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Implications of the Digital Economy on Consumer Behavior: Theoretical and Empirical Approach

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Abstract:

This study examines the implications of the digital economy on consumer behavior, it examines a bi-dimensional argument from theoretical and empirical approaches. It lays a foundation for all rational choice explanations and individual preferences, beliefs and constraints in the digital age. Literature reviewed indicated that the digital age is a determinant for consumer's preferences influenced by electronic consumptions, powered by internet platforms. Findings suggest that consumers are primarily influenced by the quality of information or service quality and subsequently influenced by customer ratings and overall rankings. The final model on consumer responses is to provide comprehensive discussions on the various stages of consumer behaviour, and specifically, its speed and access on the different stages in the decision-making process. Recommendations of this study: individuals and users must collate information targeting socioeconomic growth goals – greater space for higher innovations, responsible business, aimed at a trisks reduction in the digital economy. Regulatory authorities must effectively create an environment for achieving these goals.

Keywords: Responsible business, inclusive business, social needs, livelihood strategy, competitiveness

1. Introduction

The digital economy is sometimes referred to as the Third *Industrial Revolution*. Don Tapscott (1994) opined that the digital economy is also referred to as the age of Networked Intelligence, in which information becomes digital and is reduced to bits, stored in computers and moving so fast at the speed of light across networks all over the global economy. It facilitates commerce, e-business policies and legislations. The goal is to bring about inclusive business benefits or enhance a business strategy - all should derive benefits of the so called 'industrial revolutions' as result of the leaps in the digital age.

Responsible business and mutuality should results as opined by Barefoot, Curtis, Joliffe, Nicholson and Omohundro (2018) that the digital economy works in terms of the related information and communications technologies (ICTs). There is an overlap of the digital economy and the ICT sector. Barefoot, et al. (2018) included three major types of goods and services: first, the essential digital-enabling infrastructure that enables a computer network to exist and operate, secondly, digital transactions that are carried out using that systems to facilitate transactions or productivity (e-commerce), and thirdly, the content created and accessed by digital economy users, sometimes referred to as the digital media.

The digital economy can therefore be seen as a broad range of economic activities which use digitized information and knowledge as key factors of production. The internet, big data, cloud computing, financial technology (fintech) and other new digital technologies are used to collect, store, analyze, share information digitally, transform social interactions and create a globalized market place. The digitization of the economy brings about benefits and efficiencies as digital technologies facilitate innovation create job opportunities and foster economic growth. The digital economy also spreads through all facets of society. It is therefore influencing agent in consumer behaviour, other levels of interactions and bringing about great sociological changes.

The internet has greatly revolutionized human interactions and social relations through the social media. The social media networks are democratic platforms for spreading and accessing information. E-commerce transactions are being facilitated by the e-commerce websites, social media networks and other websites. According to Krishnamurthy and Dou (2008), social media include social networking sites, user generated services (blogs), online rating/review sites, video sharing sites, virtual game worlds, through which consumers produce, design, publish or edit

content. Social media networks include Facebook, Twitter, Instagram and other media in the internet space. These innovations have enlarged consumption space, opportunities and have remodeled consumer behavior.

Consumer behavior has been studied and modelled in various dimensions and perspectives based on various platforms, it is the process whereby individuals decide whether, what, when, where, how, and from whom to purchase goods and services. On the other hand, Schiffman & Kanuk (1997: 648) define consumer behaviour as 'The behavior that consumers display in searching for, purchasing, using, evaluating, and disposing of products, services, and ideas.' Consumer behavior is based both on the psychology, budget of the consumer, location of the product, and ethics and culture. The challenges of an online purchasing behavior or the so-called digital economy is mainly security concerns – glaringly seen and experienced in consumer protection and trust, the probability of faulty delivery among other insecurities that exist online. There is also the risk in the banking system on the other hand - the colonies of fraudsters online. The main objective of this study is to examine the implications on consumption behavior and interactions with various information and techniques, given enlarged choice probabilities on the net.

