International Journal of Scientific Research in Science, Engineering and Technology
Print ISSN: 2395-1990 | Online ISSN : 2394-4099 (www.ijsrset.com)
doi : https://doi.org/10.32628/IJSRSET229155

Modelling Utilization of the Internet and Social Media Platforms for Sustainable Development of Women Entrepreneurs of Small Businesses

Roselida Maroko Ongare
Department of Information Technology, Kibabii University, Bungoma, Kenya

Article Info
Volume 9, Issue 1
Page Number : 250-275

Publication Issue :
January-February-2022

Article History
Accepted : 20 Feb 2022
Published: 28 Feb 2022

ABSTRACT

Sustaining technologies and innovations are important driving forces behind the modern day business and the working space. Sustaining technology and innovation enables businesses to improve their products and services in a way that makes them compete with competitors in the same market space. The Internet and social media platforms are sustaining technologies and innovations that are currently altering the economic, social and political landscapes by changing the way people live, do business and work. Proper and informed usage of these technologies in business can have the potentials of empowering entrepreneurs economically, socially as well as contributing to environmental conservation and protection. This research sought to develop a model that would encourage utilization of the Internet and social media platforms by women entrepreneurs of small businesses in rural areas. This was achieved by analyzing Internet usage, evaluating social media platforms usage by women entrepreneurs in rural parts of Siaya County in Kenya and developing a model of utilization of the Internet and social media platforms for sustainable development. The six social media platforms that were evaluated are Facebook, Twitter, WhatsApp, Instagram, LinkedIn and YouTube. The target population was women entrepreneurs of small businesses in Siaya County. Cochran formula was used to calculate the ideal sample size and sample size of 272 was used. A response rate of 91.91% was achieved. Simple random sampling was used to select one county out of 45 counties and snowball sampling technique was used to select the respondents. Questionnaires were used to collect data. The reliability of the research tool was arrived at using composite reliability test and Cronbach's Alpha test whereas the validity of the research instrument was assessed using content and construct validity. Ethical issues arising from the research such as informed voluntary consent, no harm to participants, confidentiality of information and data integrity were accounted for. Data analysis was done using PLS-SEM statistical model and descriptive, inferential and predictive statistics that encompassed regression and correlation were used to analyze the data and develop and validate the model. The validity of the model was assessed and approved by ten SME experts and its applicability in business for sustainable development of entrepreneurs of

small businesses was ascertained through simulation. The purpose of the study was achieved.

Keywords : Social Media Platforms, Internet, Sustainable Entrepreneurship, Sustainable Development, Women Entrepreneurs, Small Businesses, Facebook, WhatsApp, Twitter, Instagram, YouTube, LinkedIn

I. INTRODUCTION

Sustaining technologies and innovations are important driving forces behind the modern day business and the working space. Sustaining technology and innovation is concerned with developments and improvements of products and services within established markets by improving and making them better. Thus, sustaining technology and innovations enables businesses improve their products and services in a way that makes them compete with competitors in the same market space. The Internet and social media platforms are sustaining technologies that are currently altering the economic, social and political landscapes by changing the way people live, do business and work. International Telecommunication Union in their report of 2013 affirms that these technologies are key economic and social development enablers [1]. Therefore, business organizations have to be careful to keep up with the pace of new developments, adapt to changes, innovations and improvements in order to remain relevant and competitive in an ever changing world.

The Internet and social media platforms if used properly can provide effective tools to support all types of entrepreneurial activities as their usage have changed consumer behaviour and the ways in which entrepreneurs conduct their business [2]. Social media platforms and the Internet have become inevitable and indispensable because of the significant opportunities they offer to entrepreneurs through lower operating costs, improved brand awareness, improved customer service and increased sales. The Internet and social media platforms have become essential tools for business development, growth and increased competitiveness. This has been catalysed by the high penetration of by both mobile phones and the Internet globally as well as increased affordability of Internet services. According to [3] report, an estimated 4.9 billion people were using the Internet in 2021, which is about 63 per cent of the world's population. This is an increase of almost 17 per cent since 2019, with almost 800 million people estimated to have come online during that period.

Mobile-cellular and fixed broadband subscriptions have continued to grow with the former growing at a faster rate than the latter resulting into increased rate of penetration of mobile phones in developing countries. Increased mobile phones penetration rate together with the increased affordability of Internet services have brought about remarkable opportunities for entrepreneurs to use sustaining technologies and innovations to start and grow businesses. Ownership of mobile phones has proved to be an important tool to empower women and increased ownership by women is moving the world to greater gender equality in this regard [3]. In one-half of the 60 countries for which data is available for the 2018-2020 time-frame, gender parity in mobile phone ownership has been achieved, and in ten more countries, more women than men own a mobile phone. However, in 21 countries, women still lag behind men in mobile phone ownership with varying margins in each of the countries.

ICTs such as the Internet and social media platforms have continued to provide humanity with a range of new communication tools ([4] [5] [6] which have worked a thorough revolution for entrepreneurs in the 21st century. The impact of these technologies and tools on day to day lives has grown exponentially over the past decade [7]. They have the potentials to increase social development, economic prosperity, environmental protection as well as development of new technologies that can bring out the best of the society [8] [9]. It is also evident that the Internet and social media platforms have been vital in helping maintain continuity in business activity, employment, education, provision of basic citizens' services, entertainment, and socializing. Social media platforms and services have enabled countless innovations that helped mitigate the health, social and economic costs of the tragedy, and build resilience against future crises [3]. Consequently, the Internet and social media platforms become indispensable tools for economic development, innovation, creativity, communication and social inclusion. These technologies provide means of communication, creativity and innovation that were not available making them invaluable technologies with the potentials to transform how businesses are conducted as well as offering novel ways of addressing business development challenges [10].

Since the Internet became commercially available in the 1990s, it has enabled the development of new technologies and improvement of existing technologies which have consequently lead to new products and services, improved economic productivity, increased access to information as well as facilitating better collaboration between businesses and their suppliers and customers. The growth of the Internet has been key to the emerging information society and digital economy thus affecting both developed as well as developing countries. The Internet and social media platforms have long been sources of countless opportunities for business growth, personal fulfilment, professional development and value creation. With the COVID-19 pandemic, the Internet and social media platforms have become a vital necessity for doing business, working, learning, accessing basic services and communication [3].

Internet technologies offer immense benefits to the business community. The ubiquity and affordability of the Internet offers businesses with an unmatched opportunity to improve their social and economic development status as well as positively impacting lives [11]. With technological advancement, network coverage is growing stronger, advanced features are being incorporated in mobile phones, mobile phones are becoming cheaper and Internet usage in business growing. Given the ubiquity of the Internet and Internet services, Internet technology can help bridge knowledge and gender gaps, alleviate poverty, enhance social inclusion as well as help protect the environment. There are many different Internet technologies and Internet services that affect different phases of entrepreneurship. The Internet and social media platforms have become indispensable tools of today's businesses subsequently, it is vital that women entrepreneurs of small businesses in rural areas keep up with their use for business productivity and competitiveness. In businesses, Internet technologies and tools have the ability to bridge connectivity gaps, gender gaps, distance gaps and class gaps by connecting businesses to suppliers and customers in a unified manner. This can help in providing a range of services to businesses and their customers who were earlier not capable of accessing them either due to financial or location constraints. In addition, ubiquity of the Internet helps businesses in all aspects such as marketing, staff management, financial management and customer relationship management conveniently, effectively and cheaply. Because of their unparalleled benefits, women entrepreneurs of small businesses in rural areas should make the Internet and social media platforms usage part and parcel of their businesses for equitable business growth and development.

Although [12] and [3] reports indicate that about 53.6% and 63% respectively of the world's population use the Internet and the figure is growing every year, the reports discovered serious geographic and economic disparities in Internet users. In 2019, there were approximately 87% Internet users in developed countries compared to only 19% in Least Developed Countries (LDC). Africa and South Asia reportedly had the highest proportion of people not using the Internet. In addition, the proportion of women using the Internet globally was 42% compared to 58 per cent of men making the global Internet user gap stand at 16%. Although the Internet gender gap was smaller in developed countries and larger in developing countries, in all regions of the world more men were using the Internet compared to women. This gap is wider and is still growing in Arab States, Asia and the Pacific, and Africa. The statistics reveal a connectivity disparity between the digitally empowered from the digitally excluded, with 96 per cent of the 2.9 billion still offline living in the developing world. Although there have been improvements in connectivity and Internet usage over the years, [3] report reveals disparities still exist and play a big role in Internet usage. Location, gender factor and generation gap all affect Internet usage as the figures reveal that the share of Internet users in urban areas is twice as high as in rural areas and 71 per cent of the world's population aged 15-24 were using the Internet, compared with 57 per cent of all other age groups and 62 per cent of men were using the Internet compared with 57 per cent of women. Although the digital gender divide has been narrowing across all regions, women still remain digitally marginalized in many of the world's poorest countries, where online access could potentially have its most powerful effect [3]. Therefore, for equitable and sustainable development to be realised, there is need to focus on Internet usage by women and rural population.

What's more, regardless of all the potential benefits of the Internet and Internet services and in spite of the fact that the Internet can be a great equalizer if access is equally distributed, many entrepreneurs even those in rural areas with high Internet penetration do not use them to the maximum. Although Internet access across rural areas of Kenya is increasing due to improvements in infrastructure and the availability of cheap mobile phone, notable shortcomings in Internet usage still exist. Internet access and affordability remain big challenges to most entrepreneurs of small businesses in rural areas. Though a big percentage of Kenya is covered by 3G and to some extent 4G Internet services, these signals not extend to many parts of rural Kenya making it impossible for entrepreneurs to make maximum use of these services. Furthermore, majority of the Internet user access the Internet through their mobile phones making accessibility very expensive due to high cost of data bundles. The Internet gender gap present another challenge for women entrepreneurs of small businesses in rural area as fewer women compared men use the Internet [3], [12]. Although, innovative and sustaining nature of the Internet and social media platforms together with availability and affordability of mobile phones in Kenya present incredible opportunities for women entrepreneurs of small businesses in the rural to adopt the use of the Internet and social media platforms to start and grow sustainable entrepreneurial ventures, their uptake is still low. Despite the popularity and the potentials of these technologies and tools as marketing strategies by small business owners and women-entrepreneurs of small businesses and the many benefits, a limited number of rural women entrepreneurs have fully embraced these technologies and tools and many lack the technical skills and knowledge needed to implement them. Additionally, there is no model for Internet and social media platforms utilization that addresses women entrepreneurs of small businesses. Therefore, establishing a deeper and broader understanding of how the Internet and social media platforms usage can be modelled to enhance entrepreneurship sustainability of women entrepreneurs of small businesses was necessary.

Consequently, the purpose of the study was to develop a model that would encourage utilization of the Internet and social media platforms by women entrepreneurs of small businesses in rural Kenya.

