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The Main Effects of Digital Marketers' Work Behaviors on Sustainable Sweeping Innovations: The Moderating Role of Marketing Knowledge Within Telecommunication Companies

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Abstract

The present study aims to determine the extent to which digital marketing business (i.e. digital attraction, digital communication, digital learning) helps achieving sweeping sustainable innovation (i.e. sustainable sweeping activities, sweeping sustainable exploitation, sweeping sustainable exploration), through the interactive role of marketing knowledge (i.e. knowledge of the market, knowledge of competitors, knowledge of customers, knowledge of technology). To test the interplay between those relevant variables, a quantitative research method was adopted; a total number of 400 questionnaires were distributed to a cross-section of EarthLink's clientele; and 384 of them were ultimately chosen. Statistical techniques and softwares (i.e. SPSS, Ver. 26. AMOS, Ver. 24) were used to analyze the data and test the proposed hypotheses. Numerous suggestions were made in the study's final section.

Keywords: *Digital Marketing, Marketing Knowledge, Sustainable Sweeping Innovation, Earthlink's Clientele.*

Introduction

Sweeping innovations, driven especially within digital platforms, are conquering the world, spreading rapidly and expanding their activities in a short time into multiple areas. It means that the Competition Council should be aware of the problems posed by the markets of these platforms, so that its intervention remains useful leading to enlightening decisions. Since sweeping innovations change our way of life for the better, they are particularly beneficial and require protection by the Competition Board. In fact, breakthrough innovations have positive effects on well-being and they are beneficial to welfare, based on the fact that they enact from revolutionary ideas that enhance the restructuration or the creation of entire markets, and do not stop at the point of introducing gradual amendments that improve the current situation. Therefore, the Competition Council should be biased in favor of protecting sweeping innovations, and preventing harmful impacts on welfare. The consumer has also the right to enjoy advanced innovations and affordable prices (Omrane, 2022). From this standpoint, the present research attempts to shed some light on the mechanisms that the Competition Council can use for implementation. Christensen, et al (2018, p.1) underlined that sweeping innovation is widely embraced by practitioners, notwithstanding prevalent misconceptions regarding its fundamental principles. Foundational research on disorder has produced numerous citations and robust debate in academia. However, subsequent empirical studies have seldom addressed their primary theoretical arguments. On the other hand, marketing knowledge holds a distinct meaning for marketing scholars who have developed a narrow focus regarding the nature of marketing knowledge, prioritizing a production-oriented approach that emphasizes the generation of substantial information. In other words, marketing knowledge represents all the data that contribute to building a marketing strategy for the organization, and relates to information about the product, the audience, and competitors. New media have facilitated the collection and monitoring of data, converting it into information to make decisions related to both electronic and traditional marketing projects (Yogesh et al, 2019, p.1). When it comes to digital marketing, it would be interesting to apprehend it, as it reflects the process of promoting goods or services through computers, Internet, but also through mobile phones, TV ads, and other digital outlets.

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Accordingly, the current research will explore the theoretical foundations of digital marketing, marketing knowledge, and sustainable sweeping innovation. It seeks to find elements of responses to the following central research question: "To what extend does digital marketing business behavior affect the achievement of sustainable sweeping innovations via the moderating role of marketing knowledge in ICT companies of specific developing countries?"

To address the main research questions of the present study, a quantitative research method was performed and an optimal sample size was decided on a sufficient number of 384 EarthLink customers. The current research aimed at responding to the main subsequent sub-questions which could be formulated as follows:

What is the level of availability of the dimensions (digital marketing, marketing knowledge, and sustainable sweeping innovation) in the researched organization?

Is there any role for digital marketing business behaviors in achieving sustainable, sweeping innovation?

What are the main effects of marketing knowledge in achieving sweeping, sustainable innovation in the studied organization?

Otherwise, the present investigation derives its importance from the following considerations:

It dives into the concept of digital marketing, which includes three main dimensions (digital attraction, digital communication, digital learning); and seeks to provide an additional knowledge in the field of marketing.

It aims at examining and testing the possible relationships between the key variables that correlate to the marketing literature, i.e. marketing knowledge, digital marketing, and sustainable sweeping innovation.

It examines the moderating role of marketing knowledge in the association between digital marketing business behaviors and sustainable sweeping innovation within (EarthLink Company).

It attempts to end up by a set of implications and insightful recommendations that might support organizations' managers, aspiring to engage sustainable sweeping innovations.

Literature Review

Digital Marketing: Definitions and Scope

The digital economy significantly enhances competitiveness, particularly when digital transformation entails a shift to new technology frameworks, with digital marketing being a crucial component of growth and customer retention tactics. Digital marketing has emerged as a crucial element in campaigns designed to attract and keep online customers (García et al., 2019, p. 1). It refers to the use of digital technologies, primarily Internet, but also mobile devices, display ads, and other digital platforms, to promote goods and services. The development of digital marketing is inextricably related to advances in technology. Its inception dates back to the 1980s. During that period, new advancements emerged, enabling the computer system to sufficiently store client information. In fact, IBM introduced the first personal computer in 1981, and by 1989, the computer storage capacity had expanded to 100MB. Prior to digital marketing, traditional marketing served as a conventional approach to engage a rather defined audience. Although the target demographic for offline advertising and promotional strategies have changed over the past few decades, the fundamental elements remain the same. This conventional marketing led to the emergence of digital marketing, which represents all the marketing initiatives that make the use of technology or Internet facilitated. It seeks to interact with both actual and potential customers, via the usage of digital platforms such as search engines, social media, emails, and any other websites (Yogesh et al., 2019, p. 2).

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Dimensions of Digital Marketing

Digital attraction: Marketers utilize social media to enhance brand visibility, communicate information about products and services, and gauge customer perceptions. Their business draws in new customers and strengthens relationships with the existing ones. Marketers are actively seeking to engage new customers via social media, and through the strategies including search engine optimization, online competitions, surprise gifts for clicks, and competitive pricing (Sivathanu and Pillai, 2014, p. 35).

