widely used by property development companies for various purposes. Tao et al. [53] argue that most property development companies are applying digitization or e-commerce for transformation into a smart and sustainable industry. The pertinent practices include marketing promotion, customer e-forums, e-markets, inter-organizational systems, providing customer services, and smart business-to-consumer (B2C) platforms for customers to rent or purchase properties. This has created value for the companies due to close and strong customer interactions, better management through customer monitoring and smart, better, and sustainable information sharing along with the increased global presence of Chinese property developers. Similarly, according to Sun and Ifeanyi [54], Chinese property developers are modifying their company websites to deliver their messages through different languages in a smart way, for reaching out to a broad spectrum of customers throughout the world. Property-specific information, such as floor plans, prices, and unit sizes, are shown on global websites. Furthermore, third-party websites are used to promote products and reach global audiences smartly by Chinese property developers [14,21,24,55]. Similarly, Du et al. [56] focus on the applications of big data for managing customer data and information to enhance industrial competitiveness in the Chinese real estate and property development sectors. The authors explain the philosophy of how certain companies apply big data to bridge opportunities for small investments between estate enterprises and investors. These companies are also facilitating big data for effective decision making in diversifying developments and innovative investments related to sustainable property and real estate developments. Because China has the highest amount of internet users in the world as stated by States [13], property development companies are riding on this trend by using smart and sustainable digital marketing and big data for making profits and enhancing their global outreach. Lien and Cao [57] provide examples of how social media such as WeChat has attracted many potential buyers using these innovative and sustainable technologies. Evidence can be seen in

the shape of some successful luxury residential property sales through WeChat. Furthermore, WeChat has been used as the main communication channel in many property deals in China, with its easy to use WeChat pay function. This reduces the need for paper-based advertisements and associated CO₂ generations, thus, stepping towards sustainability. Further to this, Bingjian and Changliu [58] highlight that social media tools such as WeChat provide Chinese property buyers an easy way to utilize functions such as the smart in-built CRM and intelligent language translations.

The literature from the United States shows mixed reactions to the use of smart and sustainable digital marketing in the property industry. According to Schubach [59], 66% of first home buyers prefer to communicate over the smart digital platform rather than negotiating through phone or face-to-face meetings. This enhances the sustainability of resources and ensures lesser reliance on paper-based business or usage of transportation, which is a positive step in the COVID-19 era. Similarly, Crowston et al. [60] highlighted that the residential real estate industry uses information and communication technology to improve its sustainability, performance, and productivity in marketing. According to Kannan [44], there are five key focal points for the transformation of digital marketing into smart and sustainable digital marketing. These include understanding consumer behavior, social media and user-generated content, platforms and two-sided markets, search engines, and contextual interactions. Furthermore, to maintain a sustainable competitive advantage, a firm must focus on two important things—the brand and the customers. Similarly, Bardhan et al. [61] argue that many smart property development and real estate companies have complex yet immersive and intriguing websites that market products and provide information to customers, research properties, and provide virtual tours of these properties. This creates an immersive environment that is productive and intriguing for the customers and sustainable for smart property development companies [16]. Such an environment creates value to the companies due to low transaction costs and improved customer support. In contrast, Muhanna and Wolf [62] argue that in the United States, real estate products are expensive and thus, infrequently purchased, causing internet-based purchases to be less likely. This does not mean that internet-based marketing and pertinent digitalization is less important. Companies need to focus on the importance of smart and sustainable digital marketing as a source of information and customer interactions. However, these may not change the industry in a disruptive way, as portrayed by other researchers. Instead, smart digital marketing would function as a strategic differentiator that can help attract more customers or keep the existing ones interested, thus, making the business more sustainable. Thus, it can be inferred that smart digital marketing is linked closely with providing customers more information and increased interaction in the property development and real estate industry in the United States. However, internet-based sales in the United States are not a straightforward, increasing phenomenon, as properties are considered as big-ticket items that require longer consideration by buyers and demand a high-quality customer service experience.

In the European region such as Latvia, Dumpe [12] argues that there is an awareness of the importance of smart digital marketing among property development companies. Accordingly, these companies have a clear website, Facebook, and Twitter presence. However, social media marketing such as Facebook or Twitter has been insufficient in communicating the perks of such smart and sustainable marketing to customers, mainly due to the lack of high-quality information provided through social media. In contrast, Mahmutovic [63] argues that smart e-commerce is increasingly being used in the European region. Almost half of the real estate agents have allocated 20% of their marketing budget to e-commerce and are planning to invest more in the future. In the case of the United Kingdom, Spurge and Almond [64] argue that commercial property developers cannot ignore broadband technology as it is closely related to their product offerings. Therefore, it is essential to get familiar with the rapid changes in technology for marketing more products in a smart and sustainable way. Brindle [65] stresses the role of cultural differences in consumers' habits related to utilizing smart and sustainable products. While comparing the consumers of the USA and UK, the author argues that cultural differences in consumers' habits and behaviors do not necessarily disappear in a smart digital setting. Although the two markets share a language, the consumers have different

online behaviors. UK consumers are thought to be more careful than their US counterparts when it comes to online purchasing and prefer to see reviews, frequently asked questions (FAQs), and payment security before spending. When it comes to digital advertising, US users are usually more affected by emotional advertisements and engage with emotive calls to action. Thus, to be sustainable in global markets, context-specific smart strategies must be developed for digital marketing that focus on both the location and consumer types. Dixon and Marston [66] focus on digital marketing in shopping center developments and argue that digital marketing functions attempt to induce and improve levels of brand loyalty among customers and should, therefore, be focused more on achieving a sustainable and smart property development business. Similarly, other studies have focused on providing an omnichannel business strategy as a support of communication with customers for inducing sustainability in the property sector [67,68]. Overall, the published literature for the European region stresses the importance of smart digital marketing as a branding tool, close customer interaction, and using digital platforms to sell products and services.

2.4. Digital Marketing Applied by Property Development Companies in Malaysia

One of the unique characteristics of Malaysian property development companies is that these companies are heavily involved in residential township developments [69]. According to Lin Lee and Kien Hwa [70], township developments are defined as housing developments that involve land size of 500 acres or more and/or a development period of ten years or more. For instance, Sime Darby Property, one of the largest Malaysia property township developers, launched the Serenia City township, with a total land size of 1775 acres, and EcoWorld's Eco Majestic Township Project, with a land size of 1089 acres. Importantly, these townships, in general, have integrated sustainable development features as Malaysian property developers have realized the increasing local demand for sustainable properties [71,72]. Sood et al. [73] also found that Malaysian developers have increased levels of expertise in sustainable developments from several aspects. These aspects include energy, water, resource efficiency, sustainable design, waste management, and recyclable materials.

However, this massive scale of housing construction leads to a property overhang issue in Malaysia [74]. As of Q3 2019, Malaysian property developers have launched 120,909 housing units. A total of 31,092 residential property units, with a value of RM 18,770.47 million, remain unsold in Malaysia [75]. The overhang issue is severe for semi-detached and detached houses. These are the most expensive type of residential property, in which 38 percent of the launched semi-detached and detached houses remain unsold. To address this overhang issue, the Malaysian ministry for housing has launched the Malaysia My Second Home (MM2H) program. This program allows foreigners to purchase residential properties in Malaysia that are priced more than RM 1 million. It is expected that the program would ease the glut in the property sector, and resolve the overhang issue, particularly for the high-end property submarket in Malaysia [76].

This also highlights the importance of digital marketing in attracting prospective local and foreign buyers. Current digital marketing strategies used by property development companies in Malaysia are mainly focused on marketing functions, popularity levels, and difficulties in implementing the associated technologies. In terms of the function and use of digital marketing in the Malaysian context, Razali and Juanil [38] and Najib Razali et al. [27] examined the relationship between property development companies and their internet business strategies. The authors argue that certain property development companies in Malaysia have realized the importance of smart digital marketing. Accordingly, they are focusing on attributes such as product search engines, company news, and financial services information to achieve a smart and sustainable property business. Similarly, Najib Razali et al. [19] argue that Malaysian property development companies focusing on developing retail properties perceive that ICT will provide them with the opportunity to compete in a more open market. Razali and Juanil [38] focus on online property search in the Malaysian property development industry and highlight that virtual reality should be available for buyers to view their respective properties. This can help in attracting more customers or retaining existing customers, thus, making the

business smart and sustainable. This may be particularly helpful in current times, where lockdowns are in place in many countries, and potential buyers cannot visit the properties in person due to COVID-19. However, according to Iqbal Khadaroo [77], only 25% of Malaysian companies are selling products and services online. Thus, the smart and sustainable digital marketing potential of Malaysian companies is yet to be fully realized. In terms of the popularity level of using smart digital marketing in the Malaysian context, Masis et al. [14] highlighted that most real estate companies, including small and large size companies, utilize websites. However, these companies face challenges and difficulties in applying smart digital marketing such as e-commerce. The key concerns include buyer security and personal information breaches and hacks, which is a risk associated with such disruptive digital platforms. The literature has covered the importance of digital marketing, with certain companies focusing on its attributes in general. The current study contributes to smart digital marketing work on Malaysian property development companies. It establishes the extent to which smart digital marketing has been adopted and prioritized by local property development companies. Furthermore, it formulates strategies to help these companies apply digital marketing to realize the goals of smart and sustainable property development.

3. Developing the Conceptual Model and Hypotheses

3.1. Technology Acceptance Model (TAM) and Proposed Smart Digital Marketing Technology Acceptance Model (MTAM)

Most early theories are focused on the use of the technology acceptance model [78]. Park [79] argues that TAM, as shown in Figure 1, is a useful theoretical model to understand behaviors for technology use. The early model can be classified into perceived usefulness and perceived ease of use that inclines the user to make a choice in using the technology [80]. Perceived usefulness refers to individuals' beliefs of whether the performance of the job would be enhanced by using the selected technology. Perceived ease of use is defined as the degree to which an individual believes that the efforts related to the job will be reduced [78]. TAM has been expanded in the form of TAM 2 and TAM 3 to include additional factors and variables.