A. Internet and Social Media Platforms Usage as Catalysts of Sustainability of Women Entrepreneurs of Small Businesses

The Internet has been lauded as a critical enabler of sustainable development because it is the foundation for the growth of ICTs and for the digital economy where production, distribution and consumption depend on broadband networks and services. The Internet and Internet technologies have transformed the World's economic and social landscape giving rise to a knowledge based society [13]. The ubiquitous Internet and Internet technologies and services have transformed the world by enhancing connectivity thus improving access to valuable services and changing the ways entrepreneurs communicate and interact with customers, suppliers as well as competitors. In addition, the use of the Internet and social media platforms in business has resulted in new ways of business development, employment opportunities, creativity and innovation as well business productivity and efficiency. Figure 1 shows the relationships between Internet and social media platforms usage in business and sustainable entrepreneurship and sustainable development.

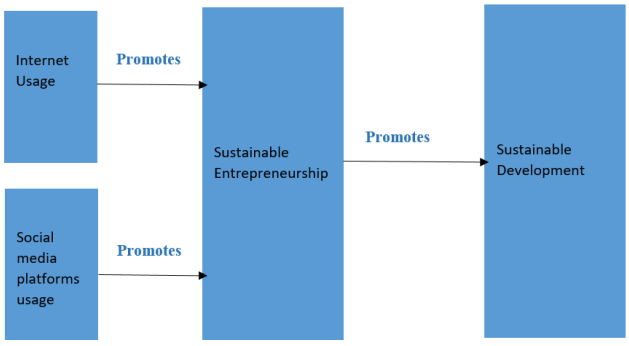

Figure 1: Relationship between Internet and social media platforms usage and sustainable development

Sustainable entrepreneurship also known as sustainability entrepreneurship has been defined by many authors among them, [14] and [15] who define sustainable entrepreneurship as innovation, creation, and taking advantage of business opportunities that contribute to sustainability by generating economic, social and environmental gains for self and others in society. The aim of sustainable entrepreneurship is to create positive economic, social and environmental impact by preserving the current resources for the future generations. Subsequently, sustainable entrepreneurship has the consequences of considering economic, social and environmental factors when making business decision to satisfy the businesses' stakeholders. Many research studies have been conducted on entrepreneurship sustainability, though [16] posit that most of these studies have concentrated on those in the cities and towns leaving out those in the rural areas. Since businesses interact with the environment differently, there is need for research studies targeting businesses in rural areas [17].

Several entrepreneurship sustainability factors for small business have been identified by previous research studies. These include but not limited to marketing support, business networking [18]), and Internet marketing [19]. Internet marketing is a powerful business sustainability factor because influences way customers' purchasing decisions. In addition, Internet marketing enables a business build customers base through regular and low-cost personalized communication Apparently, many customers use social media platforms and the Internet to research on products and their prices before making final purchase decisions. However, despite Internet usage being powerful catalysts for business processes and marketing, many small rural businesses are still lagging behind in their usage in their businesses [19]. Findings of research carried out by [17] on the "Effects of Internet Usage on Business Sustainability of Small Technology-based Rural Business in Malaysia" shows that Internet usage has a positive and significant effect

on business sustainability. This is supported by findings of previous studies' findings that reported positive and significant impact of Internet marketing on small business performance [19] [20]. Therefore, Internet usage in business can assist women entrepreneurs in rural areas reach customers beyond their geographical locations. However, to be competent in Internet usage, they need to have the digital skills. This is supported by [21] who posit that technology competencies are among the most important success factors for technology based rural businesses. Consequently, those with Internet usage competencies have higher chances of growing their businesses.

With billions of people using social media platforms daily, they continue being some of the most important Internet platforms for communication [22]. This is supported by [23] report that state that social media has changed people's ways of interaction in all aspects. Business are turning to social media for communication with customers and suppliers, marketing and promotion as well as market research. Social media present great marketing opportunities for all sizes of businesses and can provide better means of communication for women entrepreneurs of small business to connect with suppliers and customers [24]. Many businesses with success stories have been built on social media platforms such as Facebook, YouTube and Instagram. Though a number of small businesses use social media platforms, majority are far much below average. The potentials of social media platforms for businesses growth and development still remain untapped [25]. This presents women entrepreneurs of small businesses in rural areas an excellent opportunity to be among the first movers in this area.

Women entrepreneurs can use the Internet and social media platforms in a variety of ways:

(1) Promoting the name of their brand and business thus increasing the visibility of their business beyond their area of operation.
(2) Telling their customers about their goods and services thus increasing their customer base.
(3) Finding out what customers think of their businesses thus improving their services and products according the customers' demands and preferences.
(4) Building a strong customer base by drawing new customers and building stronger relationships with existing customers by sharing links to resources that add value customers as well as engaging them in relevant communications.

This study sought to develop an Internet and social media platforms utilization model for sustainable development of women entrepreneurs of small businesses in rural Kenya.

B. Theoretical Framework

Theories and models considered relevant to the study were reviewed. These include Uses and Gratification Theory (UGT) and Measurement and Structural theories which are components of a causal modelling approach known as Path analysis modelling and Partial Least Square – Structural Equation Modelling approach.

1). Uses and Gratification Theory (UGT)

UGT has been defined by [26] as the study of the benefits that attract and hold users to different media and contents that fulfil their psychological and social needs. Further, [27] explains that the purpose of UGT is to spell out the reasons that attract and hold users to specific types of media. UGT theory posits that user chose specific media of communication because they are motivated by their needs and wants. Additionally, [28] and [29] argue that in choosing a particular media, the users are much aware of their needs and what they want. Moreover, users are not passive but control what they interact with, when to interact with it, and other choices available that could meet the same need [29] [27].

Research studies on uses and gratifications of the Internet and social media indicate their usage enable the users to fulfil their social and communal needs. According to [27], a study conducted to discover the gratifications of Facebook usage discovered four gratifications i.e. information seeking, socializing, entertainment, and seeking self-status. In this study, gratifications for Internet and social media platforms usage in business that were found to be important in usage intention are communication, marketing, research, customer relationship services, mobile money services, purchases and sales services, online banking and online meetings.

2). Partial Least Square – Structural Equation Modelling (PLS-SEM)

According to [30], PLS-SEM as a second-generation multivariate data analysis method that has its roots in path analysis. This method is appropriate in research because it supports both linear and additive causal models [31] and its ability to support regression models, confirmatory factor analysis models and complex path models makes it more suitable for research studies involving investigation of relationships that exist among variables such as in this study. Use of PLS-SEM in research requires specification of a model that allows for specification of relationships between variables based on theory and research. The two goals in PLS-SEM are mainly to understand the patterns of correlation/covariance among a set of variables and to explain as much as possible their variance with the model specified. SEM model accounts for variation and covariation of the measured variables.

Since PLS-SEM has been widely use in information systems research studies [32] [33] and because is it suitable for research problems where latent variables can be easily investigated, it was found to be a more suitable statistical analysis tool for the study. In addition, other reasons for using PLS-SEM were as follows:

(1) It is suitable for testing and estimating a set of hypothesized relationships among multiple independent and dependent variables [33].
(2) Because it combines features of multiple regression and factor analysis it was possible to estimate multiple networking relationships concurrently [34].
(3) It enabled the researchers to test a set of interrelated hypotheses in a single and systematic analysis [33].
(4) It enabled the researchers to assess whether the model fit of the data collected.
(5) Both prediction and explanation of target constructs are possible
(6) It supports smaller sample sizes. The sample size was relatively small with 272 respondents out of hundreds of thousands of women running small businesses in rural areas.
(7) It supports both reflective and formative measurement models.
(8) There is no need to worry about normality of the distribution.
(9) It is suitable for estimating large and complex models with many variables and indicators [35]. The study had 8 latent variables with 47 indicators making it a suitable candidate for PLS-SEM

3). Path Analysis Modelling

Path analysis modelling as a predecessor to and subgroup of structural equation modelling that is used to discover and measure the effects of a set of variables acting on a stated outcome through many causal paths [36]. According to [34], path analysis is a linear causal modelling approach that allows users to investigate patterns of effect within a system of variables. Path analysis is a special case of SEM that has only observed variables and a more restrictive set of assumptions. Whereas SEM uses latent variables to account for measurement error, path analysis assumes that there are no measurement errors [37]. Consequently, path analysis is useful in examining the effect of a set of

independent variables on dependent variable(s). Although similar to multiple regression in that the effect of multiple independent variables on a dependent variable can be assessed, path analysis differs from multiple regression because with path analysis two or more dependent variables can be examined concurrently.

In path analysis, the pattern of relationships between variables is described by a type directed graph called a path model or diagram [36]. The hypotheses and variable relationships to be estimated in a path analysis are displayed in a path diagram [38] as illustrated in Figure 2. A hypothetical model in path analysis typically comprises two kinds of variables: endogenous (manifest or observable) variable and exogenous (latent or non-observable) variables. Whereas observable variables serve as indicators of the underlying construct represented by the observable variables the latent variables are theoretical constructs that cannot be observed directly.

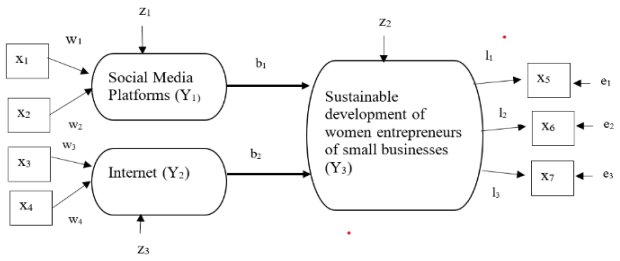

Figure 2: Path model with latent variables (Adapted from: [34]

Key:

Y1, Y2, Y3 – Constructs (Latent variables)
x1, x2, …, x7 - Indicators
b1, b2 - Path coefficients
z1, z2, z3 - Error terms
e1, e2, e3- Random measurement error
l1, l2, l3- Loading

A path model consists of two elements:

i. The structural model which represents the physical paths between the constructs
ii. The measurement models which represents the relationships between each construct and its associated indicators.

In order to specify the relationships between the elements of the study's path model, the researcher drew from both the structural and measurement theories.

4). Structural Theory

According to structural theory the latent variables on the left side of the path diagram are independent variables while the latent variables on the right side are dependent variables (See Figure 2). However, [39] explain that a latent variable may serve both as independent and dependent variables in a model. Latent variables that only serve as independent variables are called exogenous latent variables (Y1 in Figure 2) while latent variables that only serve as dependent variables (Y3 in Figure 2 or as both independent and dependent variables (Y2 in Figure 2) are called endogenous latent variables. Latent variables usually have error terms linked to them. For instance, the latent variables Y1, Y2 and Y3 have one error term z1, z2 and z3 respectively. Error terms reflect the sources of variance not considered by the particular precursor construct(s) in the model. PLS-SEM, the error term is constrained to zero because of the way formative measurement model are treated [40].

The degree of relationships between latent variables is represented by path coefficients (b1 and b2). Each of these coefficients represent the result of regressions of endogenous latent variable on their direct precursor constructs [34]. For instance, b1 and b3 result from the regression of Y3 on Y1 and Y2.