Digital communication: the most significant value in cyber marketing is generated by digital communication which offers the chance to tailor the relationships between time or marketing effort and the service offered to multiple clients at once. Through a two-way channel of communication and distribution, social media offers an unparalleled opportunity to establish reliable connections with customers (El Saura, 2020, p.2).

Digital learning: It is often characterized as the deliberate application of interconnected information and communication technologies within the realm of education and knowledge acquisition. Various alternative terms are employed to characterize this particular approach to teaching and learning, encompassing online education, virtual instructions, distributed learning methodologies, as well as network and web-based educational frameworks (Pauline & Anthony, 2018, p. 11).

Marketing Knowledge

Knowledge management is essential for attaining a superior marketing performance. Marketing performance is in turn crucial for enhancing understanding and facilitating the attainment of the organizational objectives. Herjanto and Amin (2023, p. 1) argued that marketing decisions can be informed by three primary sources of knowledge: retailer-provided customer insights, consumer data obtained through market research, and external data from market providers. Four marketing techniques could use information technology as a tool to address inertia through various approaches. Transactional marketing leverages technology to manage transaction volumes, which is central to this methodology. Database marketing relies on database technologies to collect and structure customer information. Interactive marketing uses various technologies to facilitate person-to-person interaction; whereas network marketing employs various techniques to facilitate its network of group interactions. Internet technology offers direct selling opportunities. (Iamamporn & Songsangyos, 2015, p. 15).

Dimensions of Marketing Knowledge

Market knowledge: Market knowledge is a crucial determinant of a new product performance, as demonstrated by recent studies. Nonetheless, the absent element in this relationship is creativity, particularly as an inherent process in product innovation (Dabrowski, 2019, p. 1168).

Knowledge of technology: Information technology plays an important role in supporting knowledge management processes such as acquisition, transfer, sharing, exploitation, and application. Stakeholders should thus recognize the role of information technology in successfully implementing knowledge management processes within organizations (Amin Al-Sulami, Mohammed Rashid, & Ali, 2014, p. 1)

Customer Knowledge: It is crucial for organizations to employ client involvement, defined as an active participation in the development of innovative products or services. Successful customer knowledge is essential for delivering customized products and enhancing service and product quality. However, organizations face significant challenges regarding customer knowledge (Khosravi & Ab Razak Che, 2016, p. 264).

Knowledge associated to competitors: Gaining an edge over the competition is directly related to effective knowledge management. Which connection is greatly amplified by the market orientation interaction effect? The organization's competitiveness is enhanced when market-based knowledge is effectively considered. That is why knowledge-based resources become more efficient while they are combined to provide a competitive advantage. Finding a happy medium between knowledge management and a focus on the

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market is only one of many administrative implications that emerged from the findings. It is thus recommended to build up a proactive, market-oriented organization (Tahate, Moses, Joseph M. and Augustine, 2010, p. 2971).

Sustainable Sweeping Innovation: Definitions and Foundations

Because their appearance throughout time is not well understood, breakthrough developments provide numerous obstacles when trying to detect and manage them. Scientists have pinpointed the initial indications and prerequisites that point to its presence. However, analysis has yet to be performed from a process point of view that recognizes the underlying dynamics. Through a systematic review of the literature, discrete findings on the disruptive innovation process could be analyzed to identify the events and actions that lead to sweeping innovations over time (Petzold et al 2019, p.1). Sustainable disruptive innovation (SDI) embodies the traits of disruptive innovations while concurrently fostering beneficial environmental, economic, and societal outcomes. Consequently, and as reported by Mäkinen S.J. (2020, p.1), SDI encompasses the subsequent characteristics:

It introduces innovative value propositions to the market, grounded in updated performance standards; and considers the entire life cycle of a product in assessing its impacts.

It intends to alter customer preferences regarding the prioritization of one product or service over another. Besides, it typically exhibits lower performance compared to established products in significant markets.

It is initially commercialized and supported in emerging or less significant markets; as it tends to be less expensive, more straightforward, compact, and more user-friendly compared to existing products.

It typically offers reduced margins rather than increased profits and facilitates the emergence of new markets.

It is systemically orientated and should be assessed via the usage of performance characteristics that is distinct from those pertinent to established value networks.

It is made for modifying current unsustainable social and economic frameworks. Besides, it mitigates adverse environmental effects, encompassing societal, economic, and environmental dimensions.

Dimensions of Sustainable, Sweeping, Innovations

A thorough review of the precedent literature highlights that sustainable, sweeping innovations could be assessed via three main dimensions: sustainable sweeping exploitation, : sustainable sweeping exploration, and sustainable sweeping activites.

Sustainable sweeping exploitation: the processes of exploitation encompasses the extraction and generation of value through the marketing functions. Marketing-based exploitation entails leveraging existing competencies to maximize the value derived from the current environment. Exploitation activities contribute to the development of enhanced competitive functions in the present Market. The antecedent research indicates that extensive marketing exploitation activities performed by companies include advertising strategies and promotions. Advertising serves as an exploitation-based practice aimed at creating and facilitating exchanges within the company's existing market, thereby extracting value. On the contrary, marketing-based prospecting pertains to research activities. The experimentation and development of new opportunities and knowledge is basically found on the activities that relate to innovation. Such exploration capabilities enable the company to maintain a competitive edge and respond to the environmental forces through an effective innovation. The coordination of exploitation within strategic marketing processes deserves to be examined through the lens of advertising (exploitation) and research. Experimental development (exploration) leads to the foundations of a continuous monitoring system to raise the questions regarding the appropriate focus that the company puts on exploitation and exploration (Kashkul and Al-Abadi, 2020, p. 105).

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Sustainable sweeping exploration: Kashkul and Al-Abadi (2020, p.105; Cited in Hao et al., 2020, p. 54) advanced that sweeping exploratory innovation leads to the development of creativity and the exudation of ideas. Recent research begins by determining its true situation, as the basic aspects of this research process helps in expanding the horizons of thinking, studying, and interest. It is also a step on the way to going beyond the boundaries of known things to investigate every novel situation or event. When the organization seeks to identify the best opportunities and appropriate fields, it should take into account the strength of competitors from other organizations. Indeed, an overwhelming organization is supposed to be capable of investing in opportunities, managing the course of work through them, as well as gathering the resources that enable it to do so in the light of a situation that suits its technologies in order to deal with those opportunities. It should also trigger the ambition to accept any adventure that may accompany the process of acquiring and capturing them.

