Surviving in the digital era – business models of digital enterprises in a developing economy

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Abstract

Purpose – This study aims to explore the business models and strategies of digital enterprises in a developing economy context to understand the nature of their operations, as well as their survival tactics.

Design/methodology/approach – A review of literature on digital enterprise models led to the adaptation of a 16 business model archetype for analyzing digital enterprises in Ghana. Using a critical realism perspective, survey data from a sample of 91 digital enterprises were used for the study.

Findings – The findings suggest that among human, physical and intangible assets, financial assets were the least used assets in the operations of the digital enterprises. This stems from the fact that the online financial business sector is still in its nascent stages in most developing economies. The findings further suggest that all digital enterprises leverage on accessible and low-cost social networking services as part of their operations and use them as an avenue to engage with their target customers.

Research limitations/implications – The findings from this study provide guidelines to entrepreneurs who wish to venture into the digital ecosystem of Ghana, particularly with regard to the economic, financial and technological factors that enable digital enterprises to survive in the competitive digital economy.

Practical implications – The findings suggest that it is important for governments to realize that there is an increasing rise in digital enterprises in the developing economies and these enterprises are creating jobs and providing business solutions locally that would hitherto be sought from developed economies. There is therefore the need for the requisite legal infrastructure and financial support that will cushion these enterprises from the fierce competitions that stagnate their growth.

Originality/value – The study provides a mapping of the digital business models of Ghanaian digital enterprises. This knowledge is arguably the first of its kind in the context of a developing economy. Hence, it serves as a stepping-stone for future studies to explore other areas in the digital economy, especially from a developing economy perspective.

Keywords Digital economy, Developing economies, Digital business models, Digital business strategy, Digital enterprises

1. Introduction

The economic contributions from enterprises in general, especially those situated in developing economies, have been well established. However, these firms tend to face several challenges, which stifle their formation, growth and sustainability. The 2007 Global Entrepreneurship Monitor asserts that most new enterprises do not survive beyond 42 months after their establishment (Allen et al., 2007). A phenomenon that is also prevalent in most developing economies. Similarly, a follow up report in 2012 further indicated that only 38 per cent of enterprises survive beyond the 42-month survival threshold in Ghana, whereas only 31 per cent survive in Uganda. In general, only 13 per cent of enterprises survive beyond 42 months after inception in Africa. Therefore, the report concludes that
Africa has a higher business discontinuation rate of 16 per cent when compared with that of the European Union and the USA who have 4 per cent in total. The causes of this phenomenon have been attributed to the nature of ownership of these enterprises, managers with limited formal education and managers with limited access to market information (Mensah, 2004). Politicians, academics and other agencies have made calls for governments in Africa to avert this trend of business discontinuation and under performance. The foregoing discussions call for a new path toward the survival of these enterprises.

Digital technologies tend to provide the antidote to this phenomenon by providing an environment for the upsurge of a new group of enterprises who are driven or enabled by these technologies (Chauhan et al., 2018). These are the digital enterprises. Rouse (2011) defines a digital enterprise as “an organization that uses technology as a competitive advantage in its internal and external operations.” Even though managers of digital enterprises such as Google, Facebook and Apple have been successful in using these digital technologies, others are still struggling to understand the innovation logic which fundamentally underpins these firms (Remane et al., 2017). Yet, these new digital enterprises have been able to change the balance of power, especially for sectors such as retail and the media landscape (Veit et al., 2014).

However, research into the business models of such surviving digital enterprises are just at the nascent stages (Brownlow et al., 2015; Remane et al., 2017). This is because these firms are new and are not restricted to using the legacy systems of established firms built over a period. They rather adopt new concepts such as social media, smartphones or sensors, among other new technologies designed to exploit their markets.

The underpinning question of this research therefore is, “What are the business models of digital enterprises in Ghana and what makes them survive?” Paradoxically extant research on digital business models has arguably been limited to countries such as Spain (Águila et al., 2003) and Indonesia (Aryanto and Chrismastuti, 2011). Hence, a research that maps out the business models of digital enterprises in Ghana will be opportune and a good step toward modeling the digital economy of Ghana, by identifying the dominant business strategies and models in a developing economy context. Ghana has been selected to be the site for this research because of the presence of digital enterprises and also the traces of relatively scarce resources as exhibited by other developing countries (Effah, 2012; Boateng et al., 2017).