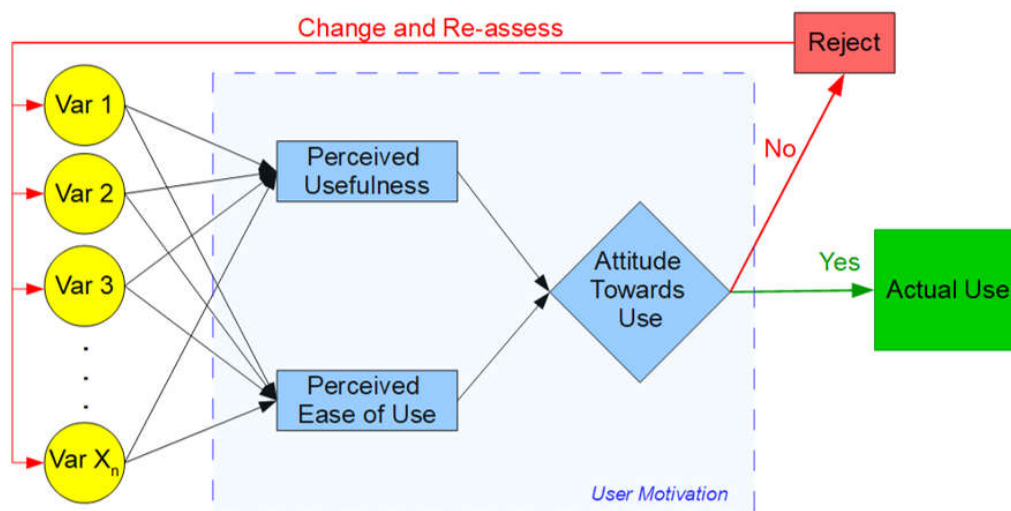


Figure 1. The conceptual model of technology acceptance, including ease of use and usefulness as the main measures of users' acceptance.

Rauniar et al. [80] show that TAM can be linked to the future use of smart digital marketing based on intention, motivation, and acceptance by the users. Ramayah and Jaafar [81] highlight that usage of the website on computers and social media like Facebook is easy and perceived as useful among users. Most of the users could easily get information and details about the properties provided by the agent through the internet through four core principles—community, content, conversation,

and transparency [17,82]. Scherer et al. [83] argue that perceived usefulness and ease of use of digital technologies have a positive and direct influence on the attitude of users to use and accept the technology. The same arguments have been made by Teo et al. [84] for computer technologies' adoption in Malaysian and Singaporean contexts. Further to this, Mahan [85] supports these claims of digital marketing adoption and acceptance by sports users and consumers. The authors argue that usefulness and ease of use influence the attitude to adopt technology in Malaysia. Similarly, Fromm and Garton [86] argue that smart and sustainable digital technology will be the future trend of marketing as millennials are more familiar with it. This supports the hypothesis that there is a relationship between perceived usefulness and perceived ease of use while using smart digital marketing technology, thus, making Hypothesis 1 (H1) and Hypothesis 2 (H2) of the current study, as shown in Table 2.

Shirisha [87] states that smart digital marketing platforms are more cost-efficient than traditional marketing platforms and can reach and deliver a message to a larger audience. Similarly, it is harder for smaller size companies to compete with larger companies over advertisement space through traditional marketing [88]. However, Muhanna [89] argues that the size of the firm is linked to its online presence and the advantage, maybe since the larger sized companies most likely establish their online presence quickly as compared to small companies. Similarly, Seiler et al. [90] state that in contrast with small firms, all large smart firms have their own websites, giving them a competitive advantage in the business. Thus, smaller sized companies may be at a disadvantage due to the escalating costs of developing and maintaining websites or applying smart and sustainable digital marketing [54,91]. Rahman and Sloan [92] argue about the addition of constructs of perceived risk, perceived cost, and personal awareness to TAM for enabling prediction of the likelihood of mobile commerce adoption by users in the developing world. These authors stress the need for service providers to ensure high levels of security and privacy to reduce users' perceptions of risk at reduced costs, thus, stressing the importance of perceived costs. Similarly, Zainab et al. [93] highlighted that perceived cost has a significant effect on e-training adoption. In the Malaysian context, Al-Tmeemy et al. [94] argue that cost is one of the major barriers in the adoption of standards and digital technologies. Similarly, Wei et al. [95] argue that perceived cost and trust are positively associated with consumer intention to use mobile commerce (m-commerce) in Malaysia. Thus, Hypothesis 3 (H3) for the current study is formulated as the perceived cost having a positive effect on attitude to use digital marketing technology, as shown in Table 2.

According to Tao et al. [53], studies related to Chinese markets have shown an increase in sales from 17% to 25% after adopting e-commerce, which is one of the common smart digital marketing techniques applied in the Chinese property industry. This implies that all companies should apply digital marketing technologies when there is a greater return after use. Rafique et al. [96] argue that it is about time to check the acceptance of technology, which is provided to intended users after massive investment initiatives, especially in developing countries such as Pakistan and Malaysia. Navimipour and Soltani [97] argue that in order to agree and commit to investments in technology and adoption of pertinent applications, firms require hard evidence about the return of investment. Benjamin et al. [98] investigated the incomes of a real estate company and highlighted that the income and profits increased to 0.33 and 0.26 units of standard deviation, respectively, with the use of the internet and smart digital marketing strategies' adoption. Similarly, Sherman [88] discovered that 61% of the organizations observed growth in revenue from the adoption of smart digital marketing. Gwin [99] also has the same idea and mentions that the net income of real estate companies increases through smart digital marketing strategies. Furthermore, in the case of Malaysia, investors and government agencies are concerned about returns on investments [100]. For example, the owners of renewable energy systems were not able to make any financial return on their investment. As a result, the current size of the renewable energy market is very small, leading to users and investors being hesitant when it comes to acceptance of such new technologies [101]. Similarly, Khorasanizadeh et al. [102] argue that a strong interest in a new technology can lead to more positive views about the costs and returns of investment. It may offset the traditional mindset of adopting and using new technologies in Malaysia.

This shows that there is an intention to use smart digital marketing if there are greater returns in Malaysia, which leads to Hypothesis 4 (H4) as a greater return has a positive effect on attitude towards use digital marketing technology, as shown in Table 2.

Table 2. Summary of the proposed smart MTAM for measuring the attitude towards using digital marketing technology.

Construct	Definition and Resources	Hypothesis	Measures
Perceived Ease of Use (EOU)	The perception that digital marketing will be easy to use [83].	H1: Perceived Ease of Use has a positive effect on attitude to use digital marketing technology	EOU1, EOU2
Perceived Usefulness (PU)	The perception that digital marketing may be useful for future trend marketing [83].	H2: Perceived Usefulness has a positive effect on attitude to use digital marketing technology	PU1, PU2
Perceived Cost (PC)	The perception that digital marketing is cost-efficient when compared to traditional marketing platforms [88].	H3: Perceived Cost has a positive effect on attitude to use digital marketing technology	PC1
Greater Return (GR)	The perception that sales, income, and profit will increase from digital marketing [53].	H4: Greater Return has a positive effect on attitude to use digital marketing technology	GR1
Efficiency (EF)	The perception that digital marketing is efficient for communities and companies [44].	H5: Efficiency has a positive effect on attitude to use digital marketing technology	EF1, EF2, EF3
Attitude towards Use (ATU)	The system attracts more customers, enhances sales and changes their behavior for more usage [17,81]	-	ATU1, ATU2, ATU3
Actual Use (AU)	The system actually acquires more customers and keeps the existing ones interested [22]	H6: Actual use is positively affected by the attitude to use digital marketing technology	AU1

Kannan [44] highlights that the examination of economic efficiency using smart and sustainable digital marketing channels in various sectors of the national economy can serve as support elements for companies that use digital marketing as part of their marketing and outreach strategies. Similarly, smart and sustainable digital marketing provides benefits to the local environment [61]. It can help the local community and economy by increasing productivity [19,103,104], allocating resources efficiently [88], attracting more real estate buyers [11], reducing marketing expenses, and helping create new partnerships as well as reducing the site visit costs [14]. In the case of Malaysia, Aziz and Idris [105] argue that the users and corporations are reluctant to adopt and use e-tax systems and digital technologies due to doubts on the efficiency of the system and unrealistic performance expectancies. Noor [106] discusses the critical success factors of digital mobile technology adoption in the banking sector of Malaysia and argues that the economic efficiency of digital systems in Malaysia has not been explored in detail. Furthermore, banks and investment-based organizations need to enhance their security and privacy for enhancing the economic efficiency of their systems to attract more customers. Based on the above, it can be inferred

that there is an intention to use smart digital marketing if there is economic efficiency. This leads to the introduction of Hypothesis 5 (H5), as efficiency has a positive effect on attitude to use digital marketing technology, as shown in Table 2.

The last hypothesis of this study is one of the most widely accepted ones when it comes to TAM, which is actual use is positively affected by the attitude to use any technology. The same has been established in many recent studies such as Diez-Martin et al. [52], Ritz et al. [107], Jorge et al. [108], and Rana and Dwivedi [109] for digital marketing. However, in Malaysian digital marketing and associated digital technology acceptance in the property management sector, it is yet to be tested. Thus, Hypothesis 6 of the current study is formulated as actual use is positively affected by the attitude to use digital marketing technology, as shown in Table 2.

Figure 2 shows the linkages of the proposed hypotheses in the context of TAM and the attitude towards the adoption of digital marketing technologies by Malaysian property development organizations in the form of a conceptual smart MTAM.

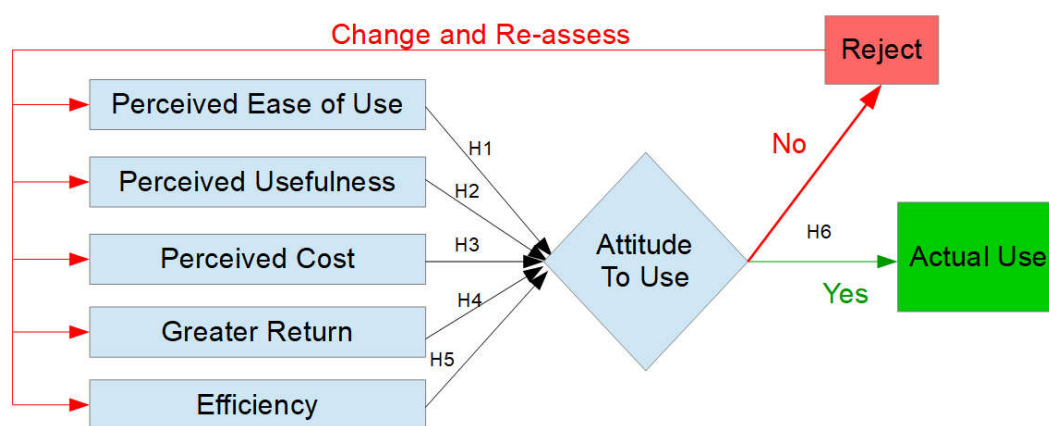


Figure 2. The conceptual smart digital marketing technology adoption model (MTAM), including cost, greater return, and efficiency as selected sustainability measures.

Table 3 provides the details of questions aimed at assessing the MTAM constructs with their acronyms and measures.

Table 3. Acronyms and questions related to each construct of smart MTAM.

Construct	Acronym	Measures	Questions
Ease of Use	EOU	EOU1	Please give your opinion on the factors of digital marketing being used—Easy to use
		EOU2	Please give your opinion on the factors of digital marketing being used—Enhance customer service
Perceived Usefulness	PU	PU1	Please give your opinion on the factors of digital marketing being used—Useful to use
		PU2	Please give your opinion on the factors of digital marketing being used—Branding purposes / Building awareness
Perceived Cost	PC	PC1	Please give your opinion on the factors of digital marketing being used—Low cost
Greater Return	GR	GR1	Please give your opinion on the factors of digital marketing being used—Greater return of revenue

Table 3. Cont.