Sustainable sweeping activities: sweeping marketing activities are the simultaneous and focused efforts of employees that emphasize initiating or exploiting the sweeping innovation process. The main target of sweeping marketing activities for managers is to create and nurture sweeping innovations. These actions undertaken by managers coincide with the occurrence of events that are developed through different stages of the sweeping innovation process, so that the decision-making approach that managers use in pursuing investment directions is either effect or causation. Such an implementation approach involves all the activities that take advantage of the available resources and develop gradually while opportunities arise within the market. This causal approach includes also all the administrative procedures that focus on discovering untapped and identified markets, before discovering the ways and means of delivering a sweeping innovation. In those both approaches, administrative procedures are set through the sweeping innovation process (Kashkul and Al-Abadi, 2020, p. 99; Cited in Sadiq et al, 2020, p. 4).

Research Method

To reach the objectives of the current study, a theoretical framework was developed to be tested in what follows. The proposed research model incorporates three main variables as shown in Figure. (1) below.

Proposed Model and Research Hypotheses

The independent variable, which is digital marketing, includes three dimensions, i.e. digital attraction, digital communication, and digital learning (Al-Hakim and Al-Hamami, 2016). The dependent variable, referring to sweeping innovation, encompasses the sub-variables related to sustainable sweeping exploitation, and sustainable sweeping exploration activities (Kashkul and Al-Abadi, 2020). The third variable is a moderator and it is rather represented by marketing knowledge with its indicators (i.e. market knowledge, knowledge of competitors, knowledge of customers, and knowledge of technology (Abdel-Moj and Abu Hamada, 2020).

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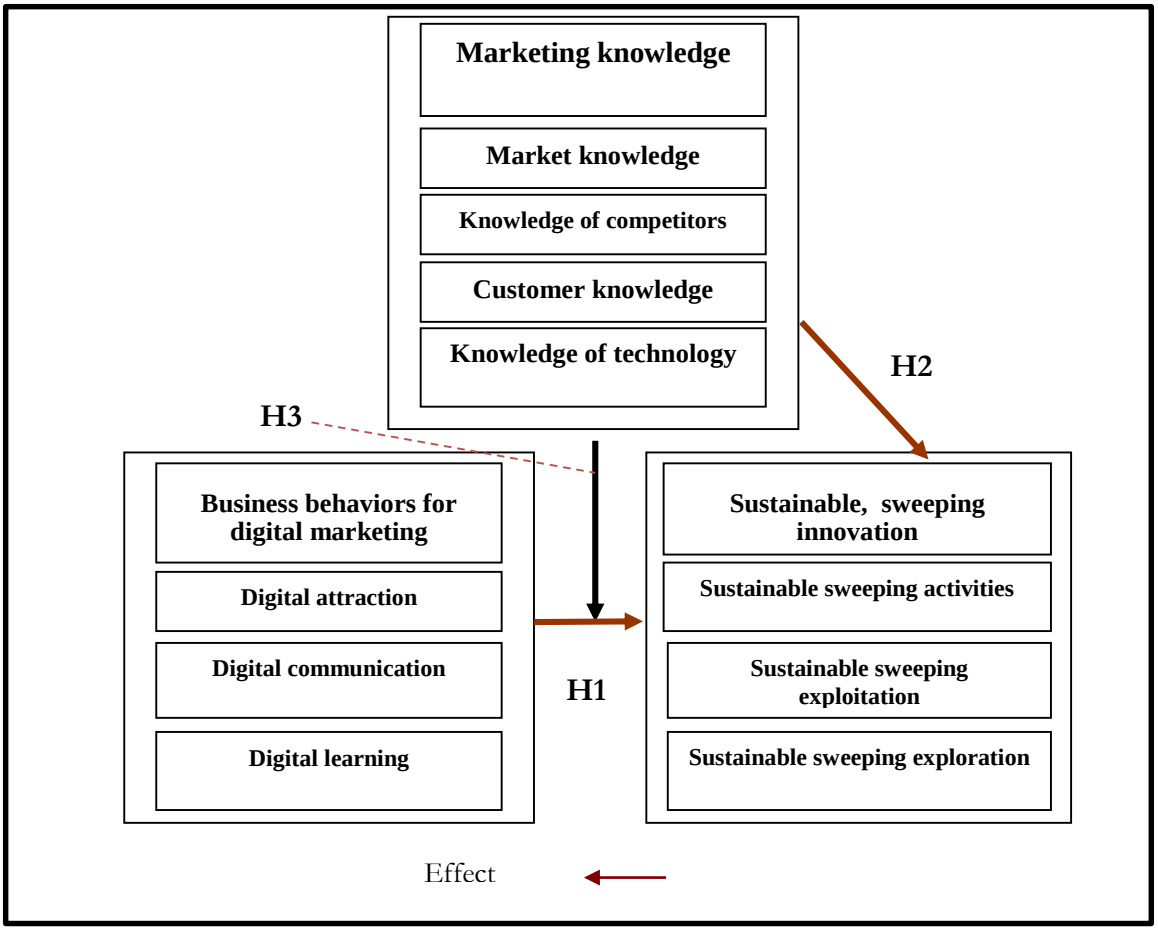

Figure 1. Theoretical Research Model

Source: Own Elaboration

The proposed research hypotheses are summarized as follows:

H1. Business behaviors for digital marketing influence positively sustainable sweeping innovation.

H2. Marketing knowledge has a positive impact on sustainable sweeping innovation.

H3. Marketing knowledge moderates the association between digital marketing and sustainable sweeping innovation.

Research Population and Sample

The current study focuses on EarthLink customers, and statistical tables were employed due to the fact that the population's size is uncertain (Krejcie, & Morgan, 1970). To conduct our study, the optimal sample size was decided on a sufficient number of 384 individuals. A total of 400 questionnaires were distributed to a random representative sample. Out of 388 retrieved questionnaires, 384 met the necessary criteria and were deemed suitable for statistical analysis.