2. Review of digital enterprises literature

This section reviews literature pertaining to digital enterprises. A definition of digital enterprises will be provided, which will form the basis for categorizing the various types of digital enterprises. The review will lead to the development of a research framework, which was used in the data collection and analysis to generate a model for digital enterprises in Ghana.

With the omnipresence of the internet and digital technologies such as cloud computing, virtual reality, the Internet of Things and mobile devices, there has been a proliferation of digital ventures, also referred to as digital startups. These are blossoming enterprises or new organizations established in an uncertain and volatile environment with the intent of bringing new opportunities to the marketplace. Even though it has been asserted that the technological landscape is volatile, setting up an enterprise, which uses digital technologies, allows for enormous benefits such as reduced transaction costs and increased efficiency (Lätti, 2016). The digital ecosystem allows businesses to benefit from an array of components including the Internet of networks, people, things, machines and computers that are used for carrying out sophisticated operations, such as data mining and advanced data analytics. Again, digital technologies allow small companies to manage their
international operations more efficiently; while the transportation of goods become cheaper, more frequent and more reliable. Human capital has also become more mobile with capabilities that are more elaborate.

For some decades, there has been a global shift from the traditional brick and mortar economy to a digital era accelerated by Information and Communication Technologies (that is, Digital Technologies). This new economy has created an ecosystem where new business models and processes such as e-businesses can thrive (Weill and Woerner, 2015). The active participation of these newly created enterprises in dynamic economies coupled with the rapid explosion of the Internet era which has given birth to the digital economy has attracted significant academic interest (Acs and Mueller, 2008). The “digital economy” is viewed as a vague concept surrounding a set of industries, a set of outputs (products and services), a set of inputs, production and distribution platforms that are used at varying intensities across the global economy as a whole (Coyle, 1999). This study adopts the definition of Bukht and Heeks (2017) which asserts that the digital economy is “that part of economic output derived solely or primarily from digital technologies with a business model based on digital goods or services”. Using this definition in this paper provides the flexibility of incorporating all digital business models, as well as digital innovations.

Enterprises that exist in the digital economy tend to have business models where changes in the digital technologies trigger fundamental changes in the way the firm’s business activities are carried out, as well as how revenues are generated (Veit et al., 2014). Rouse (2011) defines a digital enterprise as “an organization that uses technology as a competitive advantage in its internal and external operations.” A digital enterprise or firm must have a business model that primarily utilizes digital technologies. Thus, the existence of the digital enterprise is dependent upon the availability of digital technologies. Arguably, the term “digital enterprise” has evolved over the years to include all business activities that incorporate digital technologies in their operations. This includes, Amazon.com, which utilizes the internet for the buying and selling of goods and Uber, which also utilizes the internet technology for ride-sharing activities. This study therefore adopts the definition provided by Rouse (2011).

### 2.1 Digital business model types

A business model according to Veit et al. (2014) is said to be digital when the changes in digital technologies trigger fundamental changes in the mode of operation of the business and how revenues are generated. Thus, the various changes that take place in the business are influenced primarily by information technology, including changes in the business network and the business scope. In this study, a review of literature was carried out to unearth the various perspectives and models used in the study of digital enterprises. Several insights were obtained from the literature reviewed. For instance, Zolnowski et al. (2016) investigated the effects of data-driven innovations on the service business models of 20 international companies and identified four different patterns, which include cooperative value innovation, customer-centric value innovation, cooperative productivity improvement and company-centric productivity improvement. Lasch et al. (2007) also studied the growth determinants of ICT startups in France and discovered that human capital and working experience have no significant impact on the success of ICT startups. However, it is worth noting that most societies and economies have been transformed and changed through advances in digital technologies (Lucas et al., 2013). For instance, mobile devices such as tablets, mobile phones, among others have become readily accessible, always available, and connected to the internet. Digital enterprises therefore need to leverage these devices and technologies to compete and survive in the global economy. El Sawy and Pereira (2013) assert that digital businesses must belong to the right digital ecosystems to be considered as being in a strong competitively advantageous position, even though it is sometimes short-lived because of the dynamic nature of the digital ecosystem.
3. Research framework