Construct	Acronym	Measures	Questions
Efficiency	EF	EF1	Please give your opinion on the factors of digital marketing being used—High efficiency
		EF2	Please give your opinion on the factors of digital marketing being used—Enhance customer service
		EF3	Please give your opinion on the factors of digital marketing being used—Speed of communication
Attitude to Use	ATU	ATU1	Please give your opinion on the factors of digital marketing being used—Able to obtain more customer information
		ATU2	Please give your opinion on the factors of digital marketing being used—Helps in sales to existing customers
		ATU3	Please give your opinion on the factors of digital marketing being used—Changing customer behavior
Actual Use	AU	AU1	Please give your opinion on the factors of digital marketing being used—Customer acquisition

3.2. Smart Digital Marketing Models

Egol et al. [15] have categorized smart digital marketing into models that are used by companies across various industries as digital branders, customer experience designers, demand generators, and product innovators. Digital branders adjust traditional advertising towards visualized and immersive digital experiences that connect consumers to the brand. Examples include Coca Cola, a beverage company that advertised Coke Zero as the company's new product by organizing a contest on social media for 'my favorite dance moves'. While doing so, the Coca Cola and Coke Zero brands were integrated into the content throughout, which captured the attention of the customers, leading to the success of the new item without disturbing the sustainability of the business. The customer experience designer redesigns experiences according to data and insights obtained from their customers, using smart and innovative analytics technologies such as big data. As an example, Virgin's airline operation invested in an interactive and personalized in-flight experience that is tailored to different segments of travelers. Such experience is used for capturing the customers' attention and keeping them more involved and intrigued during flights. Similarly, demand generators integrate omnichannels for the purpose of revenue gain. For example, Walmart, a retail company, has introduced a smart ad-serving platform called Walmart Exchange. This platform allows brands to target shoppers and measure the return on investment of both online and offline shopping. Finally, the product innovators use smart digital technology to generate innovation and attract more customers based on the immersive nature of technologies used. For example, Henkel, a chemical product manufacturer, encourages employees to participate in the innovation process through idea generation contests and provides monetary incentives for such participation. Similarly, all employees are required to work in sales for some time to identify customer pain points in their marketing campaign. Overall, Egol's model requires certain smart digital marketing capabilities that companies need to specialize in, as indicated in Table 4. Egol et al.'s [15] model explains the functions of digital marketing and has categorized the capabilities needed to execute smart digital marketing. This categorization is obtained by creating a focus for companies to implement their digital marketing strategies based on the model preferred to induce sustainability in their operations. These models can be applied when formulating digital

marketing strategies for property development companies in Malaysia to uplift their state of practice to a smart, innovative, and sustainable property development sector.

Table 4. Digital marketing models and the capabilities required for each model by Egol et al. [15].

Capability Category	Capability	Digital Branders	Customer Experience Designers	Demand Generators	Product Innovators
Insight and Analytics	Segmentation and assessments needed	2	4	2	3
	Measurement	1	2	3	4
	Real-time decision making	2	2	4	1
	Personalization and targeting	4	2	4	1
Smart Platforms and Activation	Optimized content	4	3	1	2
	Innovation	1	3	2	4
	Social influence and advocacy	4	2	3	2
	Omnichannel experience	3	4	3	2

Note: 1 = not relevant, 4 = highly relevant.

Similarly, Kierzkowski et al.'s [110] and Parsons et al.'s [111] digital marketing frameworks revolve around five essential elements for success and sustainability in digital marketing. These elements include users' attraction (attract), engage users' interest and participation (engage), retain users (retain), study their preferences (learn), and relate to users to provide customized interactions (relate). Each of the five elements has various online marketing tools to achieve its pertinent sustainability objectives, as shown in Table 5. In contrast to the digital marketing model by Egol et al. [15], the digital marketing frameworks by Kierzkowski et al. [110] and Parsons et al. [111] focus on the organization's journey of acquiring and retaining customers using smart and sustainable digital marketing tools. Similarly, both models can be applied to provide property development companies in Malaysia with a direction on the smart digital marketing strategy preferred by the company to achieve its sustainability goals.

Table 5. Digital marketing framework by Kierzkowski et al. [110] and Parsons et al. [111].

Elements	Tools to Achieve Element Sustainability Objective
Attract	Promotions, Banner ads, Mnemonic branding, Audience creation, 'Piggy-back' advertising
Engage	Unique content, Information content, Forum groups, Transaction capabilities, Interactive content
Retain	Dynamic content, Security features, Loyalty programs, Interactive functions, Digital communities, Transaction capabilities
Learn	Feedback via online surveys, Information capture, Supporting chat groups, Continuous preference learning
Relate	Real-time interactions, Customized webpages, Linkages to core business

In addition to the above models, smart and sustainable digital marketing strategies have been focused in several ways by various researchers. This includes how companies should adopt smart digital marketing within the company, targeting the customers, and adopting sustainable strategies to keep up with the global smart digital marketing trends. The smart digital marketing strategies, as shown in Table 6, focus on improving the customer journey and building capabilities to achieve the sustainable objectives of digital marketing. These strategies include obtaining real-time customer insights, increasing the customer base, and improving branding. Sun and Ifeanyi [54] and Shareef et al. [112] examined the digital marketing strategies that should be adopted by companies. These strategies are

based on factors such as the speed of the industry's evolution in adopting smart digital marketing and the current condition of the company in terms of the extent to which the company has adopted smart digital marketing. It gives the company a direction and idea of how well it is performing in terms of its smart digital marketing strategy when compared to its industrial counterparts. These digital marketing strategies are used as a theoretical background in the current study while formulating the smart and sustainable strategies to improve the effectiveness of digital marketing in Malaysian property development companies.

Table 6. Digital marketing strategies from the reviewed literature with the focused sustainability aspects.

Digital Marketing Strategy	Sustainability Domain	References
A good digital marketing strategy requires companies to: Manage the relationships between customers Allow customers to determine price and value Advocates and engage the customers Engage customers as co-creators of value	Cost, Value Creation	[113]
McKinsey's 'digital quotient' strategy has been introduced where the company can work towards digital marketing in 4 aspects: Strategy: Vision to meet short and long-term digital business aspirations Culture: Produce mindset which allows digital opportunities Organization: Structure and talent that are necessary for supporting digital strategy. Capabilities: Systems and technology allow digital strategy goals to be achieved	Innovation, Inclusiveness	[114]
The customer decision journey has been introduced where the stages of digital marketing should be monitored in the decision journey, such as "evaluate" and "advocate" stages.	Performance Evaluation	[115]
The digital marketing strategy is based on the industry and condition of the company. Industry evolution stage: Moving fast, moving in the middle or Moving slow Beginner: Partner or Perish, Seek the pass and follow the leader, Foundational capabilities to be built Intermediate: Hasten innovations and acquisitions, Breakout ambition to be set, Share gaining from scale capability successes. Expert: Lead customer path-breaking, amaze customers, dispirit competitors, avoid outrunning customers	Innovation, Value Creation, Retention	[116,117]

4. Research Method

The current study explores the aspects of digital marketing theory, associated smart and sustainable practices, and its application in the Malaysian property development industry. This research type was selected due to the intrinsic flexibility, which is critical to find out the best, smartest, and most sustainable digital marketing strategies [118]. This study used secondary information, such as digital marketing models used in other industries, to help generate ideas, hypotheses and gain insights for paving the way for the transformation of the traditional property development industry into a smarter and sustainable industry. A quantitative approach was adopted for the current study due to the large number of respondents required for the associated survey in accordance with Babbie [119]. The survey was conducted using online questionnaires through the University of New South Wales (UNSW) Qualtrics survey platform. The online questionnaire approach has been adopted for similar studies by researchers such as Onyango [120] and Najib Razali et al. [19]. This approach has proven to be effective in capturing the opinions of marketing and IT professionals on smart and sustainable digital marketing strategies.

4.1. Research Design

An online questionnaire was designed to test and analyze the models and frameworks used in the current study. These included the proposed MTAM, the digital marketing model by Egol et al. [15], the digital marketing frameworks by Kierzkowski et al. [110] and Parsons et al. [111], in the context of the Malaysian property development industry. Different digital marketing strategies introduced by

various researchers were also included in the questionnaire to test their applicability in the Malaysian property development industry. This aimed at helping the local industry transform into a smart and sustainable property development sector. The questionnaire was designed to examine the familiarity of respondents with current smart digital marketing practices in the local property development industry. It investigated the factors that drive the adoption of smart digital marketing as well as the effectiveness of the real estate websites adopted by the smart property development companies. The aim was to investigate whether smart digital marketing was prioritized within the focused companies. Further to this, an open-ended question was asked, where the most suitable strategies and models for smart and sustainable property development based on the respondents' professional views are highlighted and presented in the current study.

The structured questionnaire consisted of four parts. Part 1 consisted of introductory questions and inquiries about the respondents' demographics. These included their gender, age, position in the property industry, name of the company, age of the company, and geographical location of the company. Part 2 inquired the respondents' opinions on the factors of smart digital marketing pertinent to the usage of smart digital marketing. It sought the opinions of the respondents using a five-point Likert scale, ranging from 'strongly agree' to 'strongly disagree'. Such a Likert scale was used previously by Park [79] for analyzing TAM. In this study, it captured the respondents' opinions to investigate the usage of smart and sustainable digital marketing. Part 2 was designed to test the MTAM using descriptive data analysis and Pearson correlation tests. Part 3 captured the opinions on different types of real estate agency websites used by property development companies. It consisted of a scale ranging from 1 to 5 on the quality of the smart real estate agency websites used by smart property developers for marketing their products. Part 4 was designed to test the digital marketing frameworks by Kierzkowski et al. [110] and Parsons et al. [111], and explored whether Malaysian property development companies have successfully implemented the five essential elements. Thus, Part 4 inquired the opinions on competencies, skills, and gaps in smart digital marketing and consisted of several questions in a Yes/No format about the current skills and gaps in the local property industry. This aimed at capturing data on the effectiveness and popularity of smart digital marketing among the Malaysian property development industry. The last part (Part 5) inquired about the strategies used to improve digital marketing in the property industry and consisted of scales from 'strongly agree' to 'strongly disagree'. Additionally, the option of others was provided to capture open-ended responses, alternatives, or suggestions. Part 5 was designed to test the Digital Marketing Model by Egol et al. [15] and other smart digital marketing strategies in the context of the Malaysian property development industry. This section aimed at transforming the traditional real estate and property industry into a smarter and sustainable property development sector through the adoption of globally accepted digital marketing strategies and models.