5). Measurement Theory

Measurement theory specifies how to measure latent variables [41]. The authors further explain that in PLS-SEM, there are two types of measurement models; a reflective measurement and a formative measurement.

In reflective measurement models, the indicators of constructs are caused by those constructs whereas in formative measurement models, the latent variables are caused by the measured variables. Subsequently, the expected covariance between the indicators is zero when the latent variable is partialled out in a reflective measurement model. This implies that the two test scores correlate because they are caused by the same thing. On the other hand, covariance of the items can be zero, positive or negative in a formative measurement model making them harder to estimate as they cannot be identified on their own.

C. Conceptual Framework

The design of the conceptual framework that formed the basis of designing a model for Internet and social media utilization for sustainable development of women entrepreneurs of small businesses was formed by research objectives and the existing literature related to the study. Conceptual framework as a graphic or narrative explanation of the main dimensions to be studied or the variables and their presumed relationships [42]. The conceptual framework shows the fundamentals factors influencing the relationship of the principal construct elements or variables and how they relate to the research questions or the hypothesis. Variables which form the basic units of the information studied and interpreted in research studies can be categorised as dependent, independent, moderating and mediating (intervening) variables. Independent variables are manipulated by the researcher hence constitute the supposed cause while the dependent variables are changed or influenced by the independent variables hence constitute the assumed effect. The conceptual framework as depicted in Figure 3 consists of two (2) independent variables (Internet) and Social media platforms and one (1) dependent variable (Sustainable Development of Women Entrepreneurs of small businesses) and indicators. The eleven indicators for sustainable development of women entrepreneurs of small businesses are grouped into three categories to represent the three pillars of sustainable development; economic, social and environmental.

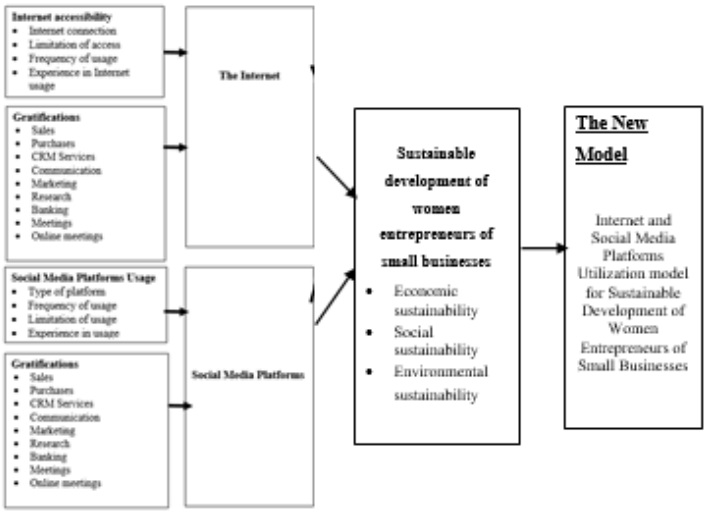

Figure 3: Research Framework (Source: Author, 2021)

II. METHODS AND MATERIAL

A. Research Methodology

The study adopted survey research design approach by collecting data from 272 sampled women entrepreneurs of small businesses in rural market centres across Siaya County, Kenya. Market centres were selected using simple random technique while the respondents were selected using snowballing sampling techniques. Data was collected from the respondents using questionnaires. Data was quantitatively analysed using WarpPLS – SEM 7.0 for descriptive, inferential and predictive statistics.

B. Data Analysis

Data analysis involves inspecting, cleaning, transforming and modelling data in order to discover useful but otherwise hidden information, suggest conclusion and support decision making. Data was collected using five point Likert ordinal ranked data questionnaire. To prepare the data collected for analysis, data was cleansed and cleaned and missing values identified. The data was then coded and entered in MS Excel and PLS-SEM in readiness for analysis. Data was then analysed for significant information using descriptive, inferential and predictive statistics.

Descriptive statistics are measurements used to summarize data in a systematic way by describing the relationship between variables in the study [43]. Descriptive statistics were analysed first before making inferential statistical comparisons and prediction. Descriptive statistics such as frequencies and percentages were presented in table forms and charts. Measures of central tendencies such as mean was used to describe the characteristics of collected data as well as answering research questions. Inferential statistics such as correlation analysis and regression analysis were done to analyse the relationships between the dependent variable; sustainable development of women entrepreneurs of small businesses and the independent variables; Internet and social media platforms usage. Inferential statistics encompass using descriptive statistics for a sample population to make conclusions or approximations about the value of a corresponding population parameter [44]. Predictive statistics which are statistical inferences connecting future observations to the given observations were done to Internet and social media platforms usage in business so that future usage of Internet and social media platforms in business for entrepreneurship sustainability would be predicted and a utilization model developed.

III. RESULTS AND DISCUSSIONS

The study aimed at developing an Internet and social media platforms utilization model for sustainable development of women entrepreneurs of small businesses in rural Kenya. To help build the model, data about the Internet and social media platforms usage for entrepreneurship sustainability was collected and analysed. Utilization of Internet and social media platforms for sustainable development of women entrepreneurs of small businesses was examined. There were eight (8) latent variables; 7 independent and 1 dependent with 47 indicators. Several intuitive results as summarized from the research model are presented in Table I as extracted from Figure 4.

A. Model Fit and Quality Indices

The objective of using PLS-SEM use was to explain the system of correlative dependent relations between the independent and the dependent variables simultaneously. Figure 4 shows the arrangement of model fit and quality indices as generated from research data.

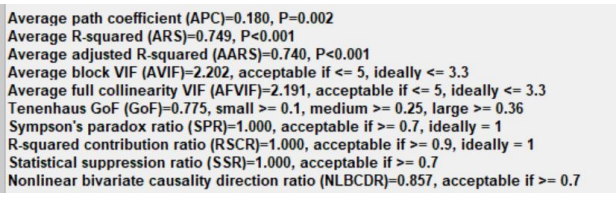

Figure 4: Model Fit and Quality indices

B. The Relationships between the Internet (Independent Variable) and Social Media Platforms (Independent Variable) Usage and Sustainable Development of Women Entrepreneurs of Small Businesses (Dependent Variable)

The P-values and path coefficients were used to determine which relationships in the model were statistically significant as well as the nature of those relationships. This is important for generalization because the p-values help in determining whether the relationships that are observed in the sample population exist in the entire population as well. The path coefficients describe the mathematical relationship between each independent variable and the dependent variable while the p-values for the coefficients indicate whether these relationships are statistically significant or not as shown in Table I.

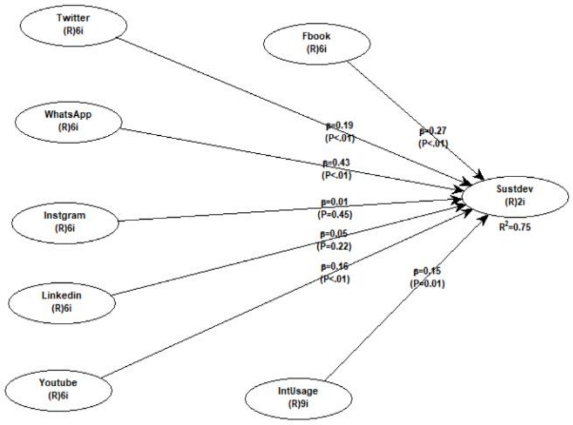

Figure 5: PLS-SEM Path Analysis Research Model (Source: Researcher, 2021)

TABLE I

PATH COEFFICIENTS AND P VALUES OF LATENT VARIABLES WITH SUSTAINABLE DEVELOPMENT OF WOMEN ENTREPRENEURS OF SMALL BUSINESSES AS THE DEPENDENT VARIABLE

S/No	Variable Name	P value (p)	Path Coeff (β)	Significance of path
1	Internet Usage	0.014	0.152	Significant
2	Facebook	< 0.001	0.266	Significant
3	Twitter	0.003	0.190	Significant
4	WhatsApp	< 0.001	0.426	Significant
5	Instagram	0.450	0.009	Insignificant
6	LinkedIn	0.225	0.053	Insignificant
7	YouTube	0.003	0.165	Significant

Source: Researcher (2021)

The sign of a regression coefficient determines whether there is a positive or negative correlation between each independent variable the dependent variable. A positive coefficient indicates that as the value of the independent variable increases, the mean of the dependent variable also increases while a negative coefficient suggests that as the independent variable increases, the dependent variable decreases. All the seven coefficients in the study are positive suggesting that an increase in the independent variable causes an increase in the dependent variable. The findings from Table I, indicate that:

(1) Internet usage in business is a positive and significant predictor of sustainable development of women entrepreneurs of small businesses (p = 0.014, β = 0.152). Increases in Internet usage in business causes the mean of sustainable development of women entrepreneurs of small businesses also to increase.

(2) Facebook is a positive and significant predictor of sustainable development of women entrepreneurs of small businesses (p < = 0.001, β = 0.266). Consequently, as Facebook usage in businesses increases, the mean of sustainable development of women entrepreneurs of small businesses also tend to increase.

(3) Twitter is a positive and significant predictor of sustainable development of women entrepreneurs of small businesses (p = 0.003, β = 0.190). Consequently, as twitter usage in business increases, the mean of sustainable development of women entrepreneurs of small businesses also tend to increase.

(4) WhatsApp is a positive and significant predictor of sustainable development of women entrepreneurs of small businesses (p = <0.001, β = 0.426). Consequently, WhatsApp usage in business increases, the mean of sustainable development of women entrepreneurs of small businesses also tend to increase.

(5) Instagram is a positive and insignificant predictor of sustainable development of women entrepreneurs of small businesses (p = 0.450, β = 0.009). Although, the relationship between Instagram and sustainable development of women entrepreneurs of small businesses is positive, an increase in Instagram usage is not certainly the cause of an increase in sustainable development of women entrepreneurs of small businesses. This increase could be due to other factors.

(6) LinkedIn is a positive and insignificant predictor of sustainable development of women entrepreneurs of small businesses (p = 0.225, β = 0.053). Although, the relationship between LinkedIn and sustainable development of women entrepreneurs of small businesses is positive, an increase in LinkedIn

usage is not certainly the cause of an increase in sustainable development of women entrepreneurs of small businesses. This increase could be due to other factors.

(7) YouTube is a significant predictor of sustainable development of women entrepreneurs of small businesses ((p = 0.009, β = 0.165). Consequently, the relationship between YouTube and sustainable development of women entrepreneurs of small businesses is positive and significant. Thus an increase in YouTube usage increases sustainable development of women entrepreneurs of small businesses in Siaya County in Kenya.

The use of coefficient p-values is valuable because they help in selecting the variables to include variables in the final model. If the p-value for a variable is less than the significance level ($p<0.05$), then there is enough evidence that the sample data is a true representation of the entire population. This implies that the sample data favour the null hypothesis suggesting a non-zero correlation. Consequently, changes in the independent variable are the cause behind the changes in the dependent at the population level. In such a case, the variable is statistically significant and can be added to the model. However, in a case where the p-value of a variable is greater than that of the significance level ($p>0.05$), then there is insufficient evidence that the sample data is a true representation of the entire population. For the results of this study, Instagram and LinkedIn have failed the test and should not be included in the model because of the likelihood to reduce the accuracy of the model. See Table VIII.