Characteristics of the Studied Sample

To accurately characterize our study sample, respondents provided answers to a series of additional items concerning gender, age, educational qualifications, and duration of engagement with the company, as

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detailed in Table (1) below. The characteristics of respondents yield essential information in a clear manner, aiding in the fulfilment of the study's objectives. Findings regarding gender reveal that the male respondents numbered (283), constitute (73.7%) of the total sample; while female respondents amounted to (101), represent (26.3%). This disparity indicates that men comprise a significant majority of EarthLink's customer base. The age distribution reveals that 55.2% of the participants fall within the 34–49-year range, followed by 31.5% for the 18–33-year category, and lastly, those aged 50 and above. The figure stood at 13.3%, and such percentages, in general, exerted a considerable influence on the sample members' comprehension and interpretation of the questionnaire items, facilitating objective responses.

Table (1). Sociodemographic Profiles of Respondents

Variable	Category	Repartition	Percentage
Gender	Men	283	%73.7
	Women	101	%26.3
	Total	384	%100.0
Age	18-33	121	%31.5
	34-49	212	%55.2
	50 or more	51	%13.3
	Total	384	%100.0
Academic Qualifications	Postgraduate degrees	133	%34.6
	Bachelor's	220	%57.3
	Preparatory school and below	31	%8.1
	Total	384	%100.0
Experience	1-3	70	%18.2
	4-6	113	%29.4
	More than 7	201	%52.3
	Total	384	%100.0

Source: Outputs of SPSS (V.26), generated and adapted by the researchers

From the table (1), it can be deduced that the holders of a bachelor's degree achieved the highest percentage, attaining (57.3%), followed by those who hold a postgraduate degree at (34.6%). On the other hand, those who got a preparatory school certificate or less were at (8.1%), according to the academic qualifications index. These percentages give a descriptive overview of the profiles of our participants and enables to gain a sufficient understanding and comprehension of the questionnaire paragraphs and sections. In terms of the duration of the inquiry with managers, the main results showed that a percentage of (52.3%) of the respondents had a duration of dealing that exceed 7 years, followed by (29.4%) for the period of (4-6) years, and finally the percentage of (18.2%) for the period of service (3-1). Such results reveal that the interviewees are highly educated and well experienced. They possess the prior knowledge that enable them to apprehend the reality of their companies.

Research Statistical Instruments

In order to assess our research measurement tools, characterize the research variables, and test the research hypotheses, the SPSS (V. 26) software was used. For this purpose, the following steps were followed: descriptive statistics, test normal distribution, Pearson correlation coefficients, and basic descriptive analysis, and regression equations.

Quality of the Questionnaire

The validity and reliability are the most important and main stages of the tests that should be performed to assess the quality of the questionnaire, by checking the extent of its ability to measure what it was intended for in a real way. Furthermore, assessing its validity and reliability via measuring the relevant variables of

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our study is a crucial criterion for establishing the questionnaire reliability and attesting its quality, by checking its virtual honesty, resolution stability, testing the normal distribution of the data, and undertaking the descriptive analysis.

Virtual Honesty Assessment

The questionnaire was administrated in its preliminary format to a cohort of arbitrators, experts, and specialists within the field (organization, marketing & strategic management, and human resources management), with the aim of ensuring its ability to assess the variables and their corresponding indicators, as well as affirming the soundness of the wording of the dimensional items from a linguistic standpoint, their clarity to respondents, as well as their suitability. For the axis to which it belongs, adding or expressing an opinion in terms of deletion, addition, or modification. All their comments and suggestions were taken into account, and the tool was modified and placed in its final form.

Resolution Stability

The Alpha Cronbach coefficients were calculated. They were deemed reliable to the extent to which their values are equal to or exceed the threshold of 0.70 (Omrane, 2015; Omrane and Bag, 2022), facilitating the assessment of the questionnaire stability, and consistency, by checking the extent of error and the reproducibility of results across multiple distributions and time intervals (Nunnaly & Bernstein, 1994). The results for the variables investigated within the study scale were according to the following table:

Table (2). Reliability Coefficients (Cronbach's Alpha)

Latent variables	(Cronbach's alpha) values
Business behaviors for digital marketing	0. 8999
Marketing knowledge	0.9462
Sustainable sweeping innovation	0. 9175

Source: SPSS (V.26) outputs

As shown in Table (2) above, the research variables achieved Cronbach's alpha coefficients over 0.70, indicating their validity for measurement and the consistency of results upon the repeated administration of the questionnaire across various time intervals.

Normal Distribution of Data

Normally distributed data is the basis for adopting parametric statistics methods represented by firstly by the calculation of arithmetic means and standard deviations, coefficients of variation and Pearson correlation coefficients, and secondly through a confirmatory factor analysis, and a structural equation modeling). Accordingly, as stated earlier, the statistical program SPSS (V.26) was used to conduct the Kolmogorov-Smirnov test to determine whether the data follows a normal distribution or not. Such a test requires that the data follow a normal distribution when the probability values exceed the significance level of 0.05 (Hair et al., 2017), as illustrated in the subsequent table below.

Table (3). Normal Distribution Results

Latent variables	Kolmogorov-Smirnova		
	Statistic	Df	Sig.
Business behaviors for digital marketing	0.087	384	0.340
Marketing knowledge	0.088	384	0.340
Sustainable, sweeping innovation	0.084	384	0.340

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From the table (3) above, it appears that the significance value of 0.340 for the research variables exceeds the significance level of 0.05 for the variables related to work behaviors in digital marketing, marketing knowledge, and sustainable sweeping innovation. Such a finding reveals that the data adheres to a normal distribution, requiring the usage of parametric tests in subsequent statistical analyses.

Results' Analysis

Descriptive Analysis

In what follows, a descriptive analysis of results was undertaken, through the diagnosis of the level of availability of the organizational activities, including (work behaviors for digital marketing, marketing knowledge, and sustainable sweeping innovation). According to the (384) responses of the EarthLink customers, the mathematical mean, standard deviation, coefficient of variation, importance for each dimension, were calculated. The analysis aims to compare the calculated mean with the categories presented in Table 4, in order to assess the levels of availability, practices, and interest among EarthLink customers regarding these dimensions and their corresponding variables.