4.2. Data Collection and Sampling Method

The random sampling technique was adopted in the current study, which has been utilized by previous researchers such as Onyango [120] in their study for exploring similar phenomena on the utilization of smart digital marketing techniques. The sample in focus was the population of respondents working in Malaysian property development sectors to capture the essence of the local context. These respondents were invited from Malaysian property development companies of different sizes and working in various departments related to digital marketing, such as the IT and analytics department, marketing department, and others. The online questionnaire link was distributed through the UNSW Qualtrics survey platform due to the requirements of a large sample size and associated ease of handling the data. The questionnaire was designed to take approximately 5–10 min to complete. Structured questions were provided in the questionnaire to keep consistency of choices and ease of response for the respondents. The survey was run for a period of 1 month during 2019. A reminder e-mail was sent two weeks after the questionnaire link had been distributed to the e-mails of the respondents to request a response in case someone had missed the initial e-mail. As a result, a total of

300 responses were received, out of which, 279 were valid and used for subsequent analyses. The valid response rate was 93%, whereas the remaining 7% were rejected mainly due to incompleteness.

4.3. Data Analyses

Statistical methods were adopted to analyze the data received through the questionnaire survey for presenting the results in a meaningful way and reaching an accurate conclusion. Both the nominal scale measurement and ordinal scale measurements were used for the data collected. Examples of nominal scale measurement were the introductory questions on respondent backgrounds. Similarly, the examples on ordinal scale measurements range from 'strongly disagree' to 'strongly agree' on questions regarding smart digital marketing in accordance with Onyango [120] and Najib Razali et al. [19]. The collected data were analyzed using different techniques such as Cronbach's alpha test, frequency descriptions, descriptive data analysis, Pearson's correlation test, independent sample *t*-test, and the Chi-square test.

Cronbach's alpha test was used to measure the internal consistency and reliability of the data collected in accordance with Onyango [120] and Khin et al. [2]. According to Taber [121], the value of alpha ranges from 0 to 1, and a range from 0.58 to 0.95 is the best range for reliability confirmation, whereas any value lower than 0.58 is not satisfactory. Similarly, frequency description was used to describe the profile of respondents such as age, gender, work function, age of the company, and demographics. It was also used in describing the adoption frequency of the real estate agency websites preferred by Malaysian property development companies. It was further used for the percentage of respondent opinions on the smart and sustainable digital marketing competencies, skills, and gaps in the company in accordance with Masis et al. [14]. The authors utilized it for effective analyses of data that involved frequency, such as the number of third-party websites used by different organizations. Further to this, descriptive data analyses were used for measuring the central tendency and variability, including measures such as mean and standard deviation. These were used for describing the basic features of the data regarding smart digital marketing in the Malaysian property development industry. Mean score ranking and standard deviation were used to highlight the most important factors that drive the acceptance of digital marketing strategies and technologies in Malaysian property development companies. Furthermore, the most important features of real estate agency websites that are used frequently by Malaysian property developers, and the most suitable smart and sustainable digital marketing strategies preferred by the professionals, in accordance with Masis et al. [14], Najib Razali et al. [19], Onyango [120] and Khin et al. [2], were also highlighted.

Pearson's correlation test was conducted to test the linear correlation between variables ranging from -1 to $+1$. The larger the absolute value of the coefficient, the stronger is the relationship between them. The positive or negative sign of the coefficient determines the direction of the relationship. If both variables tend to increase or decrease at the same time, the coefficient is positive, whereas if one variable tends to increase while the other decreases, the coefficient is negative. A value of 0 indicates that both variables do not have any linear relationship [122]. Furthermore, the *p*-value indicates the statistical significance level between two variables. If $p > 0.05$, it means the correlation is not statistically significant, whereas $p < 0.05$ means that the correlation is statistically significant. Some researchers also use 0.01 as a benchmark for the *p*-value. In the current study, this method was used to test the correlation between company information and the other parts of the online questionnaire. These included the factors for smart digital marketing acceptance and sustainable strategies to improve smart digital marketing in the property development industry, using methods adopted from Khin et al. [2] and Mahmutovic [63]. These authors have effectively adopted a similar method to compare and discuss smart digital marketing variables. Lastly, an independent sample *t*-test was used to compare the mean between two independent groups. This was carried out to identify if there was statistical evidence showing the differences in the associated population means. The group means are significantly different statistically when the value of significance level (2-tailed *t* test) is less than 0.05, as explained by Mahmutovic [63]. In this study, it was used to test if demographic details of

the company, such as the area or location, were statistically different from the means of the strategies used to improve digital marketing by the companies.

5. Results and Discussions

Based on the comprehensive research method, analyses were carried out, and the results are presented. These include the profile of the respondents, the opinion on the factors of smart digital marketing, different types of real estate agency websites used by smart property development companies, the competencies, skills, and gaps of smart digital marketing, and sustainable strategies to improve digital marketing in the property development industry.

5.1. Demographics of the Respondents

Table 7 shows the demographics of the respondents and their companies' details based on the background questions, with a reasonable split (57% to 43%) of genders among the respondents. Ashcraft et al. [123] reported that the percentage of IT occupations held by women is at 25%. An increase has been observed in the population of the women in Malaysian property development companies. This is encouraging gender diversity, especially in a smart and sustainable digital marketing area, which requires collaboration between both gender roles.

The respondents are divided into three age groups with a minimum inclusion age of 20 years, as shown in Table 7. Most professionals working in the areas of marketing and IT are in the range of 20–30 years. The younger workforce is digitally savvy and usually accepts smart digital technology faster than other age groups [124]. This is also consistent with the findings of Bach et al. [125], who argued that young people are more familiar with the rapid changes in technology compared to senior digital marketers. Accordingly, senior digital marketers have been edged out and under-represented in modern times. Therefore, it can be inferred that smart digital marketing in Malaysian property development companies is driven by the younger workforce. Further, from Table 7, most of the roles or jobs of respondents are from marketing (49.1%) and IT positions (37.0%). This is in accordance with Tao et al. [53], who argue that having a majority of marketing and IT respondents provide the assurance of the validity of the sample. These respondents are more likely to be knowledgeable about the company's smart digital marketing strategies, and hence, meaningful inferences could be drawn from the responses obtained from such a well-informed group. Further highlighting the respondents' company age, a question was asked with options ranging in 10s, from 1–10 to 41 and above. As shown in Table 7, 52.3% of the respondents are working in companies that are younger, within the range of 1–10 years of operation. Since most respondents are younger, these new start-ups and organizations seem to get along well with them, where they can take risks and experiment around. They need not worry about the burden of the reputation of the organization or their own names. These are positive indicators for achieving smartness and striving towards business sustainability in the longer run. Additionally, the larger number of young companies in the industry also indicate the recent and growing competition in the Malaysian property development industry and the influx of investments in this domain.

In terms of the company profile, the respondents hail from companies of all sizes, including both public and private organizations, as listed in Table 7. This is in line with Onyango's [120] and Najib Razali et al. [27] method of using samples of companies from both sectors to have a holistic view of the industry. Furthermore, a larger number of respondents from a specific company (for example, Asia Green Development) indicate their increased allocations of human resources towards marketing and IT roles, therefore, placing more emphasis on smart digital marketing strategy. Such emphasis translates into the company's improved and sustainable performance compared to its counterparts, thus, leading the way in inducing smartness and sustainability in the local property development sector. Table 7 further shows that most of the respondents (62.7%) are from companies based in the city of Penang. This is associated with a large number of respondents from Asia Green Development, which is a Penang-based property development company. Overall, the research targets two main

cities of Malaysia—Penang and Kuala Lumpur—as these two cities are the prime real estate cities in Malaysia. This is consistent with the Alias [30] approach, which has focused on investigating the usage of internet marketing in prime cities. Furthermore, such prime cities provide more resources and attract more investments to incentivize property development organizations to strive for smartness and sustainability. Malaysian property developers have also based their operations in these two locations, as GDP and businesses have thrived for the past ten years in these areas. Kuala Lumpur has the highest GDP in Malaysia, while Penang has been outperforming its counterparts due to its high-performance manufacturing sector. It is due to these businesses that more jobs are created, including opportunities for smart and sustainable real estate development and businesses.

Table 7. The demographics of the respondents and their companies' details.

The Demographics Characteristics		Frequency	Percentage
Gender	Male	160	57.3
	Female	119	42.7
	Unspecified	-	-
Respondents' Age	20–30	124	44.4
	31–40	70	25.1
	41 and above	75	30.5
Job/Role	Marketing	136	49.1
	IT	103	37.0
	Others	40	13.3
Company's Age	1–10	146	52.3
	11–20	62	22.2
	21–30	29	10.4
	31–40	27	9.68
	41 and above	15	5.37
Company names	Alam Harmoni Properties	29	10.4
	Asia Green Development	58	21.0
	Idram Land	20	7.2
	Jesselton Peak	20	7.2
	Juara Andaman	26	9.3
	Keramat Inn	27	9.7
	Mah Sing Group and Swisspac	27	9.7
	Syarikat Pemborong Saadlow	20	7.2
	Titijaya Land Berhad	26	9.3
	Tropicana Corporation Group	26	9.5
Location	Kuala Lumpur	104	37.3
	Penang	175	62.7

5.2. Statistical Analyses for Hypotheses and Results

In Part 2 of the online questionnaire, the opinion on the factors of smart digital marketing used by the organizations is inquired. The mean ranking of the factors for adopting digital marketing and the pertinent hypotheses of the proposed MTAM were tested accordingly. The correlation between the age of the company and other factors of smart digital marketing was also examined.

Table 8 shows the mean ranking for opinion on factors of smart digital marketing used locally. The results show that the factors with the highest mean are the ability to obtain more customer information (4.28), easy to use (4.13), useful to use (4.1), and usage for branding purposes (4.1). On the other hand, low cost (3.52), customer acquisition (3.49), and changing customer behavior (2.75) were among the factors that were ranked lower. These findings are consistent with Sepasgozar et al. [126] and Shareef et al. [112], who argued that relative advantages to the user and the ease of use of the technology have positive effects on the acceptance and subsequent use of smart digital technologies. Similarly, cost reductions were not an influential factor affecting the use of digital technology in contrast to Sepasgozar et al. [126], who argued that cost is often the main barrier in using technology and a lesser cost may dictate more acceptance. This is because Malaysian property development companies expect to easily obtain real-time customer information and create and communicate value to customers more effectively with the company brand, thereby not caring much for costs, which is consistent with Kannan [44].

Table 8. Mean scores on factors of smart digital marketing used in Malaysia.