C. Hypotheses Findings

Christopher J. Westland in his book [45], recommends latent variable statistical methods because they are valuable when dealing with data in research disciplines that mainly theorize about subjective and unobservable constructs. Without PLS-SEM tools, hypothesis testing would be difficult causing doubt in the credibility of their results and interpretation. Although complex, PLS-SEM approaches permit direct testing of hypotheses.

Table II provides a findings of the study showing whether the hypothesized relationships between the independent variables (Internet and social media platform) and the dependent variable (sustainable development of women entrepreneurs of small businesses) was supported or not supported as extracted from Figure 5, shown in Table I and discussed in section B.

TABLE II
SUMMARY OF HYPOTHESES

S/No	Hypothesis Code	Hypothesis Description	Supported/Not Supported
1	H_{1a}	Facebook usage positively predicts Sustainable development of women entrepreneurs of small businesses in Siaya County, Kenya	Supported
2	H_{1a}	Facebook usage does not positively predict Sustainable development of women entrepreneurs of small businesses in Siaya County, Kenya	Not Supported
3	H_{2a}	Twitter usage positively predicts Sustainable development of women entrepreneurs of small businesses in Siaya County, Kenya	Supported
4	H_{2a}	Twitter usage does not positively predict Sustainable development of women entrepreneurs of small businesses in Siaya County, Kenya	Not Supported
5	H_{3a}	WhatsApp usage positively predicts Sustainable development of women entrepreneurs of small businesses in Siaya County, Kenya	Supported
6	H_{3a}	WhatsApp usage does not positively predict Sustainable development of women entrepreneurs of small businesses in Siaya County, Kenya	Not Supported
7	H_{4a}	Instagram usage positively predicts Sustainable development of women entrepreneurs of small businesses in Siaya County, Kenya	Not Supported
8	H_{4a}	Instagram usage does not positively predict Sustainable development of women entrepreneurs of small businesses in Siaya County, Kenya	Supported
9	H_{5a}	LinkedIn usage positively predicts Sustainable development of women entrepreneurs of small businesses in Siaya County, Kenya	Not Supported
10	H_{5a}	LinkedIn usage does not positively predict Sustainable development of women entrepreneurs of small businesses in Siaya County, Kenya	Supported
11	H_{6a}	YouTube usage positively predicts Sustainable development of women entrepreneurs of small businesses in Siaya County, Kenya	Supported
12	H_{6a}	YouTube usage does not positively predict Sustainable development of women entrepreneurs of small businesses in Siaya County, Kenya	Not Supported
13	H_{7a}	Internet usage positively predicts Sustainable development of women entrepreneurs of small businesses in Siaya County, Kenya	Supported
14	H_{7a}	Internet usage does not positively predict Sustainable development of women entrepreneurs of small businesses in Siaya County, Kenya	Not Supported

D. Latent Variable Coefficients

The latent variable coefficients generated from the analysis are discussed in this section. See Table III.

TABLE III

LATENT VARIABLE COEFFICIENTS

	Sustdev	Fbook	Twitter	WhatsApp	Instgram	Linkedin	Youtube	IntUsage
R-Squared	0.749							
Adjusted R-Squared	0.740							
Composite Reliability	0.929	0.981	0.966	0.982	0.977	0.894	0.975	0.924
Cronbach's Alpha	0.846	0.976	0.957	0.977	0.971	0.856	0.969	0.906
Average Variance Extracted (AVE)	0.867	0.867	0.826	0.901	0.877	0.592	0.866	0.581
Full Collinearity Variance Inflation Factor	2.667	2.944	1.711	3.213	1.519	1.139	2.222	2.113
Q-Squared	0.631							
Min	-2.981	-4.189	-0.696	-1.867	-0.459	-4.134	-1.189	-1.498
Max	1.195	1.294	2.629	1.209	4.247	7.300	2.667	2.088
Median	-0.204	0.146	-0.469	-0.122	-0.459	-0.131	-0.623	0.157
Mode	-0.204	-1.128	-0.469	1.030	-0.459	-0.131	-0.623	-1.188
Skewness	-0.393	-0.365	1.810	-5.586	1.933	3.635	1.263	-0.026
Excess Kurtosis	-0.806	-0.264	1.483	-0.992	2.300	26.278	0.272	-1.271

Source: Researcher (2021)

1). Goodness-of-Fit Measure and R–Squared Coefficients

The goodness of fit test is a statistical hypothesis test carried out to depict how well sample data represents entire population. Thus, the test indicates if the sample data represents the actual population data or if it is skewed. Goodness-of-fit finds the inconsistency between the observed values and the perceived values in a normal distribution case. The goodness-fit measure used in the study was R-squared. This is a measure of the percentage of the variance in the dependent variable that the independent variables explain jointly. R-squared measures the strength of the relationship between model and the dependent variable on a scale of 0 – 100%, hence is the percentage of the dependent variable variation that a linear model explains. R-squared is computed as follows:

$$R^2 = \frac{Variance\ explained\ by\ the\ model}{Total\ Variance}$$

The adjusted R-squared a modified version of R-squared involves adjusting a number of predictors in the model and increases if and only if the new term improves the model more than would be expected by chance and decreases when a predictor improves the model by less than expected by chance. Adjusted R-squared and R-squared coefficients are equivalent except that the former correct for false increases in R-squared coefficients due to predictors that add no explanatory value in each latent variable block. Thus, Adjusted R-squared ensures that the correct number of independent variables in a model unlike R-squared. Values of R-squared coefficients and adjusted R-squared coefficients below 0.02 suggests that the combined effects of predictors in latent variable blocks are too weak to be considered as relevant [46]. Consequently, models where R-squared coefficients or adjusted R-squared coefficients are below 0.02 should not be considered. Negative Adjusted R-squared means insignificance of explanatory variables thus the explanation towards response is very low or negligible.

In the study, R-squared coefficient is 0.749 and that of Adjusted R-squared coefficient 0.740. See Table IV

TABLE IV

R-SQUARED COEFFICIENT

Latent Variable	R-squared	Adjusted R-squared	R-squared Contributions
Facebook			0.186
Twitter			0.058
WhatsApp			0.314
Instagram			0.003
LinkedIn			0.009
YouTube			0.084
Internet Usage			0.096
Sustainable development of women entrepreneurs of small businesses	0.749	0.740	

Source: Researcher (2021)

R-squared value of 0.749 for the sustainable development of women entrepreneurs of small businesses dependent latent variable implies that the seven latent variables (Internet usage, Facebook, Twitter, WhatsApp, Instagram, LinkedIn and YouTube) moderately explain 74.9% of the variance in sustainable development of women entrepreneurs of small businesses in Siaya County, Kenya. The highest contributor to the coefficient of determination – R-squared is WhatsApp (0.314), followed by Facebook (0.186), Twitter (0.056), YouTube (0.084), Internet usage (0.096), LinkedIn (0.009), and Instagram (0.003) respectively.

2). Predictive Validity - Q-squared coefficient

The predictive validity of the model was tested by use of Q-squared coefficient also known as a resampling analog of the R-squared. The Q-squared coefficient is used to assess the relevance associated with each latent variable block in the model through the dependent latent variable in the block [47] [48]. A model with a value of Q-squared greater than zero ($Q^2 > 0$) is considered to have predictive validity. The Q-Squared coefficients which can also can assume negative values are depicted in Table V. The Q-Squared value for Sustainable development of women entrepreneurs of small businesses is 0.631 making the model relevant for prediction.

TABLE V
Q-SQUARED COEFFICIENTS

S/No.	Variable	Q-squared coefficient
1	Sustainable Development	0.631
2	Internet usage	-
3	Facebook	-
4	Twitter	-
5	WhatsApp	-
6	Instagram	-
7	LinkedIn	-
8	YouTube	-

Source: Researcher (2021)

3). Full collinearity Variance Inflation Factors (VIFs)

A Variance Inflation Factor (VIF) measures the degree of multi-collinearity among the latent variables that are hypothesized to affect another latent variable. According to [47] VIF of less than 5.0 is acceptable, that of less or equal to 3.3 is ideal while greater than 5 is an indication of extreme collinearity and also an indication that the model may be contaminated by common method biases. A model whose VIFs are equal to or lower than 3.3 indicates that the model is ideal and free from common method biases. Cases of high VIF is an indication that the pair of latent variables measure the same thing hence one of them should be removed from the block. The results of the study as depicted in Table VI confirm that the full collinearity test using variance inflation factors (VIF) for Sustainable development of women entrepreneurs of small businesses are predicted by Sustainable development (2.667), Internet usage (2.133), Facebook (2.944), Twitter (1.711), WhatsApp (3.213), Instagram (1.519), LinkedIn (1.139) and YouTube (2.222). The results show that all the variables met the criterion; VIF < 3.3 hence are ideally good predictors of Sustainable development of women entrepreneurs of small businesses.

TABLE VI

BLOCK VARIANCE INFLATION FACTORS

	Sustdev	Fbook	Twitter	WhatsApp	Instgram	Linkedin	Youtube	IntUsage
Sustdev	2.667	2.944	1.711	3.213	1.519	1.139	2.222	2.113

Source: Researcher (2021)

4). Skewness and Kurtosis

Skewness shows the symmetry of a distribution and is used to establish normality of data. Conversely, kurtosis is the measure of heaviness in distribution. Table VII shows both skewness and kurtosis tests and all the coefficients (except for the variable LinkedIn whose Skewness and Kurtosis are 3.635 and 26.278 respectively) are within the given limits since, according to [49], the rule-of-thumb is for skewness to be in the range of -3.000 and +3.000. Likewise, the range for kurtosis is between -8.000 and +8.000.

TABLE VII

LATENT VARIABLE COEFFICIENTS (SKEWNESS AND KURTOSIS)

S/No.	Variable	Skewness	Kurtosis
1	Sustainable Development	-0.393	-0.806
2	Internet usage	-0.026	-1.271
3	Facebook	-0.365	-0.264
4	Twitter	1.810	1.483
5	WhatsApp	-0.586	-0.992
6	Instagram	1.933	2.300
7	LinkedIn	3.635	26.278
8	YouTube	1.263	0.272

Source: Researcher (2021)

5). Effect Sizes

Effect sizes for indicators are calculated as the absolute values of the individual contributions of the corresponding indicators to the R-squared coefficients of the latent variable to which each indicator is linked to. An effect size shows how much an independent latent variable contributes to a dependent latent variable's R-Squared value; 0.02, 0.15, and 0.35 respectively are recommended [47]. Values below 0.02 suggest effects that they are too weak to be considered relevant irrespective of whether the resultant P values are statistically significant. It is recommended that indicators with effect sizes that do not meet set criterion be removed from the model.