2. Literature and Theoretical Issues

2.1. Rational Choice Theory

Rational Choice Theory is established on the assumption that individuals choose a course of action that is most in line with their personal preferences. It includes a variety of models that construe social phenomena as outcomes of individual action that may be considered as rational. Rational behavior is a behavior that is directed towards the realization of specific goals, in the presence of certain limitations imposed by the situation. The foundation of all rational choice explanations are individual preferences, beliefs and constraints (Rafael, 2013).

Preferences can be explained as positive or negative evaluations individuals give to the possible outcomes of their actions. Preferences emanate from diverse sources which range from culturally transmitted tastes for food or items to personal commitments and habits. Beliefs include perceived cause-effect relations, for example, the perceived likelihood that an individual's actions will result in different possible outcomes. Constraints specify the limits to the set of feasible actions (Rafael, 2013).

The core of the rational choice theory was developed by what is now known as neoclassical economics. This is based on three major assumptions: Individuals have selfish preferences, they maximize their own utility and they act independently based on full information (Rafael, 2013).

Most people calculate the likely costs and benefits of any action before deciding what to do. This way of thinking is called rational choice theory (Crossman, 2019). The rational choice theory suggests that individuals are motivated by their personal wants and goals and are driven by personal desires. Since individuals cannot obtain all that they desire, they must make choices related to both their goals and the means for achieving those goals. Individuals must expect the outcomes of alternative courses of action and calculate which course of action will be the most suitable for them. A rational individual will choose the course of action that is likely to yield the greatest satisfaction (Crossman, 2019).

2.1.1. Engel, Kollet, Balckwell (EKB) Model

This model posits that the consumers' decision making is a sequential process that comprises: Problem recognition, information search, evaluation of alternatives, purchase and post-purchase evaluation (Engel, Blackwell and Miniard, 1995). The theory presents the process of purchasing as a series of discrete actions, typically propelled by the conscious recognition of a need that is yet to be satisfied. It is founded upon a micro, utilitarian perspective (Foxall, 1989) as cited by Ashman, Wolny and Solomon (2015).

2.1.1.1. Stage 1: Problem Recognition

In the digital age, besides traditional marketing efforts (such as advertising, promotion, catalogues, store display, coupons, etc.), online interactions arouse problem recognition. The exposure to new products is triggered by a consumer's social interactions, observation or engagement with editorial content, public online conversations (Ashman, et al. 2015).

2.1.1.2. Stage 2: Information Search

The digital culture influences consumers to seek information from non-professional sources such as search engines, consumer reviews, branded social media pages, blogs or customer-created photo feeds (Park and Cho, 2012; Wolny and Muella, 2013 as cited by Ashman, et al. 2015).

2.1.1.3. Stage 3: Evaluation of Alternatives

After comparing and analyzing according to a unique set of determinant attributes, a consumer gets rid of additional choice and determines the 'choice set' (Ashman, et al. 2015).

2.1.1.4. Stage 4: Purchase

After the evaluation stage, the consumer selects the product he/she intends to purchase.

2.11.5. Stage 5: Post-Purchase Evaluation

During pre-purchase state, the consumer develops expectations about a product. However, during the post-purchase stage, the consumer re-evaluates the product and they develop further expectations about the future levels of satisfaction which depends on perception of the performance of the product.

2.1.2. Technology Acceptance Model (TAM)

Technology Acceptance Model, or TAM, initially explained consumer behavior in adopting new technology and identified crucial factors which affect users' acceptance. The model was later expanded and took cognizance of social influence factors, such as subjective norms, voluntariness and image. (Venkatesh and Davis, 2000)

Davis (1989) adopted the technology acceptance model in explaining the relationship between perception, emotions and innovative technology. Different from theory of planned behavior (TPB), TAM posits that individuals are, sometimes, induced to accept new technology because of work, so they have no control over the use of new technology. The core of TAM is that perceived usefulness and perceived ease of use will influence an individual's acceptance of technology and these two constructs are often used to investigate users' experience of using high tech products/services. Perceived usefulness is defined as 'the degree to which a person believes that using a particular system would enhance his or her job performance' (Davis 1989). It is related to productivity, performance and effectiveness (Davis 1989) and is derived from the benefits of increasing work efficiency and learning performance. Perceived ease of use refers to 'the degree to which using the technology will be free of effort (Davis 1989). Venkatesh (2000) states that perceived ease of use is a pivotal factor that affects users' acceptance and behavioral intention.