Factors	Acronym	Mean	Rank
Able to obtain more customer information	ATU1	4.28	1st
Easy to use	EOU1	4.13	2nd
Useful to use	PU1	4.1	3rd
Branding purposes/Building awareness	PU2	4.1	4th
Facilitating dialogue to reach out customers	EOU2	3.99	5th
High efficiency	EF1	3.94	6th
Enhance customer service	EF2	3.9	7th
Speed of communication	EF3	3.81	8th
Help in sales to existing customers	ATU2	3.61	9th
Greater return of revenue	GR1	3.53	10th
Low cost	PC1	3.52	11th
Customer acquisition	AU1	3.49	12th
Changing customer behavior	ATU3	2.75	13th

5.3. Opinions on the Real Estate Agency Websites Used by Malaysian Property Development Companies

Part 3 of the online questionnaire deals with the opinions on the real estate agency websites used by Malaysian property development companies. Firstly, the frequency of the real estate websites used by Malaysian property development companies is investigated. This is followed by the mean ranking of the preferred website's smartness indicators using three types of qualities pertinent to the SISQual Approach by DeLone and McLean [127]. The SISQual approach divides all information system success factors into three qualities—Service (S), Information (I), and System (S) Qualities (Qual). Finally, the correlation between the age of the company and the preferred website indicators is investigated.

Figure 3 shows the frequency of real estate websites used by Malaysian property development companies. PropertyGuru ranks as the most-used real estate website with the highest responses (228 responses), followed by Knightfrank which received 187 responses. The results show that most Malaysian property development companies have utilized real estate websites to market their product. They generate quality leads for sales conversion with PropertyGuru and Knightfrank as the most frequently used websites. A similar analysis approach has been adopted by Kummerow and Lun [128], where real estate websites have been measured in terms of the audience traffic in the United States market. Similarly, Ullah and Sepasgozar Samad [24] have compared real estate websites in Australia

and the United States and explored their key features for attracting more customers to boost smart real estate sales.

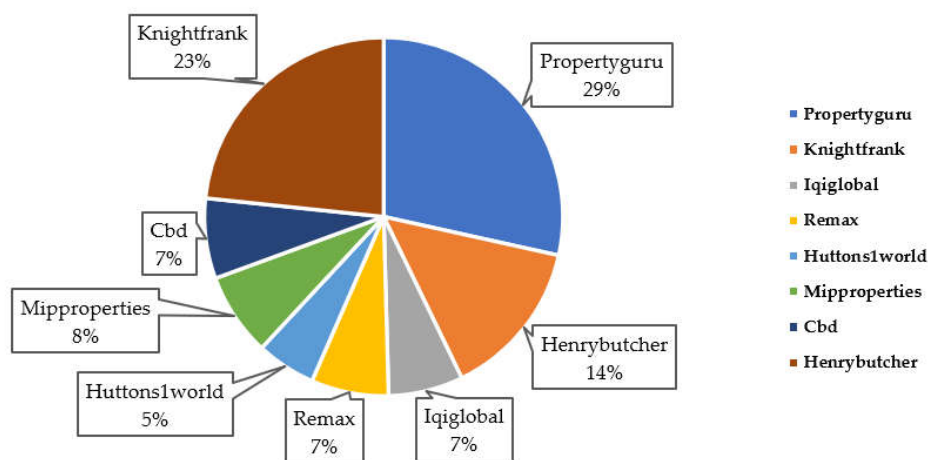


Figure 3. Frequency of real estate websites used by Malaysian property development companies.

According to the information system success model by DeLone and McLean [127], three types of qualities are responsible for the success of any information system—service, information, and system qualities, collectively known as SISQual. Accordingly, in the current study, the website smartness indicators are divided into digital SISQual as Digital Service Quality (DSQ), Digital Information Quality (DIQ), and Digital System Quality (DSYQ), which are presented and defined in Table 9. In terms of the mean ranking of real estate websites' smartness indicators, Table 9 lists and ranks these indicators preferred by property development companies based on an average score obtained from the Likert Scale. The indicators with the highest means are easy to access and use (4.5), nearby amenities (4.49), nearby facilities (4.46), and the quality of information (4.44). These indicators attractive to buyers and units are sold based on attributes such as the square feet rate of the unit, the location of the development, the amenities in the surrounding location, and the infrastructure of the location. This is consistent with Kummerow and Lun [128], where sites with the highest audience traffic were due to indicators such as rich content. Similarly, Najib Razali et al. [27] also discussed that product information is an important indicator to have on websites. This is a positive step in the direction of embracing and accepting smartness in terms of online platforms, as discussed by Ullah and Sepasgozar [11] and Ullah et al. [17], who argued that such smart indicators of online platforms can help reduce purchase or rent-related regrets. This can help develop a constructive relation among property and real estate stakeholders. In the current uncertain times, real estate and property businesses are suffering due to lockdowns and restrictions on potential customer inspections in countries such as Australia, to stop the spread of COVID-19. Accordingly, the importance of online presence and online platforms with more meaningful, organized, and better-quality information has increased.

Malaysian property development companies can adopt these website smartness indicators in their company-owned websites for attracting and subsequently, keeping more customers. This will help the organizations to excel in their business, achieve smartness and sustainability in their business, and move towards a smart and sustainable property development sector. These results address one of the objectives of this study, where the smart digital marketing strategy of a company can be improved by focusing on smart information content and customized webpages. This is the same as engage and relate elements of the digital marketing framework by Kierzkowski et al. [110] and Parsons et al. [111]. Malaysian property development organizations can surely benefit from an increased online presence in the times of social distancing and bans on property inspections in the COVID-hit environment.

Table 9. Mean score of smartness indicators of real estate agency websites preferred by Malaysian property development companies based on the SISQual approach.

Construct	Definition and Resources	Measures	Smartness Indicators	Mean	Ranking
Digital Service Quality (DSQ)	The perception that the digital services are efficient, reliable and involves latest technologies [21]	DSQ1	Easy to access and use	4.5	1st
		DSQ2	The quality of services	4.34	7th
		DSQ3	The opinion on the selection of property type	4.28	10th
		DSQ4	Virtual Tour	4.07	13th
		DSQ5	360 degrees Images/Videos	3.95	14th
		DSQ6	Virtual reality	3.85	15th
Digital Information Quality (DIQ)	The perception that the digital information is easy, accurate and comprehensive [22,129]	DIQ1	'Nearby amenities' content	4.49	2nd
		DIQ2	'Nearby facilities' content	4.46	3rd
		DIQ3	The quality of information	4.44	4th
		DIQ4	The quality of search facilities	4.38	5th
		DIQ5	The accuracy of information	4.36	6th
Digital System Quality (DSYQ)	The perception that the digital system is efficient, smooth and has consistent graphics [21,24]	DSYQ1	The quality of system function	4.33	8th
		DSYQ2	The quality of category heading	4.28	9th
		DSYQ3	The quality of graphics	4.2	11th
		DSYQ4	The featured listing pages	4.2	12th

5.4. Opinions on Competencies, Skills, and Gaps in Smart and Sustainable Digital Marketing

Part 4 of the online questionnaire captures the opinions of respondents on competencies, skills, and gaps related to smart and sustainable digital marketing acceptance. The questions are designed to test the digital marketing framework by Kierzkowski et al. [110], Parsons et al. [111], and others, in the context of Malaysian property development, to identify gaps in smart and sustainable digital marketing acceptance. Table 10 provides the percentages of Yes/No in response to each question by the respondents. As a result, multiple challenges, and gaps in smart digital marketing acceptance of Malaysian property development companies have been identified. All the respondents were provided similar questions with an option of "not applicable" for a question not concerning their department. Thus, the provided yes/no percentages are representative of the responses received in yes/no form and do not include the "not applicable" option selected by some respondents.

In terms of the digitalization of the Malaysian property development, most companies do not update their digital technologies regularly or adopt new ones. This is evident from a 55.2% negative response to technology updating and adoption, which is contrary to the behavior of accepting smartness and sustainability. Thus, it is one of the reasons hindering the transformation of the local industry to a smarter and sustainable property development sector. Similarly, most Malaysian property development companies do not use any metrics to measure their smart digital marketing processes, as evident from a 60.6% response in the negation of using assessment and measurement metrics for such processes. Again, the absence of such assessment matrices and criteria is tantamount to the lack of acceptance of smartness, digitalization, and striving for sustainability. Furthermore, 57% of the Malaysian property development companies do not have a digital marketing strategy, which is alarming and must be addressed if the companies want to transform into smart and sustainable property developers. In addition, 58.1% of Malaysian property development companies are not aligned towards smart digital marketing in terms of culture and organization, as shown in Table 10. This also goes against the goals of organizational smartness and sustainability endeavors. Likewise, most Malaysian property development companies think that the company is not better than competitors

in terms of smart digital marketing, with 58.8% of respondents confirming it. Furthermore, 67.7% of Malaysian property development companies do not allocate a certain budget towards different smart digital marketing technologies, as shown in Table 10. Again, this may hinder the process of digital transformations and uplifting when it comes to purchasing, and subsequently, using digital marketing tools and technologies.

Table 10. Percentages of opinions on competencies, skills, and gaps in smart digital marketing.

Questions	Yes	No
Are you satisfied with the current digital skills in your company?	81.7%	18.3%
Is your company utilizing any smart digital marketing technology? e.g., SEO, SEA, or others	54.5%	44.4%
Does your company update its digital technology regularly or adopt new smart ones?	44.4%	55.2%
Does your company use any metrics to measure its smart digital marketing processes?	38.4%	60.6%
Do you think that smart digital marketing skills should be improved in your organization?	57.7%	42.3%
Do you think smart digital marketing is important for property development companies?	67.4%	32.6%
Does your company have a smart digital marketing strategy?	42.7%	57.0%
Is your company aligned towards smart digital marketing in terms of culture and organization?	41.9%	58.1%
Do you think smart digital marketing is required for property development?	71.0%	28.7%
Are you better than your competitors in terms of smart digital marketing?	40.1%	58.8%
Do you think smart digital marketing can help in property sales transactions?	66.7%	33.0%
Does your company allocate a certain budget towards different smart digital marketing technologies?	32.3%	67.7%
Is your company active on at least one social media platform?	82.8%	16.8%
Does your company update its website regularly?	75.6%	24.4%

Certain gaps in smart digital marketing can be linked back to McKinsey's 'digital quotient' strategy, as examined by Catlin et al. [114]. One aspect of the 'digital quotient', the culture of allowing smart digital opportunities, is absent in Malaysian property development companies. Accordingly, smart digital technologies are not adopted or updated regularly. The organization aspect of the 'digital quotient' is also absent, as most Malaysian property development companies have the opinion that smart digital marketing is not aligned with their organizational structure. Similarly, the lack of metrics to measure processes can be linked back to the digital marketing model by Egol et al. [15]. The authors consider it an important capability for obtaining customer insights to attain smartness and sustainability in property development. The lack of allocation of budget towards different smart digital marketing technologies such as big data, SEO, social media and digital presence can be linked back to the customer decision journey by Edelman [115]. The author states that budget should be allocated and monitored for smart digital marketing technologies that influence customers during the 'evaluate' and 'advocate' stage of the decision journey towards utilizing the services, which in turn, makes the organizational business sustainable.