Table (4). Analysis of Averages in Relation with the Five-Point Likert Scales

"I strongly agree"	"I agree"	"Neutral"	"I do not agree"	"I strongly disagree"
5-4.21	4.20-3.41	3.40-2.57	2.56-1.81	1.80-1
"Very high"	"High"	"Moderate"	"Weak"	"Very weak"

Source: Akadiri. O. P. (2011)، Development of Multi-Criteria Approach for Wolver Hampton, U. K".

Descriptive Analysis Regarding 'Work Behaviors for Digital Marketing'

The level of availability of the independent variable, i.e. business behaviors for digital marketing, was assessed through its three dimensions (i.e. digital attraction, digital communication, digital learning) and through the (384) gathered responses of EarthLink customers, It appears clearly from table (5) inserted below that 'digital marketing' obtained a mathematical mean of (3.69), a good rating, a relative importance of (73.8%), an average deviation of (0.718), and an index of variation of (19.5%). Those findings depicted that the responses from the sample are consistent with one another and do not vary from one another. On the other hand, the availability of 'digital marketing' is satisfactory, but does not meet the required standards.

In addition, the environmental dimension of digital communication occupies the first place, with a mathematical mean of (3.79), an average deviation of (0.621), a highest relative importance reaching (75.8%), and an average deviation of (0.621), It relates to the lowest metric of variation (16.4%). It is also clear that 'digital attraction' came in the last place because it obtained a mathematical mean of (3.55), a lowest relative importance of (71.0%), and an average deviation of (0.785), corresponding to the largest value of the index of variation (22.1%). Those values indicate by the way the homogeneity and the convergence of opinions about the availability of 'digital marketing' dimensions among the sample of EarthLink customers.

Table (5). Descriptive Analysis Associated to 'Digital Marketing'

Dimensions	Mean	S.D	C.V	Importance	Rating
Digital attraction	3.55	0.785	22.1%	71.0%	3
Digital communication	3.79	0.621	16.4%	75.8%	1
Digital learning	3.73	0.748	20.1%	74.6%	2
Total	3.69	0.718	19.5%	73.8%	

Outputs: SPSS. (V.26) outputs

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Descriptive Analysis of "Marketing Knowledge"

The level of availability of the interactive variable 'marketing knowledge' was evaluated through its four dimensions (i.e. knowledge of the market, knowledge of competitors, knowledge of customers, knowledge of technology), after gathering the (384) responses from the EarthLink customers.

It appears from the table (6) below that the 'marketing knowledge' variable obtained a mathematical mean of (3.78), a good rate, and a relative importance of (75.5%), an average deviation of (0.745), and an index of variation of (19.7%). Such a finding demonstrates that the responses of the interviewees do not vary from one another and that they are consistent with one another. There is, nonetheless, a good rate of availability of 'marketing information' in general, unless the degree of its availability is not sufficient.

Besides, the dimension of 'knowledge about customers' occupies the first place, with a mathematical mean of (3.91), a highest relative importance reaching (78.2%), and an average deviation of (0.648). It relates to the lowest metric of variation (16.6%). In addition, it is evident that "knowledge of technology" came in the last place as it obtained a mathematical mean of (3.74), with the lowest relative importance of (74.8%), and an average deviation of (0.755), a value that corresponds to the largest index of variation (20.2%). Such a finding indicates the homogeneity and convergence of the interviewees' perceptions about the availability of marketing knowledge dimensions among EarthLink customers' responses.

Table (6). Descriptive Analysis of 'Marketing Knowledge'

Dimensions	Mean	S.D	C.V	Importance	Ranking
Market knowledge	3.56	0.887	24.9%	71.2%	3
Knowledge of competitors	3.89	0.69	17.7%	77.8%	2
Customer knowledge	3.91	0.648	16.6%	78.2%	1
Knowledge of technology	3.74	0.755	20.2%	74.8%	4
Total marketing knowledge	3.78	0.745	19.7%	75.5%	

Source (SPSS.V.26) outputs

Descriptive Analysis Associated to "Sustainable Sweeping Innovation"

The level of availability of 'sustainable sweeping innovation' was assessed through its three dimensions (i.e. sustainable sweeping activities, sustainable sweeping exploitation, sustainable sweeping exploration) after the data collection of (384) responses emanating from EarthLink customers.

It is clear from the table (7) represented below that the 'sustainable sweeping innovation' variable obtained a mathematical mean of (3.34), at an average rate, with a relative importance of (66.87%), an average deviation of (0.711), and an index of variation of (21.27%). Those values demonstrate the uniformity and reliability of the sample responses. They assert that a comprehensive, sustainable innovation is generally accessible at an average rate.

Moreover, the dimension 'sustainable sweeping activities' was ranked first, as it got a mathematical mean of (3.41), the highest relative importance of (68.20%), an average deviation of (0.695), and a lowest metric of variation (20.38%). 'Sweeping and sustainable exploitation' came in the last rank as it obtained a mathematical mean of (3.29), with the lowest relative importance of (65.80%), and an average deviation of (0.731). Such a value corresponds to the largest index of variation (22.22%), indicating the homogeneity and average convergence in opinions regarding sustainable sweeping innovation among the sample of EarthLink customers.

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Table (7). Descriptive Analysis of 'Sweeping, Sustainable Creativity'

Dimensions	Mean	S.D	C.V	Importance	Ranking
Sustainable sweeping activities	3.41	0.695	20.38%	68.20%	1
Sustainable sweeping exploitation	3.29	0.731	22.22%	65.80%	3
Sustainable sweeping exploration	3.33	0.707	21.23%	66.60%	2
Total/sustainable sweeping innovation	3.34	0.711	21.27%	66.87%	

Source: (SPSS.V.26) outputs

Testing the Correlation Between Research Variables

In what follows, the correlation between the investigated variables will be examined: (work behaviors for digital marketing) as an independent variable, (marketing knowledge) as an interactive/moderating variable, and (the sustainable sweeping innovation model) as a dependent variable. For this purpose, the inferential statistical results were generated, after gathering the surveyed opinions of (384) EarthLink customers through the questionnaire administration stage.