2.1.3. Diffusion of Innovations Theory

Diffusion of innovations theory explains how new technological and other advancements spread throughout societies and cultures, from introduction to wider-adoption. The diffusion of innovation theory explains how and why new ideas and practices are adopted (Halton, 2019). According to Rogers (1983), diffusion is the process by which an innovation is communicated through certain channels over time among members of a social system. It is a special type of communication because messages are linked to new ideas. Communication refers to the creation and sharing of information among participants. Innovation, on the other hand can be explained as an idea, practice or object which an individual perceives as being new.

Scholars have noted that an individual's decision about an innovation is not an instantaneous act but a process. Hence, according to the diffusion of theory, the innovation-decision of an individual or a decision-making unit is a process that includes five stages: Knowledge of an innovation, persuasion, decision, implementation and confirmation of decision (Rogers, 1983) is based on:

- Knowledge: At this stage, an individual or a decision-making unit is exposed to the existence of the innovation and gains some understanding of how it functions.
- Persuasion: This happens when an individual or a decision-making unit forms a favourable or unfavourable attitude toward the innovation.
- Decision: This is the stage at which an individual or a decision-making unit engages in activities that lead a choice to adopt or reject the innovation.
- Implementation: At this stage, the individual or a decision-making unit puts an innovation into use.
- Confirmation: At the confirmation stage, an individual or a decision-making unit seeks reinforcement of an innovation-decision already made. However, the individual or decision-making unit may reverse this precious decision if exposed to conflicting messages about the innovation.

This study is anchored on changing technology and increased dynamism in consumer behaviour and preferences, the *diffusion of innovations theory* and the *technology acceptance model*, which captures the changing trends in the economy (new technology) mainly to increase the speed of transactions and security. Changing preferences and the dynamism in consumer behavior is the reason for adopting the rational choice theory: it establishes the assumptions that individuals choose a course of action that is most in line with their personal preferences – sometimes it (preferences) is based on religion, ethics and or the environment.

2.2. Empirical Review

Electronic word mouth, which include online customer reviews have become very important source of information for consumers on the internet (Kostyra, Reiner, Natter & Klapper, 2016). Many researchers have proven that this kind of communication is more effective than the traditional communication approaches (Trusov, Bucklin, Pauwels, 2009). The enables people to build social and business connections, exchange information and collaborate on projects online (Corruthers, 2010).

Consumers adopt online customer reviews as a source guidance when making internet purchase decisions (Jimenez & Mendoza, 2013). Consumers are affected by either positive or negative reviews or even both (Bonabeau, 2004, Kamakura, Basuroy & Boatwright, 2006). Lee, et al. (2013) stated that sharing of information in the online market had positive effect on EWOM activity. It is very effective when the people voluntarily share valuable information with others. Barreto (2014) opined that satisfied consumers willing to promote a brand regardless of how much of the brand they consume.

Over the years, some researchers have been studying the effects of electronic word of mouth on consumer behaviour. The results of the study carried out by Cheung (2010) proved that argument quality of electronic word of

mouth had the strongest direct effect on behavioral intention, while source credibility of electronic word of mouth had the strongest indirect effect. Furthermore, source credibility had the strongest total effect on behavioral intention.

Almana and Mirza (2013) analysed the impact of EWOM on purchase decisions of consumers in Saudi Arabia. The results of the study indicate that E-WOM influences the purchase decision of consumers. Similarly, Nyekwere, Kur and Nywekwere (2013) carried out a study to ascertain the awareness of social media usage in advertising, using survey research design, in Port Harcourt, Nigeria. The results of the study indicate that consumers' patronage of products advertised on social media is, to a large extent, based on referrals/recommendations from trusted sources.