The Effect Sizes are depicted in Table VIII. For Sustainable development of women entrepreneurs of small businesses as a dependent variable: Internet Usage (0.096), Facebook (0.186), Twitter (0.058), WhatsApp (0.314), Instagram (0.003), LinkedIn (0.009), and YouTube (0.084). All the variables have values greater than 0.02 and therefore all latent variables meet the criterion.

TABLE VIII

EFFECTS SIZES FOR TOTAL EFFECTS

	Facebook	Twitter	WhatsApp	Instgram	LinkedIn	YouTube	IntUsage
Total Effects	0.266	0.19	0.426	0.009	0.053	0.165	0.152
Number of Paths	1	1	1	1	1	1	1
P Values for total Effects	<0.001	0.003	<0.001	0.452	0.225	0.009	0.014
Standard error for total effects	0.067	0.068	0.065	0.071	0.07	0.069	0.069
Effect Sizes for total effects	0.186	0.058	0.314	0.003	0.009	0.084	0.096

Source: Researcher (2021)

6). Indicator Weight-loading Signs (WLS) – Simpson's Paradox

Simpson's paradox instance has been defined as an indicator of a causality problem which specifies that a hypothesized relation between an indicator and a latent variable is either unlikely or reversed [47] [48]. In this connection, [47] recommends positive values for WLS for both formative and reflective latent variables hence all indicators negative WLS values should be removed from the model. Table IX shows that all the 47 indicators had positive weight-loading signs. This indicates that 100% of the outer model indicators that were used in this study were reliable. Hence this rules out a possible Simpson's paradox instance.

TABLE IX

COMBINED LOADINGS AND CROSS-LOADINGS

	Sustainable Development	Facebook	Twitter	WhatsApp	Instagram	LinkedIn	YouTube	Internet Usage
Sustainable Development1	0.629	0.004	0.037	-0.251	0.009	-0.009	-0.112	0.118
Sustainable Development2	0.556	-0.006	-0.053	0.357	-0.013	0.013	0.159	-0.168
Facebook1	-0.102	0.544	-0.209	0.240	0.334	-0.046	-0.155	0.170
Facebook2	-0.078	0.573	0.033	0.003	0.021	-0.045	-0.027	0.034
Facebook3	-0.076	0.568	0.043	0.004	-0.016	0.014	0.030	0.003
Facebook4	0.120	0.569	0.020	-0.086	-0.062	0.056	0.050	-0.083
Facebook5	0.088	0.572	0.044	-0.025	-0.091	-0.013	0.003	-0.036
Facebook6	0.007	0.576	-0.017	-0.034	-0.047	0.014	0.033	-0.016
Twitter1	-0.039	0.261	0.571	-0.110	-0.025	0.129	0.488	-0.082
Twitter2	-0.108	-0.005	0.688	0.032	0.010	0.006	-0.022	0.091
Twitter3	0.013	-0.035	0.706	-0.039	0.023	0.014	-0.132	0.092
Twitter4	0.094	-0.038	0.712	-0.037	0.021	-0.0112	-0.019	-0.061
Twitter5	0.012	0.050	0.675	0.046	0.018	0.077	0.069	-0.175
Twitter6	0.004	-0.118	0.751	0.075	-0.059	-0.047	-0.173	0.085
WhatsApp1	-0.102	-0.170	-0.239	0.592	0.169	-0.011	0.003	0.144
WhatsApp 2	0.078	0.007	0.058	0.564	-0.007	-0.018	0.005	-0.041
WhatsApp 3	0.062	0.004	0.041	0.569	-0.018	-0.013	0.000	-0.032
WhatsApp 4	0.043	0.061	0.078	0.570	-0.056	0.011	-0.044	-0.010
WhatsApp 5	-0.077	0.068	0.045	0.583	-0.065	0.017	-0.025	-0.016
WhatsApp 6	0.000	0.028	0.017	0.560	-0.022	0.014	0.063	-0.014
Instagram1	-0.034	0.028	0.035	0.007	0.609	-0.296	0.302	-0.012
Instagram2	-0.018	-0.039	0.048	0.029	0.697	0.005	-0.059	0.036
Instagram3	-0.114	0.010	0.000	0.053	0.726	-0.120	-0.092	0.081
Instagram4	0.072	0.042	-0.063	-0.056	0.698	0.178	-0.016	-0.047
Instagram5	0.039	0.047	-0.075	-0.042	0.703	0.163	-0.002	-0.042
Instagram6	0.061	-0.082	0.065	0.004	0.715	-0.001	-0.037	-0.032
LinkedIn1	-0.190	-0.351	0.0289	0.272	0.302	0.694	-0.289	0.384
LinkedIn2	-0.633	0.002	0.009	0.379	0.083	0.846	0.080	0.108
LinkedIn3	-0.725	0.121	-0.050	0.337	0.143	0.826	-0.080	0.286
LinkedIn 4	0.460	0.009	-0.030	-0.272	-0.129	0.951	0.054	-0.198
LinkedIn5	0.278	0.052	-0.047	-0.170	-0.072	0.916	0.031	-0.111
LinkedIn	0.460	0.009	-0.030	-0.272	-0.129	0.951	0.054	-0.918
YouTube1	-0.103	0.097	-0.109	0.032	0.295	-0.166	0.564	0.062
YouTube2	-0.062	-0.042	0.092	0.019	-0.030	-0.084	0.606	0.092
YouTube3	0.144	0.022	-0.030	-0.137	-0.087	0.196	0.616	-0.071
YouTube4	0.018	0.006	0.022	-0.031	-0.021	-0.011	0.613	-0.024
YouTube5	-0.009	-0.056	0.111	0.076	-0.047	-0.036	0.617	-0.096
YouTube6	-0.008	-0.018	-0.099	0.051	-0.071	0.029	0.607	0.055
InternetSelling	-0.038	0.071	0.062	-0.297	-0.005	-0.186	0.160	0.621
InternetBuying	0.061	0.232	0.212	-0.285	0.076	-0.039	-0.278	0.589
Internetmarketing	0.021	0.159	0.025	-0.154	-0.137	0.059	0.008	0.607
InternetCRM	-0.054	0.214	0.083	-0.108	-0.049	0.008	-0.094	0.597
InternetCommunication	-0.166	-0.027	0.066	0.263	-0.068	-0.007	0.142	0.165
InternetResearch	-0.176	-0.125	-0.204	0.172	0.034	0.001	0.203	0.618
InternetBanking	0.360	-0.303	-0.213	-0.082	0.037	0.316	0.385	0.545
Mobile Money	0.383	-0.238	0.143	0.198	0.145	-0.128	-0.394	0.584
OnlineMeeting	-0.061	-0.260	-0.225	0.361	0.141	0.038	0.152	0.575

Source: Researcher (2021)

E. MODEL DEVELOPMENT

Model development began with the construction of an input path diagram, which illustrates the hypothesized relationships and show how different variables relate to each other. There were a total of 47 indicators and 8 latent variables used in the study; 7 independent and 1 dependent. The independent latent variables investigated were: Internet usage in business, Facebook, WhatsApp, Twitter, Instagram, LinkedIn and YouTube. The main dependent variable was "Sustainable development of women entrepreneurs of small businesses". Model development followed an approach that belongs to the family of alternating least squares algorithms. This section focuses on the development and evaluation of the model using PLS-SEM; the development of the outer model, reflective measurement, assessing the PLS-SEM output and other considerations when conducting in-depth analysis of PLS-SEM. Firstly, the preliminary latent variable scores were established. These scores were computed using an algorithm that uses unit weights for all indicators in the measurement models. The inner weights (path coefficients), the outer weights (indicators weights), outer loading (loadings) and latent variable scores were iteratively determined. The path weighting scheme was used to determine the inner weights. The path weighting scheme is a model development scheme that takes into account the direction of the inner model relationships in order to produce a component that can both ideally be predicted (a predictand) and at the same time be a good predictor for subsequent dependent variables. This scheme was preferred to other schemes because it leads to considerably higher R^2 values in the endogenous latent variables compared to the other schemes. To determine the estimates, correlation weights estimation mode where the bivariate correlation between each indicator and the construct determine the outer weights was used. This was because the constructs were reflectively specified and correlation weights estimation mode estimation yields better out-of-sample prediction when the model estimation draws on more than 100 observations as was the case in the study and also when the endogenous construct's R^2 value equal to or higher than 0.30 which was also the case in the study. In this study the observations were 200 and R^2 value was 0.749.

1). Building the Outer Layer of the New Model

Building the outer layer of the new model began by identifying the latent variables and indicators; the study has 8 latent variables and 47 indicators. To build an outer layer, the indicators were linked to their corresponding latent variables by dragging them one-by-one from the "Indicators" tab to the corresponding latent variable. Each indicator is represented by a rectangle and the latent variable is represented by an oval. The resulting model is shown in Figure 6.

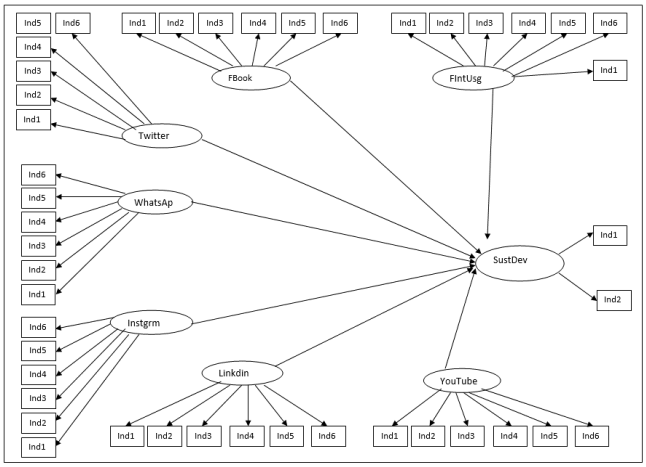

Figure 6: Outer Model (Source: Researcher, 2021)

TABLE X

KEY FOR FIGURE 6

S/No	Variable Code	Variable Name
1.	Fbook	Facebook
2.	Twitter	Twitter
3.	WhatsAp	WhatsApp
4.	Instgrm	Instagram
5.	LinkdIn	LinkedIn
6.	YouTube	YouTube
7.	IntUsage	Internet Usage
8.	SustDev	Sustainable development of women entrepreneurs of small businesses

The model was evaluated using reflective measurement model assessment method. The choice of

this method in this study was because of its ability to support the reliability and validity of the construct measures. Hence the focus on only reflective measurement model assessment in model building. Being a reflective model, it was evaluated reflectively in a number of ways as explained in the following sub-sections.

2). Internet and Social Media Platforms Sustainable Development Model for Women Entrepreneurs in Small Businesses Evaluation Using Composite Reliability

The new model was evaluated using composite reliability which is one way of measuring reflective models. Composite reliabilities take into account the actual loadings used to construct the factor score, hence are considered a good measure of internal consistency. The composite reliability and the Cronbach alpha coefficients in this study were greater than 0.7 meaning all the latent variables met the set criteria consequently suggesting good internal consistency for all as shown in Table XI.