Although multiple issues and gaps have been identified, this does not mean that Malaysian property development companies do not utilize digital technologies or tools at all. In fact, certain companies have utilized different tools that achieve elements of the digital marketing framework in accordance with Kierzkowski et al. [110] and Parsons et al. [111]. These include utilizing at least one smart digital marketing technology (54.5% positive responses), having at least one social media platform (82.8%), and updating the website regularly (75.6%). These tools help in achieving the

objectives of engaging, retaining, and relating to the customers. Further to this, a sense of recognition is there that was stated by most of the respondents during data collection, which is the first step towards problem solving or innovation. Once an issue is recognized and accepted by the organizations, relevant resources and investments can be allocated to the sector for uplifting its state of practice, which seems to be the case for Malaysian property development companies. It is about time awareness is created and raised among the organizational managers and stakeholders for investing in smart and sustainable digital technologies and uplifting their digital marketing capabilities to help transform property development into a smart and sustainable property development sector. Overall, most of the respondents recognized the importance of smart digital marketing to the company as an important aspect of driving sales. Further to this, they recognize the need for the company to improve in this aspect, which is a positive sign and a positive step towards the acceptance of smart digital technologies in the local property development market.

5.5. Strategies to Improve Smart Digital Marketing on an Organizational Level in Malaysian Property Development Sector

Part 5 of the online questionnaire deals with the strategies to improve smart digital marketing at the organizational level in the Malaysian property development sector. The mean ranking of the strategies preferred by Malaysian property development companies is used for this purpose. An independent sample t-test using the means of demographic groups and the correlation between the age of the company and the strategy preferred has been conducted to highlight the most preferred local strategies.

In terms of the mean score for strategies to improve smart digital marketing in the context of Malaysian property development companies, creating real-time interactions has been ranked as the highest factor with a mean of 4.10. This is followed by creating KPIs to measure smart digital marketing (3.86), personalization and targeting using data (3.80), and encouraging innovation in smart digital marketing (3.78). The results show that Malaysian property development companies are following the demand generator digital marketing model, as proposed by Egol et al. [15]. The model allocates high ranks to real-time interactions and targets using data. This is associated with the integration of multiple data such as population growth, the number of amenities within a specific radius, and the available supply of properties to determine the correct type of product in the Malaysian property development sector. The same has been highlighted by Ullah et al. [24] as the key performance improvement factors in the case of Australian and United States websites. Similarly, real-time interactions can add value to the smart property development and management sectors, as argued by Shen and Pretorius [130]. The authors claim that property values can be increased by 2% if real-time interactions are established with customers, which can be further enhanced using the latest gadgets and devices. This can help achieve sustainable performance by smart property development organizations. This is also in line with Felli et al. [16] and Ullah and Sepasgozar [11], who recommended using 360 videos, and augmented and virtual realities-based visualizations for enhancing property sales and business to achieve sustainable business goals. Following these guidelines and investigations, Malaysian property developers can invest in gadgets and devices where customers can interact with these gadgets. These include providing tablet computers and VR headsets to the consumers to visualize and select their properties, thus, achieving the dream of transforming the property development sector into smart and sustainable property development. Furthermore, to have a competitive advantage over the local and global counterparts, the Malaysian property development companies can introduce immersive visualized tours using 360 videos, 3D scanners and scanning technologies, and georeferencing, where the customers can not only virtually visit the properties but also enjoy the luxury of virtually moving the furniture around to have a glimpse of how their dream home would look like [11]. Such immersive visualizations can bring more business to the local property sectors as well as keep the business up and running in the times of bans on in-person inspections and travel limitations due to the COVID-19

outbreak. This may be a step towards the future, where more reliance on virtual visits and digital environments is on the cards for the foreseeable future.

Similarly, the second-highest ranked strategy is that of creating KPIs for measuring smart digital marketing. This is in line with Saura et al. [131], who ranked KPIs very high for assessing digital marketing and its improvements using statistics such as web analytics. The authors outline key features of these KPIs as measurable, achievable, and time-bound, thus, more practical to ensure smartness and enhanced business sustainability. Further, Järvinen and Karjaluo [132] argue that KPIs are tantamount to enhancement or sustainability in the business of property developers and managers. These KPIs include the use of social media, disruptive digital tools, innovative marketing strategies, smart and proactive advertisements, and campaigns as sustainable strategies for enhancing the real estate and properties business. Furthermore, according to Edelman and Heller [133], the KPIs must be adopted and highlighted in companies meeting sustainable goals. Thus, beginning with a clear vision of its ideal customer-delivery needs, the outputs, and levels of personalization to assemble the technology, must be part of the organizational smart digital marketing strategies. However, it will need a solution that could play nicely with the company's legacy systems and is easy for a large group of global marketers to implement and manage day to day to be sustainable, achievable, manageable, and smart.

Moreover, most developments require effective targeting when it comes to marketing and advertising. For example, a service apartment development would require property development companies to target investors in their marketing campaign, instead of owner-occupiers. Thus, it is not a surprise to see personalization and data-based targeting getting higher values in the Malaysian context. Researchers have also stressed the importance of such personalization and increased customization to attract, involve, or retain more customers [17,20,22]. In terms of the low ranked factors, encouraging online transactions is ranked as one of the lowest (3.14) to be used as a strategy to improve smart digital marketing. This is consistent with Muhanna and Wolf [62], who highlighted that real estate products are expensive and infrequently purchased, causing online transactions to be unlikely in developing countries. Table 11 shows several tests of the measurement models to test if Convergent Validity exists among the measures of the MTAM [134,135].

Table 11. Descriptive analysis of all measures, including outer loading and collinearity statistics.

Observed Variables	Loading	Outer VIF	Observed Variables	Loading	Outer VIF
ATU1	0.578	1.369	ST17	0.747	3.557
ATU2	0.891	1.638	ST18	0.633	6.123
ATU3	0.659	1.326	ST2	0.506	3.955
AU1	1.000	1.000	ST3	0.741	4.104
EF1	0.813	1.712	ST4	0.827	4.898
EF2	0.845	1.72	ST5	0.535	4.261
EF3	0.651	1.095	ST6	0.836	5.118
EOU2	0.92	1.468	ST7	0.842	4.235
GR1	1.000	1.000	ST8	0.826	4.672
PC1	1.000	1.000	ST9	0.857	4.241
PU1	0.858	1.324	EOU1	0.578	1.468
PU2	0.871	1.324	-	-	-
ST1	0.669	3.345	-	-	-
ST10	0.859	4.462	-	-	-
ST11	0.856	4.49	-	-	-

Table 11. Cont.

Observed Variables	Loading	Outer VIF	Observed Variables	Loading	Outer VIF
ST12	0.811	4.025	-	-	-
ST13	0.785	3.656	-	-	-
ST14	0.63	2.95	-	-	-
ST15	0.819	3.703	-	-	-
ST16	0.571	4.256	-	-	-

Table 12 validates the criteria EOU, PC, GR, AU, and ST for Cronbach's alpha values, which are all above 0.7 [136]. According to Cronbach [136], resultant values of factors that are above 0.7 are acceptable for confirming their statistical influence; thus, the factors of the MTAM are accepted accordingly.

Table 12. Reliability and validity tests.

Selected Factors	Cronbach's Alpha	rho_A	CR	AVE	Q ²	R ²
EOU	0.722	0.77	0.875	0.778	-	-
PU	0.662	0.663	0.855	0.747	-	-
PC	1	1	1	1	-	-
EF	0.657	0.666	0.816	0.6	-	-
GR	1	1	1	1	-	-
AT	0.514	0.556	0.759	0.521	0.361	0.719
AU	1	1	1	1	-	-
ST	0.953	0.956	0.958	0.564	0.187	0.366

Table 13 shows that the correlation value between all latent variables compared to the same variable is satisfying, as all factors differ and are distinguished from each other with individual values greater than 0.321. The values are well above the recommended values of 1.5% of its total variance, ranging from 0.366 to 0.719 as per the Fornell–Larcker criteria. More specifically, the reliability test and Pearson's R squared coefficient determination test show that 36.6% of the effects on the ST factor are explained by the ATU factors, and 71.9% of the effects on the ATU factor are explained by the rest of the factors.

Table 13. Discriminant validity based on the Fornell–Larcker criteria.

Selected Factors	EOU	PU	PC	EF	GR	AT	AU	ST
EOU	0.882	-	-	-	-	-	-	-
PU	0.827	0.864	-	-	-	-	-	-
PC	0.484	0.423	1	-	-	-	-	-
EF	0.82	0.753	0.553	0.774	-	-	-	-
GR	0.476	0.432	0.748	0.558	1	-	-	-
AT	0.666	0.589	0.5	0.751	0.643	0.722	-	-
AU	0.364	0.435	0.337	0.416	0.491	0.619	1	-
ST	0.363	0.384	0.321	0.418	0.472	0.605	0.591	0.751

The results demonstrated in Table 14 show that the effect of all variables for six paths varies from 0.017 to 0.577, which is moderate and substantial, thus, accepting the hypotheses pertinent to

these variables. Figure 4 represents the latent variables, the proposed constructs, and their values for hypotheses assessments.

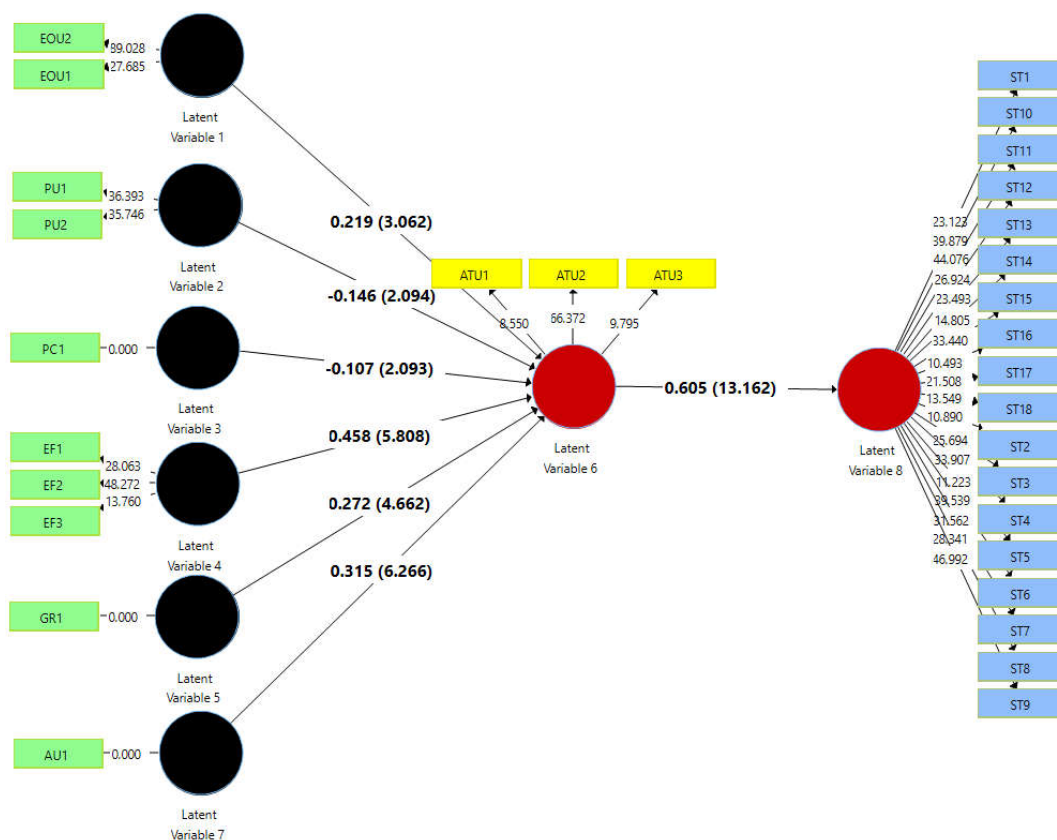


Figure 4. The modified and tested MTAM derived from the entire samples.