Erkan and Evans (2016) carried out a study on the influence of electronic word of mouth (EWOM) on consumers' online purchase intentions. Multiple linear regression analysis was employed to test each hypothesis. The study empirically tested and compared the influence of friends' recommendations on social media and anonymous reviews on shopping websites in the context of online purchase intention. The researchers analyzed the impacts of these two platforms based on the components of information adoption model (IAM) which were borrowed as information quality, information credibility, information usefulness and information adoption. Survey was conducted and the results revealed that anonymous reviews were more influential on consumer' online purchase intentions than friends' recommendations on social media.

Tien, Rivas and Liao (2018) examined the influence of customer-to-customer electronic word of mouth on purchase intention in social networking sites. Structural equation modelling was used and the study, which was carried out in Taiwan, indicated that E-WOM adaptation has a strong mediating role in the influence of E-WOM credibility and usefulness on consumer purchase intention toward products recommended on social networking sites.

Bankole, Bankole and Brown (2011) examined the factors that affect the acceptance of mobile banking in Nigeria, using the Technology Acceptance Model (TAM), descriptive analysis and regression analysis. The results revealed that perceived ease of use (effort expectancy) positively affects behavioral intention to use mobile banking services. Effort expectancy has a positive correlation with behavioral intention at 0.141, $p < 0.05$ at 18% of the variance in the data. Also, Ionas and Stoica (2014) examined the impact of social media on consumer behavior, using univariate and bivariate analysis. The results revealed that the reasons while most consumers prefer online transactions include: convenience and delivery of products to their homes.

Dost, Ilyas and Rehman (2015) studied the buying behavior of consumers and changes in online buying determined by: trust, convenience, product variety and privacy. The study was carried out in Pakistan. Pearson correlation analysis and Regression analysis were used. The results indicated that convenience and trust greatly and positively affect consumers' decision to buy products online. The findings on the effect of convenience are in agreement with the result of the study by Wang, Ye, Zhang and Nguyen (2005) which indicated that convenience is one of the most impactful factors that affect consumers' willingness to adopt online shopping.

Osho, Onuoha, Ugwu and Falaye (2016) carried out a survey of security awareness of customers and factors that influence acceptance. The results of the study revealed that more than half of the customers (61.4%) on e-commerce sites adopt make use of online platforms because they find it convenient or easy. The next motivating reason for purchasing on e-commerce site was the offer of delivery of purchased items the desired location of the customer at no extra cost. The study also revealed that most consumers prefer payment online. When asked if they were satisfied with the service provided by e-commerce sites, most consumers (51%) reported in the affirmative.

Uzoka, Shemi and Seleka (2017) examined the behavioral factors that affect adoption of e-commerce in developing countries. Factor Analysis by Principal Components and Regression Analysis were used. The results of the study indicated that Internet and complexity, accessibility, management support and perceived advantages have statistically significant influence on the adoption of e-commerce, while perceived disadvantages and other facilitating conditions do not significantly affect the decision to adopt e-commerce. The results agree with the theory of planned behavior. Ifijeh, et al. (2016) asserted that high cost of ICT services and the low internet speed also pose as major barriers to increased internet usage.

3. Methodology and Observing the Working of Typical Consumer Models

The methodology of this study is to review literature - theories and empirical literature. This will be the basis for observing changes in digital economy and how this is shaping consumer reactions. Previously literature on consumer behaviour argued the state of the consumer in the ever-changing trends in the digital economy, amidst growing complexities, insecurities/cybercrimes in the digital age and dynamic structures e-shops, seem to dictate reactions by both agents and consumer preferences. Theories and empirical studies will be the basis of drawing conclusions and recommendations.