The Pearson correlation coefficient was calculated, as the sample exhibited a normal distribution. The significance level of 0.05 was considered to evaluate and determine the acceptance or rejection of the results. According to the Lehmam's classification (2005, p. 123), the relationship's strength between the two variables was analyzed, after identifying the positive (direct) and negative (inverse) directions of the relationship. An increase in the independent variable will lead to a proportional increase in the dependent variable, while preserving the correlation coefficient value.

The table and figure illustrated below indicate a medium positive correlation of 0.537 between digital marketing and sweeping, sustainable innovation. There is also a strong positive correlation of (0.831) between digital marketing and marketing knowledge, and a considerable correlation, amounted to (0.908), between marketing knowledge and sweeping, extremely high-quality, and long-term innovation. All the values are statistically significant (with a p-value less than the acceptance threshold- 0.05). Accordingly, the more the attention is paid to digital marketing and marketing expertise, the more the sustainable sweeping innovation is improved.

Table (8). Values Of Correlation Between 'Digital Marketing', 'Marketing Knowledge', And 'Sustainable Sweeping Innovation'

Correlations				
		Business behaviors for digital marketing	**Marketing knowledge**	**Sustainable, sweeping innovation**
Business behaviors for digital marketing	**Pearson Correlation**	**1**	**0.831****	**0.537****
	Sig. (2-tailed)		**0.000**	**0.000**
Marketing knowledge		**0.831****	**1**	**0.908****
		0.000		**0.000**
Sustainable, sweeping innovation		**0.537****	**0.908****	**1**
		0.000	**0.000**	

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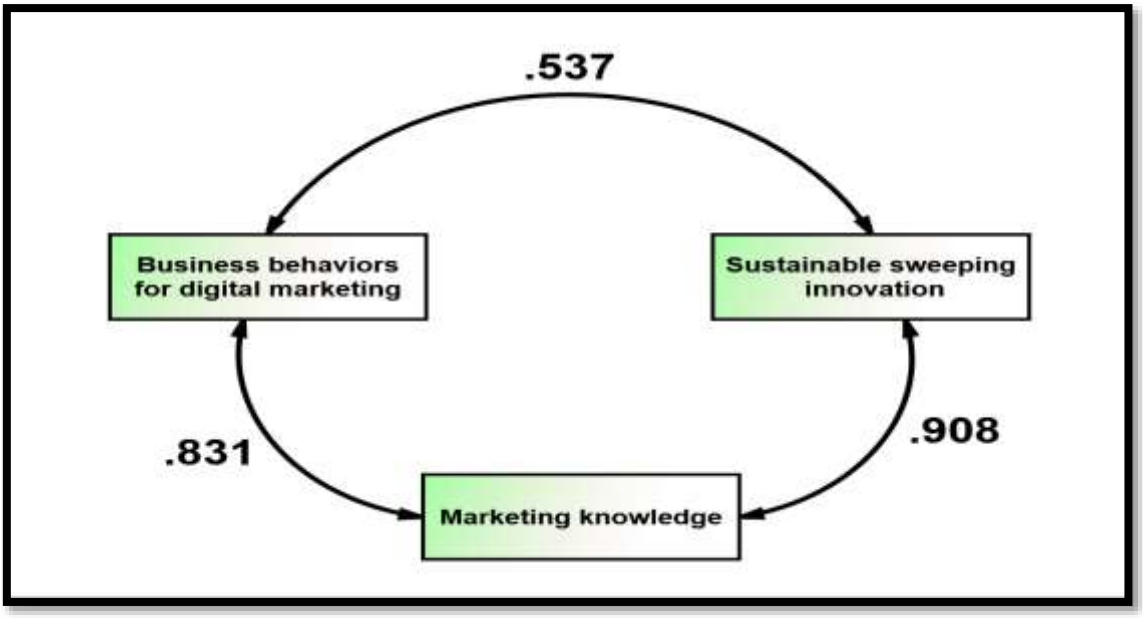

Figure (2). Structural Equation Model for Testing the Correlation Between Latent Variables

Source: AMOS (V.24) Outputs

Hypotheses' Testing

The structural equation model, which appears in Figure (6), was built in line with the Goodness of Fit Index, whose ratio value should be below 3, GFI equal to or exceeding 0.90, and RMSEA less than 0.08). Therefore, such a structural equation modeling first stage could be relied upon, enabling to test the research hypotheses regarding the relationships between the variables. As illustrated in Figure (3) and Table (9), the quality of fit indicators for the dimensions of the research variables exceeded the required standard values. The chi-square to degree of freedom ratio was 1.670, the goodness of fit index (GFI) was 0.973, and the root mean square error of approximation (RMSEA) was 0.071. Those values align with the structural modelling standards, attesting that the model interprets and represents effectively the measurement tools' questions. Furthermore, all the standard regression values surpassed the modelling standards for the structural equations, whose values exceed 0.40. Additionally, the critical values obtained were greater than the table critical value (CR) of 1.96, proving the satisfactory quality of the measurement fit.