TABLE XI

COMPOSITE RELIABILITY AND CRONBACH'S ALPHA COEFFICIENTS

S/No.	Variable Name	Composite Reliability Coefficients	Cronbach's Alpha Coefficients
1	Sustainable Development	0.929	0.846
2	Internet usage	0.924	0.906
3	Facebook	0.981	0.976
4	Twitter	0.966	0.957
5	WhatsApp	0.982	0.977
6	Instagram	0.977	0.971
7	LinkedIn	0.894	0.856
8	YouTube	0.975	0.969

Source: Researcher (2021)

3). Internet and Social Media Platforms Utilization Model for Sustainable Development Model of Women Entrepreneurs of Small Businesses Evaluation Using Construct Validity

The new mode also was evaluated using both convergent and divergent validity. The average variance extracted (AVE) for the test was used, and the AVE was greater than 0.50 as shown in Table XII. This is an indication that all the latent variables in the study met the threshold of being included in the model. Convergent validity is considered good if the p values associated with the loadings are equal to or less than 0.05 and loadings are equal to or greater than 0.5.

TABLE XII

CONVERGENT VALIDITY TEST RESULTS (CONSTRUCT LOADINGS AND CROSS LOADINGS AVERAGE VARIANCE EXTRACTED (AVES)

S/No.	Variable Name	Average Variances Extracted (AVE)
1	Sustainable Development	0.867
2	Internet usage	0.581
3	Facebook	0.897
4	Twitter	0.826
5	WhatsApp	0.901
6	Instagram	0.877
7	LinkedIn	0.592
8	YouTube	0.866

Source: Researcher (2021)

Discriminant validity is measured by comparing each construct's average variance extracted (AVE) with its squared correlations with other constructs in the model. For discriminant validity, for each latent variable, the square root of the average variance extracted should be higher than any of the correlations involving that latent variable. This means the values on the diagonal should be higher than any of the values above or below them in the same column or the values on the diagonal should be higher than any of the values to their left or right, in the same row. The results from the study confirm evidence of discriminant validity as shown in Table XIII.

TABLE XIII

CORRELATIONS AMONG VARIABLES WITH SQUARE ROOTS OF AVES

	Sustainable Development	Facebook	Twitter	WhatsApp	Instagram	LinkedIn	YouTube	Internet Usage
Sustainable Development	**0.931**	0.695	0.275	0.735	0.332	0.104	0.493	0.629
Facebook	0.649	**0.947**	0.411	0.763	0.414	0.087	0.539	0.622
Twitter	0.275	0.411	**0.909**	0.402	0.522	0.245	0.592	0.358
WhatsApp	0.735	0.763	0.402	**0.949**	0.339	0.106	0.480	0.642
Instagram	0.332	0.414	0.422	0.422	**0.937**	0.303	0.513	0.353
LinkedIn	0.104	0.087	0.245	0.245	0.303	**0.769**	0.217	0.077
YouTube	0.493	0.539	0.592	0.592	0.513	0.217	**0.931**	0.550
Internet Usage	0.629	0.358	0.358	0.358	0.353	0.077	0.550	**0.762**

Source: Researcher (2021)

4). Internet and Social Media Platforms Utilization Model for Sustainable Development Model of Women Entrepreneurs of Small Businesses Evaluation Using Effect Sizes

An effect size test shows how much an independent latent variable contributes to dependent latent variable's R-Squared value. The Effect Sizes are depicted in Table VIII shows the contributions of the independent variables to R-Squared coefficient value: Internet Usage (0.152), Facebook (0.266), Twitter (0.190), WhatsApp (0.426), Instagram (0.009), LinkedIn (0.053), and YouTube (0.165). Since the recommended values are 0.02, 0.15, and 0.35 respectively all the variables except Instagram and LinkedIn have values greater than 0.02. This disqualified Instagram and LinkedIn from being included in the model.

5). Internet and Social Media Platforms Utilization Model for Sustainable Development Model of Women Entrepreneurs of Small Businesses Evaluation Using Predictive Validity (Q-squared coefficient)

The Q-squared coefficient was used to assessment the model for predictive validity. A model with a value of Q-squared greater than zero ($Q^2 > 0$) is considered to have predictive validity. The value for Sustainable development of women entrepreneurs of small businesses was 0.631 ($Q^2 = 0.631$ hence $Q^2 > 0$) as shown in Table V. Since the value of Q^2 greater than zero, the model is considered to have predictive validity.

6). Internet and Social Media Platforms Utilization Model for Sustainable Development Model of Women Entrepreneurs of Small Businesses Evaluation Using p-values for the Predictors

The use of coefficient p-values help in determining the variables to be included in the model. In regression, variables where the p-value is less than the significance level ($p<0.05$) are included in the model because the sample data provide enough evidence to accept the null hypothesis for the entire population whereas variables where $p>0.05$ are rejected. Instagram and LinkedIn failed the test and were not be included in the model because they are not statistically significant. Including them will definitely reduce the model's accuracy. The p-values were Instagram ($p = 0.450$) and LinkedIn ($p = 0.225$) respectively.

7). Internet and Social Media Platforms Utilization Model for Sustainable Development Model of Women Entrepreneurs of Small Businesses Evaluation Using R–Squared Coefficients

The new model was evaluated for explanatory power using R-Squared coefficients. In the study, adjusted R-squared coefficient was 0.740 and R-squared coefficient was 0.749. This implies that the seven latent variables (Internet usage, Facebook, Twitter, WhatsApp, Instagram, LinkedIn and YouTube) moderately explain 74.9% of the variance in sustainable development of women entrepreneurs of small businesses in Siaya County, Kenya. These results were validated by using adjusted R-squared that ensures that poor quality predictors are not included in the model. High value of adjusted R-squared confirmed the model as a good regression model.

8). Internet and Social Media Platforms Utilization Model for Sustainable Development of Women Entrepreneurs of Small Businesses Evaluation Using Causality Assessment Coefficients (R-squared Contributions)

The new model was evaluated using Casualty Assessment Coefficients. The results show that the highest contributor to the coefficient of determination R-squared is WhatsApp (0.314), followed by Facebook (0.186), Twitter (0.056), YouTube (0.084), Internet usage (0.096), LinkedIn (0.009), and Instagram (0.003) respectively.

TABLE XIV

R-SQUARED CONTRIBUTIONS

Sustainable Development	Facebook	Twitter	WhatsApp	Instagram	LinkedIn	YouTube	Internet Usage
	0.186	0.058	0.314	0.003	0.009	0.084	0.096

Source: Researcher (2021)

F. The New Internet and Social Media Platforms Utilization Model for Sustainable Development Model for Sustainable Development of Women Entrepreneurs of Small Businesses

Six latent variables (five independent and one dependent) are included in the new developed model. These are Sustainable development of women entrepreneurs of small businesses, Facebook, Twitter, WhatsApp, YouTube, and Internet usage.

1). Path Analysis Diagram for Internet and Social Media Platforms Utilization Model for Sustainable Development Model of Women Entrepreneurs of Small Businesses

Path analysis presents regression equations between the independent variables and the dependent variable. In this study, we are interested in the systems of relationships between multiple variables which are directly observed and not latent variables. These variables are questionnaire items. Path analysis focuses both on direct and indirect effects, however, in this study only direct effect was applicable because the interest was only in paths between the five independent variables and one dependent variable. Indirect effects would have been applicable, if the study considered mediating effects of some variable on the independent and dependant variables. Path analysis diagrammatically represents a theoretical model using standardised notations which can be represented both as a system of equations or as a diagram.

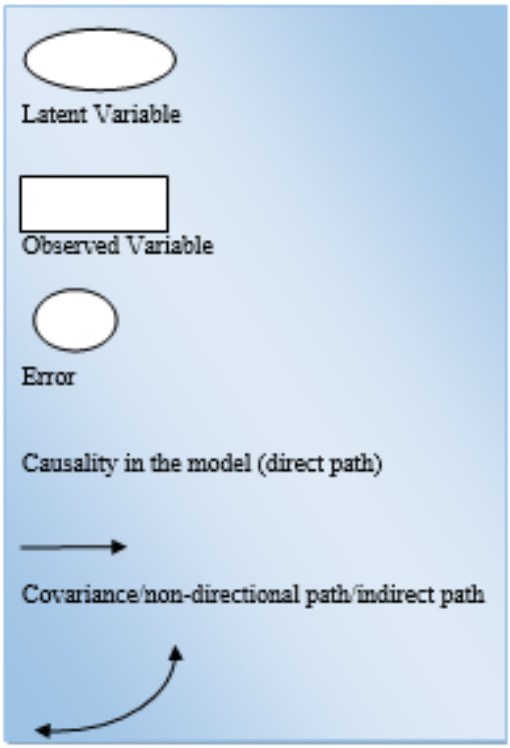

Figure 7: Path Analysis notations

Let $x_1 = Facebook\ usage\ variable$
$x_2 = Twitter\ usage\ variable$
$x_3 = WhatsApp\ usage\ variable$
$x_4 = YouTube\ usage\ variable$
$x_5 = Internet\ usage\ variable$
$Y = Sustainable\ development\ of\ women\ entrepreneurs\ of\ small\ businesses\ variable$
$D_1 = Error\ Variable\ for\ x_1$
$D_2 = Error\ Variable\ for\ x_2$
$D_3 = Error\ Variable\ for\ x_3$
$D_4 = Error\ Variable\ for\ x_4$
$D_5 = Error\ Variable\ for\ x_5$
$D_6 = Error\ Variable\ for\ Y$

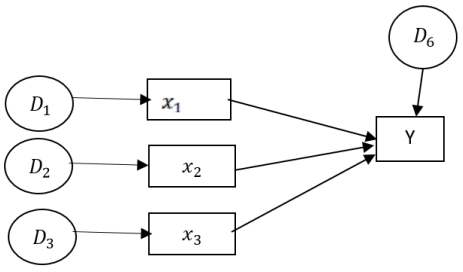

Figure 8: Path Diagram with indicators and error variables

Let us take an example of a question that was asked the respondents, the extent Internet usage in their business had led to productivity on a scale of 1 to 5. Some respondents gave higher answers while some respondents gave lower answers and there were variability. Variance in this variable across individuals in the sample means that all variability was not to do with the extent to which Internet usage in business led to higher profit margins. Some of the variability will be as a result of Internet usage in business while other factors that we are not interested in such high cost of Internet access, lack of skills, level of education, poor Internet coverage and questionnaire design may also have caused this variability. Thus some of these variability were to do with what was being measured while others were to do with factors errors unique variance.

The formulae of the true score equation can be written as:

$$x = t + e \quad (1)$$

where

$$x = measured\ variable$$

$$t = true\ score$$

$$e = error$$

The x variability compromises both the actual score and the error. Actual score refers to what a respondent stated as her usage. The error comprises of two components: (1) systematic error where the question was expressed in a manner that gave respondents higher Internet usage than their actual level of usage and (2) random error where respondents overrated or underrated their level of Internet usage.