Rational Choice Theory is established on the assumption that individuals choose a course of action that is most in line with their personal preferences; this is a utility-based measure. Utility-based theories are structured on random utility theory. The theory is founded on the assumptions that individuals maximized their utility by assigning a value in terms of the level of utility derived from the consumption of the product or service. The probabilities that an individual will choose an alternative j given by explanatory variable x_i is shown as:

$$\Pr(y_i=j|x_i) = \frac{\exp(\beta_{0j} + \beta_{1j}x_i)}{\sum_{j=1}^J \exp(\beta_{0j} + \beta_{1j}x_i)}$$

Where x_i is a $1 \times (k+1)$ matrix of explanatory variables, β_j is a $(k+1)$ dimensional parameter vector, which can be shown in a model, say a model like the multinomial logit which has the same characteristics with the probability that an individual shows reactions in his consumption behaviour – a degree of satisfactory with the digital system or the

environment of an e-shop they choose what software or environment available. Note that an individual consumer reacts to the cost element, type of digital infrastructure, providers of the facility or whether it has socio-religious aspects to demand for halal foods for instance.

A typical discrete choice model like a multinomial logit model, states that the probability that a person chooses a particular alternative, expressed as a fraction of observed variables relates to both the alternative and the individual is central. Alternatives may be binary (1, 0 – availability (1) and not available (0)). It is based on alternatives that are more than two (polychromous) which is a multinomial choice model. This study is examining the literature with many alternatives and wide range of choices to be done.

Estimation of a typical multinomial logit model is achieved using the Maximum Likelihood Estimation (MLE). The probability of a choice if the observations are independent, the likelihood is shown: $L(\theta) = (\beta_1, \dots, \beta_j) = \prod_{i=1}^n Pr$ Where θ is the model parameter, β measurement parameter to the j th option. To measure any change in the probability, it is dependent on observing the probability equation $Pr(y_i=j|x_i)$. According to Long (1997), the value of the marginal effects depends on the values of the predictors and the coefficient of each outcome.

The objective of the paper is to draws a theoretical base for which consumer behavior can be measured in the changing trends in the digitalized economy.

4. Discussions: Trends in Literature and the Digital Economy

The various literature reviewed in this study indicated that in this digital age, the determinants of consumer behaviour is shown in the consumer's preferences which is influenced by diverse innovations in the electronic consumptions achieved through various internet platforms. The final model on consumer behaviour, the Engel, Blackwell & Miniard model, provided a comprehensive discussion on the various stages on consumer behaviour, and more specifically the impact of influences on the different stages of the decision-making process. The most important aspect of the consumer is the decision process. The processes amongst others, depended on ideas about the goods and preferences. Ideas may be formed based on various platforms and environment on an online information, especially for online purchases.

Hal Varian (2004) opined that the first hurdle for any studies in the Digital economy is first to 'investigate economic models of networks, this will help us understand the world of bits' secondly is, 'switching costs and thirdly the management of information goods. 'The cost for producing bits (storage of information) is not expensive and can be distributed in a speed of light when compared with the cost of storage and distribution of physical goods, which is expensive. The cost of bits, switching cost is all considered less expensive and can be attained in minutes unlike the management of goods that require storage, transport cost and other administrative charges. The most important considerations are that the primary concerns of innovations in the digital economy must aim first in attaining shared value – the benefits of innovations in the digital age should affect social needs of consumers, and secondly, it must enlarge the space for consumption and idea-sharing for economic development – increase in economic activities through increased productivity and availability of goods and services.

5. Conclusion and Recommendations

The revolution of the digital economy is not only to evolve quick responses to consumption behaviour, but to introduce a beneficial mutuality in the interactions which might result in greater opportunities of a global market place, accessible to the various definitions of the poor. In 1933, Franklin D. Roosevelt New Deal was: that the series of public projects, financial reforms and regulations would offer relief for the poor and the unemployed. The digital economy had introduced 'ease and access' to the global market place with its highly volatile stakeholders: high risks in networks and excludability for environments which cannot afford the so-called high broadband in internet connectivity.

This study recommends for better utilization of information, for both users and creators to enhanced socioeconomic goals – greater human interaction for cultures: foods, way of life, common technologies. It should also result to greater space for higher innovations, responsible business, and risk reduction in the digital economy. Also, that Regulatory authorities must effectively create an environment for achieving the goals for 'overtaking' dependency theories, convergence and inclusive business for which Roosevelt thought could be achieved through the ages, including the digital age and the basis for further studies - given the fundamental theories and models.

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