Table (9). Results of Standard Regression Weights for the Research Variables

Items	Paths	Dimensions	Estimates	S.E.	C.R.	P
Att1	<---	Digital attraction	.830	.061	19.125	***
Att2	<---		.879	.066	20.880	***
Att3	<---		.853	.059	19.926	***
Att4	<---		.770			
Com1	<---	Digital communication	.781	.046	18.649	***
Com2	<---		.871	.045	22.414	***
Com3	<---		.886	.047	23.113	***
Com4	<---		.847			

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Lea1	<---	Digital learning	.845	.047	21.831	***
Lea2	<---		.861	.043	22.578	***
Lea3	<---		.856	.045	22.346	***
Lea4	<---		.856			
Knt1	<---	Customer knowledge	.815	.054	20.017	***
Knt2	<---		.856	.056	21.762	***
Knt3	<---		.880	.056	22.910	***
Knt4	<---		.817			
Cuk1	<---	Customer knowledge	.865	.043	24.127	***
Cuk2	<---		.888	.043	25.520	***
Cuk3	<---		.879	.041	24.966	***
Cuk4	<---		.877			
knc1	<---	Knowledge of competitors	.810	.041	20.512	***
knc2	<---		.836	.040	21.676	***
knc3	<---		.850	.039	22.391	***
knc4	<---		.862			
Mak1	<---	Market knowledge	.884	.050	21.840	***
Mak2	<---		.884	.048	21.821	***
Mak3	<---		.853	.050	20.619	***
Mak4	<---		.818			
Ssa1	<---	Sustainable sweeping activities	.926			
Ssa2	<---		.914	.012	37.595	***
Ssa3	<---		.882	.014	32.463	***
Ssa4	<---		.883	.013	32.592	***
Sso1	<---	Sustained sweeping exploitation	.798			
Sso2	<---		.805	.055	18.221	***
Sso3	<---		.877	.056	20.579	***
Sso4	<---		.893	.055	21.146	***
Ssr1	<---	Sustainable sweeping exploration	.894			
Ssr2	<---		.893	.038	27.973	***
Ssr3	<---		.885	.040	27.356	***
Ssr4	<---		.888	.038	27.578	***

Source: AMOS (V.24) outputs.

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The results related to testing the research hypotheses will be presented in what follows.

The first hypothesis testing (H1): The structural model was developed to evaluate the influence of digital marketing on the realm of sweeping, sustainable innovation.

The influence of digital marketing on the marketing knowledge axis is significant. The subsequent figure illustrates the structural model that has been designed and proposed.

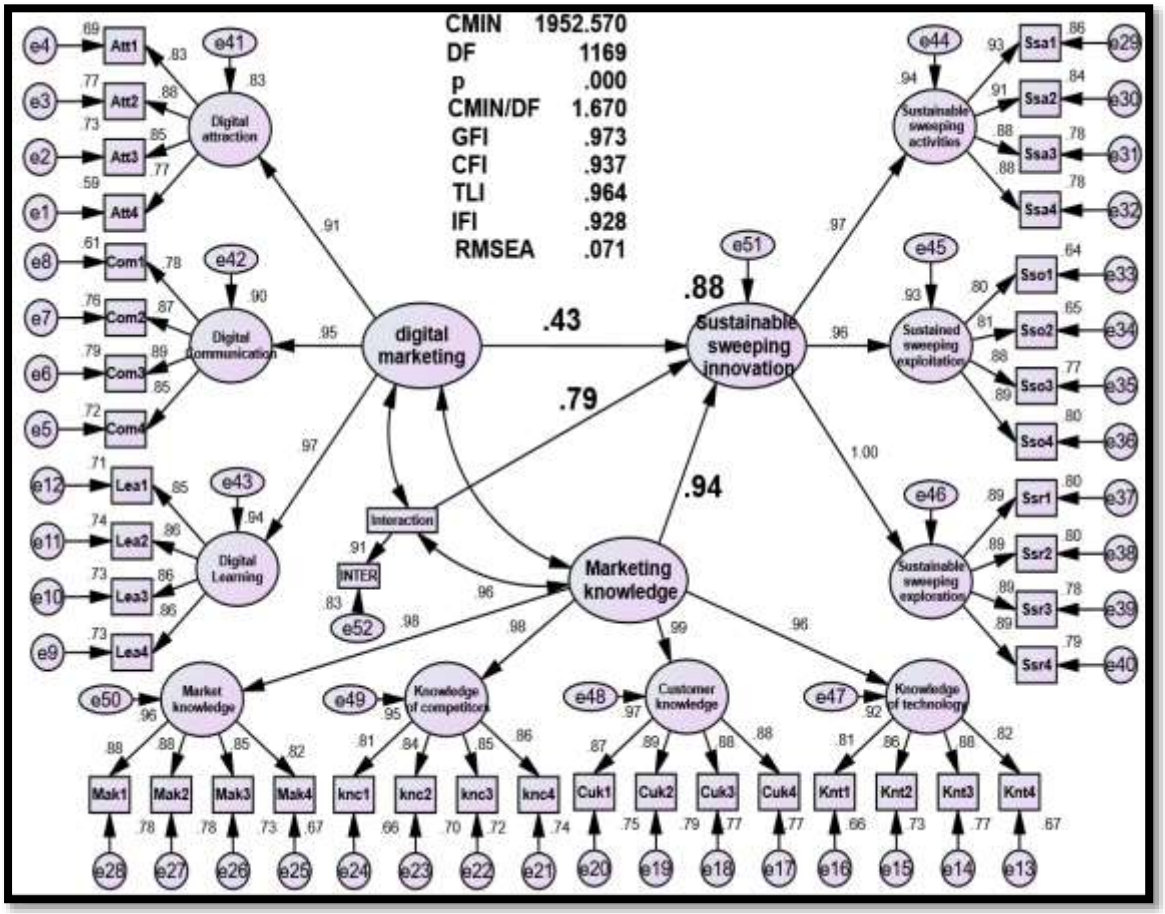

Figure (3). Structural Equations Model for Testing Impact Hypotheses

Source: AMOS (V.24)

Table (10). Structural Equation Modelling for Testing the Research Hypotheses

Path			Standard estimate	Standard error	C.R	R2	Sig.
Digital marketing	<---	Sustainable, sweeping innovation	0.432	0.144	6.608	28.8%	0.000
Marketing knowledge	<---	Sustainable, sweeping innovation	0.939	0.083	11.348	82.4%	0.000
Interactive variable	<---	Sustainable, sweeping innovation	0.792	.064	14.654	88.4%	0.000

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Source: AMOS (V.24) outputs

The results presented in the table (10) above indicate a direct but weak effect with a statistical significance below the 5% threshold for the digital marketing axis in the context of sustainable innovation. The effect size was evaluated at 0.432, accompanied by a critical ratio of 6.608, which is considered significant due to a p-value of zero, confirming its level below the 5% significance level. Consequently, there is a weak positive effect of digital marketing on sweeping innovation. Specifically, a one-unit increase in the digital marketing axis results in a 0.432 increase in the sustainable sweeping innovation axis. Furthermore, digital marketing accounts for 28.8% of the variance observed in sustainable sweeping innovation. The remaining percentage of 71.2% is attributable to the variables that are not incorporated in the study model. Such a finding indicates that the growth of digital marketing is on the rise, enabling the researched company to attract customers through digital marketing in the future, and investment in social media. For achieving the future strategic goals, the more the systems of chat, interaction, and competition with the customers are supported, the more the sweeping, sustainable innovation in the EarthLink Company becomes at a weak level.