When we measure variable x, we are able to isolate the t (true) part of the variance; the true score and remove the error (e) variance in cases we are trying to predict t or use t as a predictor in the model as in the case of this study.

In order to find t and e components, we need multiple indicators of the latent variable In the study, there are two indicators of the same underlying latent variable sustainable development of women entrepreneurs of small businesses. Since these variables measure the same thing, they are expected to be correlated in the population. We can add the actual latent variable; sustainable development of women entrepreneurs of small businesses indicator and do away with correlation.

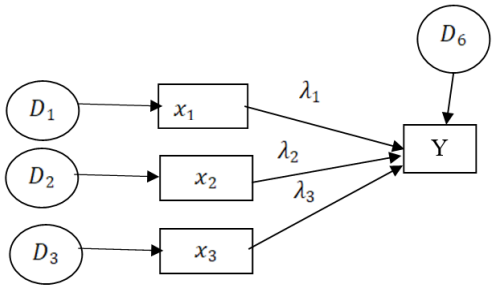

Figure 9: Path diagram with factor loadings

In the model, we have latent variable Y (sustainable development of women entrepreneurs of small businesses) having a causative effect on each of the indicators. This effect is what constitutes the true score or that part of the equation $x = t + e$. There is need to include the need error terms for each of the equations as indicated in Figure 9. In the case of a factor model, we can apply a latent variable in the model to get observed estimates of the indicators. The lambda (λ) coefficients in the model refer to factor loadings; the correlations between the factor and the error term e of each of the x.

$$\lambda = factor\ loading = correlation\ between\ factor\ and\ indicator \quad (2)$$

If the value of the dependent variable (sustainable development of women entrepreneurs of small businesses) is high hence tending to 1, then we can conclude that the indicators are good. Otherwise, if it is approaching 0, then we can conclude the indicators are not good indicators of the dependent variable.

Taking sustainable development of women entrepreneurs of small businesses, the concept is complex and multifaceted making it impossible to cover the full concept in the study. We therefore need to have multiple indicators of the independent variables to get a good coverage of the dependent variable. To accomplish this, you need to remove or reduce random errors in the measured construct resulting into equation 3.

$$x = t \qquad (3)$$

From Figure 9, $x_1 has\ a\ causal\ effect\ on\ Y$, and the same applies to $x_2\ through\ x_5$

We can decompose into direct effects and total effects.

$\lambda_1 = direct\ effect\ of\ x_1\ on\ Y$

$\lambda_2 = direct\ effect\ of\ x_2\ on\ Y$

$\lambda_3 = direct\ effect\ of\ x_3\ on\ Y$

$\lambda_4 = direct\ effect\ of\ x_4\ on\ Y$

$\lambda_5 = direct\ effect\ of\ x_5\ on\ Y$

Therefore

$$\text{Total Effects} = \lambda_1 + \lambda_2 + \lambda_3 + \lambda_4 + \lambda_5$$

The resultant path analysis diagram shows the contributions of Internet usage and social media platform usage to sustainable development of women entrepreneurs. Replacing λ with β, these relationships can be explained using the following equations:

$$SDWE = \beta\text{Facebook} + \beta\text{Twitter} + \beta\text{WhatsApp} + \beta\text{YouTube} + \beta\text{InternetUsage} \qquad (4)$$

Where

SDWE is Sustainable Development of women entrepreneurs of small businesses

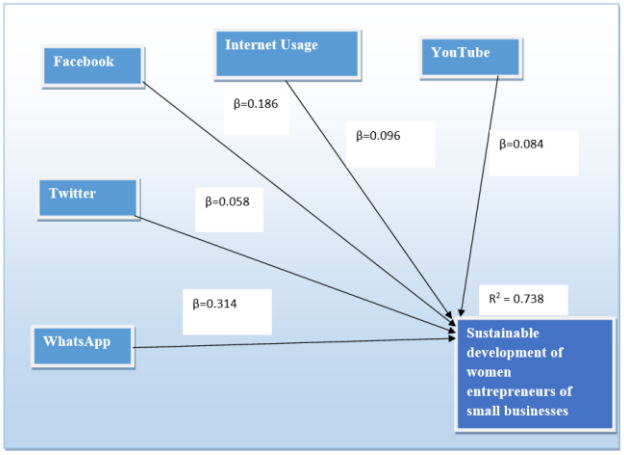

Figure 10: Internet and Social Media Platforms Utilization Model for Sustainable Development of Women entrepreneurs of small business (ISMSDM)

The ISMSDM model can be interpreted as follows:

For maximum sustainable development of women entrepreneurs of small businesses, the ideal ratios of Internet and social media platforms usage in the business should be as follows:

(1) Facebook usage should be 18.6% of the total usage
(2) Twitter usage should be 5.8% of the total usage
(3) WhatsApp usage should be 31.4% of the total usage
(4) YouTube usage should be 8.4% of the total usage
(5) Internet usage should be 9.6% of the total usage

Substituting the β in the equation with real β values, we can rewrite the equation as

$$SDWE = 0.186\text{Facebook} + 0.058\text{Twitter} + 0.314\text{WhatsApp} + 0.084\text{YouTube} + 0.096\text{InternetUsage} \qquad (5)$$

Substituting the variable names with the corresponding x coefficient and SDWE with sustainability factor we get:

$$x_1 + x_2 + x_3 + x_4 + x_5 = 0.738 \qquad (6)$$

Worst Case Scenario

Let's consider worst case scenario where there is no business sustainability. A case where there is totally no usage of the Internet and social media platforms in business. The resultant equation would be:

$$0x_1 + 0x_2 + 0x_3 + 0x_4 + 0x_5 = 0 \qquad (7)$$

Which can be written as:

$$x_1 + x_2 + x_3 + x_4 + x_5 = 0$$

This implies that the business highly depends on the 26.2% of all the factors not considered in the model for its success and survival. Consequently there are high chances of business failure. For that reason, businesses that do not use Internet and social media platforms have more than 73.8% chances of failure unless the 26.2% other factors are optimum.

Best Case Scenario

Now let's consider best case scenario where there is maximum business sustainability. A case where there is maximum usage of the Internet and all the four social media platforms (Facebook, Twitter, WhatApp, YouTube) in business. The resultant equation would be:

$$1x_1 + 1x_2 + 1x_3 + 1x_4 + 1x_5 = 0.73 \qquad (8)$$

We can omit the 1's in equation (8) to get our equation:

$$x_1 + x_2 + x_3 + x_4 + x_5 = 0.738 \qquad (9)$$

This indicates that the business's survival highly depends on the 26.2% of all the factors not considered in the model plus 73.8% sustainability index. Therefore there are high chances of business success beyond the 73.8%. Hence, businesses that use Internet and all the four social media platforms have more than 73.8% chances of success unless the 26.2% other factors contributions are negligible.

G. Applicability of the Internet and Social Media Platforms Utilization Model for Sustainable Development Model of Women Entrepreneurs of Small Businesses

The applicability of the newly developed ISMSDM model was tested by simulating different scenarios and the results are as shown in Table XV.

TABLE XV

SUSTAINABLE DEVELOPMENT IDENTITY

	Facebook	Twitter	WhatsApp	YouTube	Internet Usage	Sustainable development of women entrepreneurs (SDWE)
	0	0	0	0	0	**0.000**
	1	1	1	1	1	**0.738**
	0	1	1	1	1	**0.552**
	1	0	1	1	1	**0.680**
	1	1	0	1	1	**0.424**
	1	1	1	0	1	**0.642**
	1	1	1	1	0	**0.654**
Sustainability Contributions	**0.186**	**0.058**	**0.314**	**0.096**	**0.084**	

Source: Researcher (2021)

The simulation results about the applicability of the new model is described in the following section:

(1) The worstcase scenario is when the Internet and all the four social media platforms are not used in the business; SDWE =0

(2) The bestcase scenario is when the Internet and all the four social media platforms are used in business to the maximum; SDWE = 0.738

(3) When the Internet, WhatsApp, Facebook and YouTube except Twitter are used in business; SDWE =0.680

(4) When all the four social media platforms; ,WhatsApp, Facebook, Twitter and YouTube are used in business except the Internet; SDWE=0.654

(5) When the Internet, WhatsApp, Facebook and Twitter except YouTube are used in business; SDWE =0.642

(6) When the Internet, WhatsApp, Twitter and YouTube except Facebook are used in business; SDWE =0.552

(7) When the Internet, Facebook, Twitter and YouTube except WhatsApp are used in business; SDWE =0.424

IV. CONCLUSION

The objective of the study was to develop an Internet and social media platforms utilization model for sustainable development of women entrepreneurs of small businesses. This objective was founded on the

fact that there was no relevant Internet and social media usage model. Hypotheses about Internet and social media platforms usage and sustainable development of women entrepreneurs of small businesses were formulated. The model specification was grounded on the postulated relationships among the variables founded on the researcher's assumptions. Data was collected from 200 women entrepreneurs of small businesses, analysed and the hypotheses tested. There were positive correlations between the usage of Internet, WhatsApp, Facebook, YouTube and Twitter in business and sustainable development of women entrepreneurs of small businesses in Siaya County. Thus, as their usage in business increases, the level entrepreneurship sustainability increases. However, usage of Instagram and LinkedIn in business though positive did not predict sustainable development of women entrepreneurs of small businesses.

The latent variables found to positively predict sustainable development of women entrepreneurs of small businesses were included in the model while those that did not meet the threshold were omitted. LinkedIn and Instagram were omitted whereas Facebook, WhatsApp, Twitter, YouTube and Internet usage were included. Although Instagram and LinkedIn did not meet the threshold of the model requirements, they are valuable platforms for entrepreneurship sustainability. The new model was evaluated for applicability through simulation and validated by SME experts for acceptability as an Internet and social media platforms utilization entrepreneurship sustainability model. Approximately 80.0% strongly agreed that Internet is a catalyst of entrepreneurship sustainability while approximately 70.0% strongly agreed that social media platforms are catalysts of entrepreneurship sustainability. The objective was achieved because the model was developed, evaluated and validated for applicability and was accepted.

To step up the Internet and social media platforms usage for sustainable entrepreneurship, the study makes the following recommendations:

(1) Adoption of ISMSDM in business by women entrepreneurs for entrepreneurship sustainability should be encouraged.

(2) Although the usage of Instagram and LinkedIn in business did not predict sustainable development of women entrepreneurs of small businesses, their usage in business should be encouraged.