The analysis results show that each proposed factor has above 3.6% of the total variance explained in their respective factor. As discussed, the R squared values are all above 0.366, which is good and acceptable for exploratory studies. Table 14 also shows that inner Variance Inflation Factor (VIF) is well below 5. All values are from 1.0 to 4.48, which shows that collinearity is not a problem in this analysis. For hypothesis testing, Table 14 shows that hypotheses H2 and H3 are not supported (significant at $p < 0.01$), whereas the remaining are all statistically supported and validated.

Table 14. Summary of the structural model, including estimated path coefficients with t-value.

Path and Direction	H	Original Sample	Sample Mean	STDEV	T Statistics	p Values	Inner VIF	f 2
EOU→ATU	H1	0.219	0.218	0.071	3.062	0.002	4.48	0.038
PU→ATU	H2	-0.146	-0.149	0.07	2.094	0.036	3.536	0.021
PC→ATU	H3	-0.107	-0.11	0.051	2.093	0.036	2.455	0.017
EF→ATU	H4	0.458	0.46	0.079	5.808	0	3.682	0.203
GR→ATU	H5	0.272	0.272	0.058	4.662	0	2.746	0.096
ATU→ST	H6	0.605	0.609	0.046	13.162	0	1	0.577
AU→ATU	H7	0.315	0.316	0.05	6.266	0	1.463	0.242

To explore the availability of more possible relationships and revealing the relationship between the proposed measures, another test was conducted. This test also investigated the relationships

between customer ATU and AU. Figure 5 shows an interesting possible relationship between EF measures and customer ATU. It also shows that customer ATU, as well as the agency AU, contribute to the strategies that should be considered for increasing the dynamic digital marketing capabilities of the property development companies.

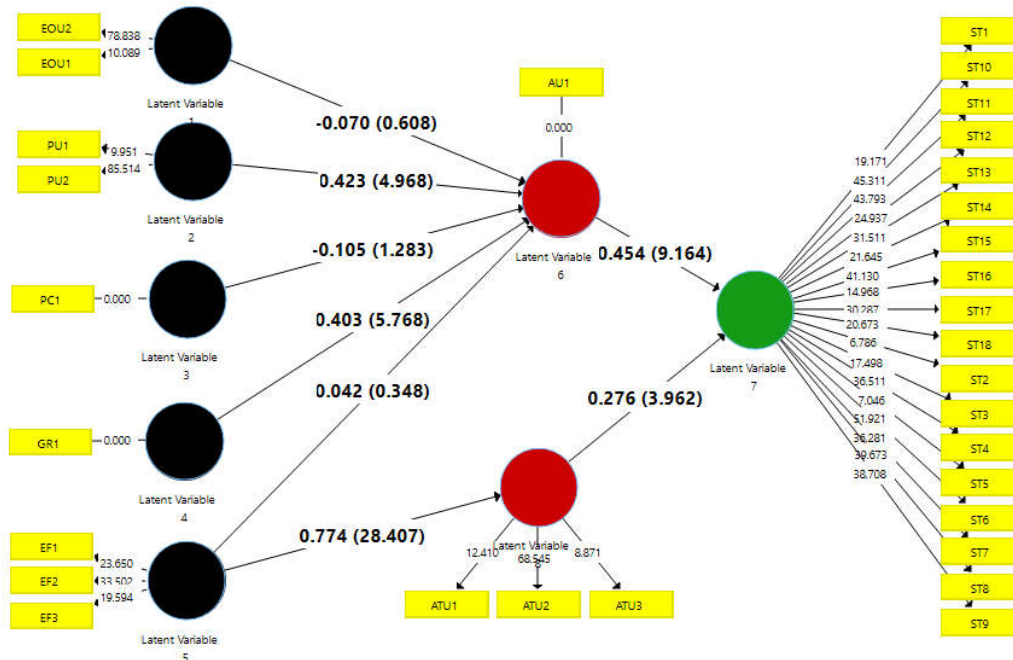


Figure 5. The final tested MTAM derived from the entire samples. Note: Path coefficients and t-values are shown on the inner model. The outer model shows t-values.

Figure 5 shows a visualized version of the testing indicators of the second proposed model. This helps to find out if there are any relationships between customers’ ATU and AU of the technology by the property development agency and their strategies (ST). Table 15 validates the criteria EOU, PU, PC, GR, and AU for Cronbach’s alpha values that vary from 0.6 to 1.0, which is within the acceptable limits [136]. The analysis results show that each proposed factor has above 3.57% of the total variance explained in their respective factor. R squared values are 0.357 (AU), 0.508 (ST), and 0.671 (ATU), which are within the acceptable limits for exploratory studies.

Table 15. Results of the reliability and validity tests.

Selected Factors	Cronbach’s Alpha	rho_A	CR	AVE	Q ²	R ²
EOU	0.722	1.533	0.849	0.741	-	-
PU	0.662	1.451	0.82	0.702	-	-
PC	1	1	1	1	-	-
GR	1	1	1	1	-	-
EF	0.657	0.652	0.812	0.59	-	-
ATU	1	1	1	1	0.355	0.671
ST	0.953	0.96	0.959	0.57	0.242	0.508
AU	0.514	0.553	0.76	0.522	0.308	0.357

Table 16 shows that inner VIFs are well below 5. All values are ranging from 1.0 to 4.48, which shows that collinearity is not a problem in this analysis. For hypothesis testing, Table 16 shows that hypotheses H1, H3, and H5 are not supported (significant at $p < 0.01$).

Table 16. Summary of the structural model, including estimated path coefficients with t-values.

Path and Direction	H	Original Sample	Sample Mean	STDEV	T Statistics	p Values	Inner VIF	f 2
EOU→AU	H1	−0.07	−0.065	0.115	0.608	0.543	3.197	0.002
PU→AU	H2	0.423	0.426	0.085	4.968	0	2.397	0.12
PC→AU	H3	−0.105	−0.103	0.082	1.283	0.199	2.431	0.007
GR→AU	H4	0.403	0.402	0.07	5.768	0	2.478	0.105
EF→AU	H5	0.042	0.039	0.122	0.348	0.728	3.46	0.001
EF→ATU	H6	0.774	0.775	0.027	28.407	0	1	1.49
AU→ST	H7	0.454	0.454	0.05	9.164	0	1.565	0.232
ATU→ST	H8	0.276	0.278	0.07	3.962	0	1.565	0.086

The test results of the second model show that there is a strong relationship between EF and ATU. In addition, there is a strong relationship between PU and GR with AU. Furthermore, there is a strong relationship between AU and customer ATU and ST. In fact, the ST is affected by both AU and ATU. This result contributes to the body of knowledge by linking the user behavior and attitude to use digital technology to the company's strategy development and its dynamic digital capabilities. The results are helpful in extending the understanding of the capacity of a property development company to purposefully create or modify their resources for digital transformation. This is in line with previous studies such as Cabiddu et al. [4] and Ambrosini and Bowman [137].

Additional analyses are conducted to identify if there is an association between company age and location with three main measures of digital capabilities and if the relationships are statistically significant. The measures include skills of employees, digital marketing strategies, and the utilization of social media as part of the digital marketing dynamic capability indicator. Organizations (both younger and older) located in Kuala Lumpur and Penang are classified into two groups, and the responses to three questions are analyzed through Chi-square analyses. The questions include if the organizations are satisfied with the current digital skill of their employees, if they utilize digital marketing technologies such as social media, and if digital marketing strategies are important for property development companies. The Chi-square analyses show that there is no statistically significant association between company age, the digital skill of employees, and the use of digital marketing strategies, since $\chi(1) = 0.088$, $p = 0.767$, and $\chi(1) = 1.215$, $p = 0.270$, respectively. This shows that both young and old companies are equally satisfied with the digital skills of their employees. For the second question, the Chi-square analyses show that $\chi(1) = 9.07$, $p = 0.003$, which represents a significant statistical association between company age and the use of social media. Thus, it can be inferred that young companies use social media more than old companies.

The results also show that there is a statistically significant association between company location, digital skills of employees, and the use of digital marketing strategies since $\chi(1) = 12.223$, $p = 0.000$, and $\chi(1) = 4.170$, $p = 0.041$, respectively. Companies located in Kuala Lumpur are satisfied with their employees' digital skills and believe that digital marketing strategies are important compared to Penang companies. The Chi-square analyses show that $\chi(1) = 0.277$, $p = 0.598$, indicating a lack of a statistically significant association between company location and the use of social media. Thus, companies located in Kuala Lumpur and Penang equally use social media as marketing strategies. Cabiddu et al. [4] suggested social media usage as one of the indicators of customer engagement in line with the dynamic capability of companies. The findings of Chi-square are practical contributions of this study and can be used for developing more hypotheses for future studies in a similar context.

The results of this paper presented empirical evidence of the relationship between the proposed MTAM constructs. Bach et al. [125] indicate that technology implementation improves the company services, which leads to greater return on investments. Furthermore, it has a positive impact on the

acceptance and adoption of technology. Another aspect is that of customer data security and personal information management associated with the tremendous increase in customer base, as mentioned by Masis et al. [14]. Crowston et al. [60] discussed that technology implementation improves efficiency in marketing with segmentation. Similarly, Tao et al. [53] argued that smart digital marketing enables more efficient management through customer monitoring. From the perspective of the selected sample of Malaysian property development companies, this result shows that the acceptance of smart digital marketing was not influenced by benefits of efficiency. However, this sample is limited to 279 participants from two large cities in Malaysia. Subsequently, in futuristic studies, all hypotheses can be tested in different contexts recruiting a large sample of participants and the results can be compared with the current paper to have a holistic and global perspective. In particular, larger sample size and exploration in both developed and underdeveloped countries can help add more value to the existing body of knowledge.