The second hypothesis (H2) testing: It corresponds to testing the effects of the marketing knowledge axis on the sustainable sweeping innovation axis.

Results presented in the table indicate a robust direct effect with a moral significance below the 5% threshold for the marketing knowledge axis within the Sustainable sweeping innovation framework. The effect value is 0.939, accompanied by a critical ratio of 11.348, which is significant as the p-value is zero, thus falling below the 5% significance level. Consequently, we conclude that a direct and strong relationship exists. An increase of one unit in the marketing knowledge axis results in a 0.939 increase in the sustainable, sweeping innovation axis, with marketing knowledge accounting for 82.4% of the variance observed. In the context of comprehensive, sustainable innovation, the residual percentage (17.6%) can be attributed to additional variables not encompassed within the study model. This means that the more marketing knowledge increases through the researched company's continuous endeavor to use appropriate marketing methods for its brand, and strive to address problems with competitors in all Professionalism, and knowing the customer's preferences through the information you obtain, as well as supporting digital means that contribute to the development of the company, as EarthLink's sustainable sweeping innovation increases at a high level.

The third hypothesis (H3) testing: There is a statistically significant moderating effect of marketing knowledge on the association between digital marketing and sustainable sweeping innovation.

The table above shows that the more the EarthLink's managers realize the importance of digital marketing by attracting customers through digital marketing in the future, and invest all their capabilities in providing the best services, the more it will enhance sweeping, sustainable innovation through the continuous pursuit of opening branches that have financial and cognitive returns. In other words, enhancing digital marketing through a one-unit increase in marketing knowledge results in an improvement in sweeping, sustainable innovation, quantified by a standard weight of 0.792, a critical value of 14.654, and a standard error of 0.064.

The data presented in the table above indicate also that digital marketing accounts for 88.4% of the variance in sweeping, sustainable innovation while marketing knowledge is present. The remaining value is attributable to the factors that are not considered in the study.

The results displayed in the table indicated also that marketing knowledge fosters the relationship between digital marketing and sustainable innovation. The interactive effect variable is at a significant level, altering the value of R^2 from 28.8% in the direct effect model, to 88.4. % in the moderating effect model. Such a finding gives clear evidence of the validity of the hypothesis, proving that marketing knowledge moderates significantly the association between digital marketing business behaviors and sustainable sweeping innovation.

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In addition to the above statements, Figure (7) illustrates the moderating effect of marketing knowledge on the relationship between digital marketing business behaviors and sustainable sweeping innovation, due to the height of its curve over the curves of other variables.

Figure (4). Interactive Effect of Marketing Knowledge on the Association Between Digital Marketing and Sustainable, Sweeping Innovation

Source: Own Elaboration

Figure (17) shows that all the factor saturations for the items of the three research variables are greater than the minimum limits of acceptance. Results shown in Table (26), which are linked to the Standardized Regression Weights (SRW) values, reflect that the data are suitable for carrying out subsequent statistical analyses. All the findings were consistent with what was confirmed by Hair et al. (2017), attesting that the main rule for accepting the values of this analysis consists of obtaining factor saturations of the items that are greater or equal to (≥ (0.50). Otherwise, if they appear less than such values, they will be deleted and the analysis will be repeated again, at a significant level of (1%). As the critical ratio will be higher than (1.96) for all the paragraphs, such a number will get a statistical rule with low standard errors (S.E).

Main Conclusions and Recommendations

Key Conclusions

This paragraph outlines the key conclusions derived from the translation of applied and statistical results obtained through practical analyses, which are as follows:

The components of digital marketing—digital attraction, digital communication, and digital learning—demonstrated significant interest, as the majority of respondents expressed agreement with most items. This reflects a strong engagement with digital marketing among customers of EarthLink Company.

The availability of components of sustainable creativity among customers of the EarthLink Company is moderate, as the majority of responses from the interviewees were neutral. It suggests a negative indicator and indicates that the company should adapt to the developments by offering innovative services that promote sustainability on both environmental and social levels, as well as economic aspects.

The availability of dimensions of marketing knowledge among customers of the EarthLink Company is supported by the majority of responses, indicating a positive trend.

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The analysis indicates that the relationship between digital marketing and sustainable sweeping creativity is characterized as low, positive, and significant. It suggests that increased focus on digital marketing components among EarthLink customers correlates with a modest enhancement in sustainable sweeping creativity.

The analysis indicates a positive and high significant association between marketing knowledge and sustainable sweeping creativity. It suggests that an increased focus on the elements of marketing knowledge among EarthLink customers will enhance the company's capacity for a sustainable innovation. The analysis indicates a high, positive, and significant interactive role of marketing knowledge in the relationship between digital marketing and sustainable creativity. It supports evidence that an increased focus on the components of digital marketing among EarthLink customers will enhance the overall creativity. Besides, the interactive role of marketing knowledge contributes to sustainability trends within the researched company.

Main Recommendations

It is recommended to:

*maintain contact to identify the events that might help in understanding the basic patterns of behavior and structural aspects;

*develop applicable training skills such as deep listening, empathy, respect, tangibility, and honesty, are used as appropriate to enhance digital marketing;

*strengthen the communicational systems to provide feedbacks that allow for the exchange of information and correction of errors;

*participate in professional meetings and conversations where advise and opinions on work-related decisions are offered;

*Allow all the concerned parties to clarify and discuss the ambiguous matters in order to answer them with open arms;

*Take into account the integration of environmental changes into the selection of training programs.

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