V. REFERENCES

[1] International Telecommunication Union. (2013). ICT Statistics. Available at http://www.itu.int/en/ITUD/Statistics/Pages/stat/default.aspx

[2] Yogesh K. Dwivedi, Elvira Ismagilova, D. Laurie Hughes, Jamie Carlson, Raffaele Filieri, Jenna Jacobson, Varsha Jain, Heikki Karjaluoto, Hajer Kefi, Anjala S. Krishen, Vikram Kumar, Mohammad M. Rahman, Ramakrishnan Raman, Philipp A. Rauschnabel, Jennifer Rowley, Jari Salo, Gina A. Tran, Yichuan Wang, Setting the future of digital and social media marketing research: Perspectives and research propositions, International Journal of Information Management, Volume 59, 2021,102168,ISSN 0268-4012, https://doi.org/10.1016/j.ijinfomgt.2020.102168. (https://www.sciencedirect.com/science/article/pii/S0268401220308082)

[3] International Telecommunication Union. (2021) Measuring Digital Development: Facts and Figures 2021. https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2021.pdf

[4] Kanvaria, V. K. & Bisht, S. (2016). Integrating ICT in education for sustainable development: a facilitator's comprehension, International Journal of Education & Applied Sciences Research, Vol.3,

Issue 06, Aug-Oct- 2016, pp 51-58 EISSN: 2349 – 2899, ISSN: 2349 –4808 (Print)

[5] Ifeoma, A. B. (2014). Impact of ICT on Information Gathering and Dissemination of Television Reporters, New Media and Mass Communication ISSN 2224-3267 (Paper) ISSN 2224-3275 (Online) Vol.29. Available at iiste.org/Journals/index.php/NMMC/article/viewFile/15525/15933

[6] Zuppo, C. M. (2012). Defining ICT in a boundaryless world: The development of a working hierarchy, International Journal of Managing Information Technology (IJMIT) Vol.4, No.3

[7] Singh, A. (2015). The Importance of Technology in Entrepreneurship. Available at http://www.epicentreuwindsor.ca/the-importance-of-technology-in-entrepreneurship/

[8] International Telecommunication Union (ITU). (2017). ITU Goal 10: Reduce Inequality. Available at http://www.itu.int/en/sustainable-world/Pages/goal10.aspx

[9] Internet Society. (2016). Global internet report 2016: Paths to our digital future. Available at https://future.internetsociety.org/

[10] Internet Society. (2015a). The Internet and Sustainable Development. https://www.internetsociety.org/resources/doc/2015/the-internet-and-sustainable-development/

[11] GSMA Connected Women & Altai Consulting. (2015). Bridging the gender gap: Mobile access and usage in low and middle-income countries. Available at https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/02/GSM0001_03232015_GSMAReport_NEWGRAYS-Web.pdf

[12] International Telecommunication Union, (2019). Measuring Digital Development Facts and Figures 2019. Available at https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2019.pdf

[13] Dutta, S., Lanvin, B. & Thierry, B. (2015). The Global Information Technology Report 2015: Innovating in the Digital Economy, World Economic Forum 2015

[14] Shepherd, D. A., and Patzelt, H. (2011). The new field of sustainable entrepreneurship: Studying entrepreneurial action linking "what is to be sustained" with "what is to be developed". Entrepreneurship Theory and Practice, 35(1), 137–163. https://doi.org/10.1111/j.1540-6520.2010.

[15] Schaltegger, S., & Wagner, M. (2011). Sustainable entrepreneurship and sustainability innovation: Categories and interactions. Business Strategy and the Environment, 20(4), 222–237. https://doi.org/10.1002/ bse.682

[16] Kamunge, M. S., Njeru, A., & Tirimba, O. I. (2014). Factors Affecting the Performance of Small and Micro Enterprises in Limuru Town Market of Kiambu County, Kenya. International Journal of Scientific and Research Publications, 4(1), 2250–3153. https://doi.org/10.9790/487X-16148093

[17] Mohamad, M., Chin, O. (2018). The Effects of Internet Usage on Business Sustainability of Small Technology-based Rural Business in Malaysia. International Journal of Engineering and Technology(UAE). 7. 635-638. 10.14419/ijet.v7i4.35.23074. https://www.researchgate.net/publication/330193084_The_Effects_of_Internet_Usage_on_Business_Sustainability_of_Small_Technology-based_Rural_Business_in_Malaysia

[18] Mohd. Zin, M. L. (2015). Determinants of Business Performance Among Rural Entrepreneur. In E-Proceeding of the International Conference on Social Science Research, ICSSR 2015 (Vol. 2015, pp. 114–121). Retrieved from ttp://worldconferences.net

[19] Mokhtar, N. F. (2015). Internet Marketing Adoption by Small Business Enterprises in Malaysia. International Journal of Business and Social Science, 6(1), 59–65. http://ijbssnet.com/journals/Vol_6_No_1_Januaryr_2015/7.pdf

[20] Tarutė, A., Gatautis, R. (2014). ICT impact on SMEs performance. Procedia - Social and Behavioral Sciences. 110. 1218-1225.

10.1016/j.sbspro.2013.12.968. https://www.researchgate.net/publication/270847951_ICT_impact_on_SMEs_performance/citation/download

[21] Radzi, K. M., Nazri, M., & Nor, M. (2017). The impact of internal factors on small business success: a case of small enterprises under the felda scheme. Asian Academy of Management, 22(1), 27–55

[22] Entrepreneur. (2018). Seven Creative Ways to Boost Your Social Media Strategy. Available at https://www.entrepreneur.com/article/311384

[23] Dutta, S., Baller, S. and Lanvin, B. (2016). The Global Information Technology Report 2016: Innovating in the Digital Economy. World Economic Forum 2016

[24] Detweiler, G. (2018). Ten Expert Social Media Tips to Help Your Small Business Succeed. Available at https://www.forbes.com/sites/allbusiness/2018/03/27/10-expert-social-media-tips-to-help-your-small-business-succeed/#55fc1e4e14a1

[25] Bone, D., Chui, M., Manyika, J. & Ventresca, M. (2013). The Social Economy: Unleashing Value and Productivity through Social Technologies. Available at https://podcasts.ox.ac.uk/social-economy-unleashing-value-and-productivity-through-social-technologies

[26] Dunne, A., Lawlor, M. and Rowley, J. (2010), "Young people's use of online social networking sites a uses and gratifications perspective", Journal of Research in Interactive Marketing, Vol. 4 No. 1, pp. 46-58.

[27] Hossain, M.A. (2019), Effects of uses and gratifications on social media use: The Facebook case with multiple mediator analysis, PSU Research Review, Vol. 3 No. 1, pp. 16-28. https://doi.org/10.1108/PRR-07-2018-0023

[28] Vinney, C. (2020). What Is Uses and Gratifications Theory? Definition and Examples. Retrieved from https://www.thoughtco.com/uses-and-gratifications-theory-4628333

[29] Cheung, C.M.K., Chiu, P.Y. and Lee, M.K.O. (2011), "Online social networks: why do students use Facebook", Computers in Human Behavior, Vol. 27 No. 4, pp. 1337-1343.

[30] arstedt, M., Ringle, C.M. Structural Equation Models: From Paths to Networks (Westland 2019). Psychometrical 85, 841–844 (2020). https://doi.org/10.1007/s11336-020-09719-0

[31] Statsoft (2013). Structural Equation Modeling, Statsoft Electronic Statistics Textbook. http://www.statsoft.com/textbook/structural-equation-modeling/

[32] Blunch, N. J. (2008). The measurement model in SEM: confirmatory factor analysis. In Introduction to structural equation modelling using SPSS and AMOS (pp. 127-156). SAGE Publications, Ltd, https://www.doi.org/10.4135/9781446249345

[33] Gefen, D., Straub, D.W. and Boudreau, M.C. (2000). Structural equation modeling and regression: Guidelines for research practice," Communications of the AIS 4 (7), 1-77.

[34] Chin, W.W., Peterson, R. A., & Brown, S. P. (2008) Structural Equation Modeling in Marketing: Some Practical Reminders, Journal of Marketing Theory and Practice, 16:4, 287-298, DOI: 10.2753/MTP1069-6679160402

[35] Mailman School of Public Health. (2020). Path Analysis. https://www.publichealth.columbia.edu/research/population-health-methods/path-analysis

[36] Grapentine, T. (2000). Path Analysis Versus Structured Equation Modelling. https://www.researchgate.net/profile/Terry_Grapentine2/publication/293700571_Path_vs_strutral_equation_modeling_do_the_relative_merits_of_path_analysis_and_structure_equation_modeling_outweight_their_limitiations/links/591994c4aca2722d7cfe47ca/Path-vs-strutral-equation-modeling-do-the-relative-merits-of-path-analysis-and-structure-equation-modeling-outweight-their-limitiations.pdf

[37] Bollen, K. A. (2002). Latent variables in psychology and the social sciences. Annual Review of Psychology, 53(1), 605–634.CrossRefGoogle Scholar

[38] Haenlein, M., & Kaplan, A. M. (2004). A beginner's guide to partial least squares analysis.

Understanding Statistics, 3(4), 283–297.CrossRefGoogle Scholar

[39] Diamantopoulos, A. (2011). Incorporating formative measures into covariance-based structural equation models. MIS Quarterly, 35(2), 335–358.Google Scholar

[40] Diamantopoulos, A., & Winklhofer, H. M. (2001). Index construction with formative indicators: An alternative to scale development. Journal of Marketing Research, 38(2), 269–277.CrossRefGoogle Scholar

[41] Parida, A., Kumar, U., Galar, D. and Stenström, C. (2015), "Performance measurement and management for maintenance: a literature review", Journal of Quality in Maintenance Engineering, Vol. 21 No. 1, pp. 2-33. https://doi.org/10.1108/JQME-10-2013-0067

[42] P. Kaur, J. Stoltzfus, V. Yellapu, "Descriptive statistics". International Journal of Academic Medicine Online]. 4 (1) pp 60. https://www.ijam-web.org/text.asp?2018/4/1/60/230853

[43] G. G. Benjamin, S. Kevin, M. Aaron. (2017). "Inferential statistics and the use of administrative data in US educational research". International Journal of Research & Method in Education. 40(2), pp 214-220, DOI: 10.1080/1743727X.2015.1113249

[44] J. Christopher Westland. (2019). Structural Equation Models. 2019, Volume 22. ISBN: 978-3-030-12507-3

[45] Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Mahwah: Lawrence Erlbaum Associates. Google Scholar

[46] Kock, N. (2015). A note on how to conduct a factor-based PLS-SEM analysis. International Journal of e-Collaboration, 11(3), 1-9.

[47] Kock, N., & Gaskins, L. (2016). Simpson's paradox, moderation, and the emergence of quadratic relationships in path models: An information systems illustration. International Journal of Applied Nonlinear Science, 2(3), 200-234.

[48] Garson, G. D. (2016). Partial least squares regression and structural equation models. Asheboro: Statistical Associates. Google Scholar

Cite this article as :

Roselida Maroko Ongare, "Modelling Utilization of the Internet and Social Media Platforms for Sustainable Development of Women Entrepreneurs of Small Businesses", International Journal of Scientific Research in Science, Engineering and Technology (IJSRSET), Online ISSN : 2394-4099, Print ISSN : 2395-1990, Volume 9 Issue 1, pp. 250-275, January-February 2022. Available at doi : https://doi.org/10.32628/IJSRSET229155
Journal URL : https://ijsrset.com/IJSRSET229155