6. Conclusions and Recommendations

The current study investigates the use of smart digital marketing strategies in the Malaysian property development industry. It uses a quantitative approach and collects data through an online questionnaire survey. The online questionnaire has been designed to test and formulate a smart digital marketing strategy for Malaysian property development companies. Different digital marketing frameworks and models have been integrated into, and inquired about, in each part of the questionnaire. This is later assessed using different statistical analyses. Overall, the questionnaire is used to obtain responses to the three main objectives of the study. The questions are focused on investigating Malaysian property development companies prioritizing smart digital marketing as part of their company strategy. Furthermore, investigating the impediments faced by Malaysian property development companies when adopting smart digital marketing is also focused on in the study. The objectives are to establish the extent to which smart and sustainable digital marketing has been accepted by property development companies, to explore the impediments to acceptance of smart digital marketing by property development companies, and to formulate sustainable strategies to improve smart digital marketing at the organizational level.

Regarding the opinions on the factors of smart digital marketing, the expectations of obtaining more customer information, easy to navigate, useful when used, and usage for branding purposes are key factors in the context of smart and sustainable digital marketing strategies focused on the Malaysian property development sector. Low cost is not considered as a factor affecting the use of smart digital marketing among Malaysian property development companies. Accordingly, the cost is considered as an impediment for Malaysian property development companies to adopt smart digital marketing. In terms of the MTAM, the analyses show that the perceived ease of use, the perceived usefulness, and efficiency are positively related to the attitude of using smart digital marketing technologies by Malaysian property development organizations. However, the perceived cost and greater return are not found to be positively influencing digital technology adoption. This is mainly due to property development companies relying on only one type of smart digital marketing technology for increasing revenues and lack of research and development (R&D)-based explorations in this context. Although smart digital marketing can increase return, these companies are reluctant to adopt and accept new smart and sustainable digital marketing technologies. Instead, these organizations spend more on other marketing tools, such as sales galleries. However, both mature and younger organizations are willing to use digital marketing. These organizations are moving towards the adoption of such technologies by accepting that the local industry is currently lacking these and the fact that such smart technologies should be adopted. This is a positive step towards the enhancement of digital marketing capabilities that must be improved to stay competitive in the global markets. The demand is further increased due to COVID-19-induced lockdowns, bans on inspections, and customers' reluctance to visit the properties. Thus, the way forward for Malaysian property development organizations

is to adopt and invest in disruptive digital technologies to improve their digital marketing and business capabilities.

In terms of the real estate agency websites used by Malaysian property companies, PropertyGuru and Knightfrank are the most frequently used websites. These websites are widely used due to their smartness indicators such as ease of use, quality contents, and usefulness of the information provided. These smartness indicators must be adopted by the Malaysian property development companies and used on their websites to improve their strategy in attracting buyers and generating leads to have a sustainable business. In addition, 3D and 360 videos, immersive visualizations, virtual furnishings, and georeferenced guides are key to gain competitive advantages in online business. These technologies must be introduced on the websites to help customers inspect, view, customize, and ultimately, select and purchase a property over the internet. However, this may require investments and serious quality checks on the SISQual of digital information, where the qualities of information, services, and systems are checked, verified, and maintained. Such high quality and verified information, if made available to the end-users, may help eliminate their potential regrets related to real estate and property rent or purchase decisions. Such regrets are currently very high, according to Ullah and Sepasgozar [11,21].

Similarly, in terms of the competencies, skills, and challenges to smart and sustainable digital marketing adoption, most Malaysian property development companies recognize the importance of digital marketing that drives sales. They further recognize the need to improve and adapt these aspects in their organizations. However, certain gaps are identified in the current study that include lack of adopting or updating new, smart and sustainable digital technology, lack of strategies and metrics to measure smart digital marketing processes, and lack of budget allocation towards the acquisition of smart digital marketing technologies. These issues are hurdles in the progression of the Malaysian organizations towards smart property development organizations. Furthermore, a lack of organizational structure and culture to execute sustainable digital marketing strategies is also an impediment of using and adopting smart digital marketing strategies by Malaysian property development organizations. A managerial overhaul in terms of flexibility to accept and willingness to experiment with new technologies is required in the local context for uplifting the state of local property development organizations.

In terms of the sustainable strategies to improve smart digital marketing, strategies from Egol et al.'s [15] digital marketing model are ranked highly by local professionals. These include creating real-time interactions, creating KPIs to measure digital marketing, personalization and targeting using data, and encouraging innovation in digital marketing. Further different strategies should be used and adopted in the two explored cities due to the difference in landscapes, competitive environments, and maturity of the markets, to help transform the pertinent property development organizations into smart and sustainable property developers.

Based on the results of the current study and the reviewed smart digital marketing models, a suitable smart and sustainable digital marketing strategy based on professional views can be formulated for Malaysian property development companies. This can help to adopt digital marketing technologies and improve their digital capabilities, as shown in Figure 6. The sustainability approaches of governance and digitalization in Figure 6 have been adopted from Linkov et al. [26]. Similarly, the Big9 technologies are adopted from Ullah et al. [21,22], and Munawar et al. [23]. Figure 6 shows how the digital marketing strategies from the reviewed literature merged with the results of the current study for the Malaysian context can help achieve digital sustainability using sustainable approaches of governance and digitalization to help achieve and adopt the proposed MTAM.

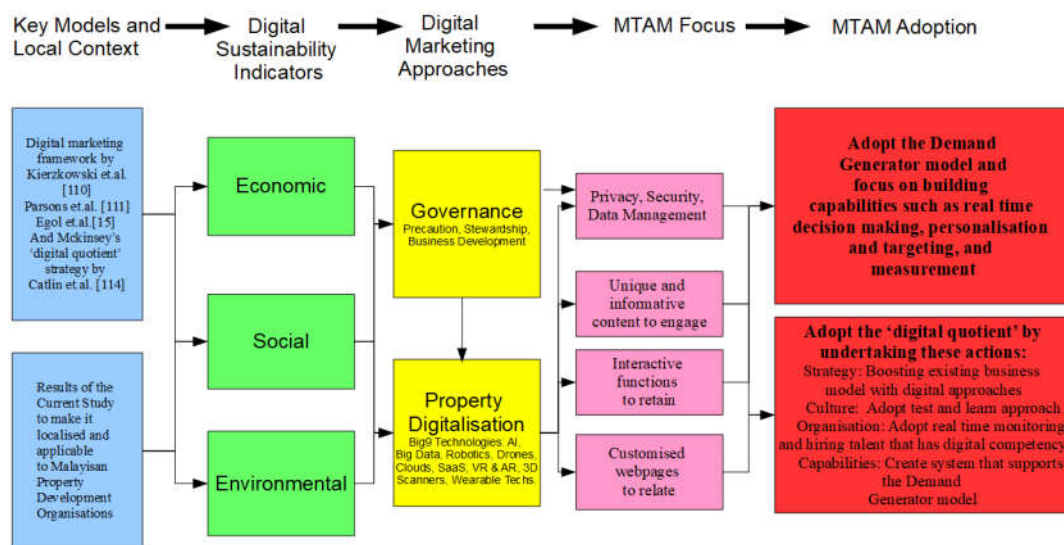


Figure 6. Recommended smart digital marketing strategy for Malaysian property development companies. Note: AI—Artificial Intelligence; VR—Virtual Reality; AR—Artificial Reality.

Implications, Limitations and Future Directions

The findings of this study can help both scholars and practitioners to develop dynamic digital marketing capabilities of property development companies. This can help to integrate, build, and improve their competencies for uptaking digital technologies in the rapidly changing smart cities and smart real estate environments. This study has implications for both smart digital marketing theory and practice. In terms of theoretical contributions, this study combines key models, frameworks, and theories associated with smart digital marketing and its adoption of smart and sustainable digital technologies—accordingly, the study presents a holistic and wholesome framework for a localized context. For smart digital marketing practice, the findings are a humble attempt to fill in the application of smart digital marketing in Malaysian property development companies. It is expected that the respondents' opinions on digital marketing frameworks and strategies, and investigation of its usage in the local context can help transform the local industry into a smart and sustainable property development sector. Similarly, practices and challenges are highlighted, and recommendations are presented for organizational managers to improve upon the current state of practice. This can help them move towards a more holistic and improved adoption of smart digital technologies in Malaysian property development organizations. Overall, the findings, together with smart digital marketing models from previous researchers, provide Malaysian property development companies a direction and guideline, which can be used in making informed decisions regarding smart digital marketing. This can help in moving towards the dream of achieving a smart and sustainable property development sector. The same model can be applied and adopted by countries with similar development and cultural contexts with a minor fine-tune. Additionally, practical applications such as improving digital presence and enhancing the business through virtual and augmented tours, virtual furnishings, and georeferencing can help the local property development organizations take the global lead. This is particularly important and timely in the times of COVID-19-induced lockdown, where customers cannot visit or inspect the properties physically. This practical opportunity can help the organizations take the global lead and attract a huge set of customers for the foreseeable future.

This study has certain limitations, including sampling locations and strategies. It has only sampled two prime real estate cities in Malaysia, i.e., Penang and Kuala Lumpur. Other cities or suburbs may indicate a different result. However, the large variety of respondents with the inclusion of companies from various sizes and maturity levels is expected to make the results more meaningful and generalized in the developing countries context. Further to this, the involvement of only marketing and

IT professionals and managers is another limitation of the current study. Director level decision-makers, who may be able to have a larger influence over the smart and sustainable digital strategies adoption of the company, are not interviewed or included in the sample, mainly due to accessibility and willingness to participate. However, this has been compensated since most respondents are involved in the execution and implementation of digital marketing and provided insights consistent with the views of director-level decision-makers. Additionally, the data collected are limited to quantitative analyses and can be complemented in the future with more qualitative data and interviews.

Future research could explore other major cities of Malaysia, such as Johor Bahru or others, as well as increase the scope of the study to include developing and developed countries. This can help in formulating a holistic comparison and adding more value to the body of knowledge. It would also be interesting to explore smart digital marketing practices utilized by Malaysian property development companies based on their presence in the main city and the regional suburb areas. Furthermore, since certain strategies were significantly different in terms of statistics in both demographic regions, it will benefit future researchers to investigate the effects based on multiple cities to reach a holistic conclusion. Moreover, future research could investigate the best practices of smart digital marketing technologies such as SEO and CRM in the context of the Malaysian property development industry. Lastly, the core concepts of TAM in the context of real estate websites and online platforms' SISQual can be further explored. This can help in highlighting key factors related to the systems, service, or information qualities that have a larger share in dictating customers' decisions related to rent or purchase decisions. At the same time, the issue of two-way dependencies between the TAM factors cannot be overruled and it will be interesting to see future research in the context of real estate and property development.

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