Spieth et al. (2014) assert that research on business models should be underpinned by three objectives: explaining the business, running the business and developing the business. Based on this premise, this study carried out the mapping out of the digital enterprises in Ghana. Studies on business models have used frameworks of previous studies and this current study is not an exception. Weill et al. (2005) and Osterwalder and Pigneur (2010) are a few of the authors who have developed typologies for modeling digital enterprises. Weill et al. (2005) developed a typology, which has already proven to be useful and was applied to analyze the performance of the top 1,000 enterprises in the USA. Remane et al. (2016) applied the typology developed by Weill et al. (2005) to investigate the changes in the Digital Business Model types of digital enterprises in the mobility sector. The typology classifies the enterprises based on the rights being sold and also the types of assets involved in the business. The rights being sold are categorized into:

- A creator who sells the ownership of an asset that has significantly been transformed.
- A distributor who trades in the ownership of an asset with limited transformation.
- A broker who matches buyers and sellers of assets.
- A landlord who grants temporary use of the asset.

On the other hand, the types of assets involved are also grouped into:

- financial assets, including cash, stock, bonds and insurance policies, as well as other assets that give their owners rights to potential future cash flows;
- physical assets, including durable items such as houses, computers and machine tools, as well as nondurable items such as food, clothing, and paper;
- intangible assets, including legally protected intellectual property such as patents, copyrights and trademarks, as well as other intangible assets; and
- human assets, including people’s time and effort, which for legal reasons can only be combined with the rights-selling dimensions – a landlord and a broker.

In total, 16 basic business model archetypes evolve by combining the two dimensions. This 16 business model archetype is adopted in this study to analyze the business models of digital enterprises in Ghana. Remane et al. (2016) argue that new digital business model types have evolved in recent years which are significantly different from those stemming from the 1990s and early 2000s.

4. Research methodology

The conduct of this study was therefore guided by the Critical Realism Paradigm, which offers an exciting view in moving the attention of researchers towards real-world problems and their underlying causes and also away from a focus on data and methods of analysis (Mingers et al., 2013). As such, it offers a robust framework for the use of a variety of methods to gain a better understanding of the meaning and significance of information systems in the contemporary world. The study adopted the exploratory survey design. Survey research, particularly provides a quantitative or a numeric description of trends, attitudes or opinions of a population by studying a sample (Neuman, 2011). The researcher is therefore able to make claims and generalize about a phenomenon from the results of a selected sample. The justification for selecting a quantitative approach as against a qualitative or mixed approach is that aside from being best situated for this study, it also provides for the unearthing of definite evidence rather than just providing information (Zikmund, 2003).
The objective of this study was to map out the digital enterprises in Ghana based on the business models that have evolved from the application of innovative digital technologies. However, there is seemingly the lack of a single database that provides a list of digital enterprises in Ghana. This posed a major challenge in identifying all the digital enterprises in Ghana. The Google search engine and referrals from known digital enterprises were therefore used in identifying the enterprises for data collection. Again, incubator projects designed for information technology startups were also contacted for a list of their graduates who have set up digital enterprises. For instance, the Meltwater Entrepreneurial School of Technology which trains and mentors tech-entrepreneurs and African startups from Ghana and Nigeria (The Meltwater Entrepreneurial School of Technology (MEST), 2016) were consulted for information about their graduates and other digital startups that they had worked with. The study also depended on data from CrunchBase which according to Marra et al. (2015) is the world’s most comprehensive database for technology startups. Several researchers have used data from CrunchBase in analyzing digital enterprises (Marra et al., 2015; Remane et al., 2016; Yu and Perotti, 2015).

The unit of analysis was the digital enterprises operating in Ghana. Questionnaires for data collection were administered to the Operations Managers and the Chief Executive Officers representing the selected digital enterprises for the study. These top-level management staff are seen to be better positioned to provide information concerning the strategies of the enterprises. The questionnaires were posted or mailed to the respondents for self-administration. The survey data were analyzed using descriptive statistics.

5. Analysis and discussion of findings

The statistical analysis of the survey data are presented in this section. The enterprises’ revenue models served as a guide in categorizing their business models, an analytical schema adopted by Weill et al. (2005). We conjectured that many companies would have more than one business model, hence such models were classified separately for each revenue stream the company reported. Nonetheless, it is worthy to note that a company with multiple revenue streams did not necessarily have multiple business models. In addition, like the study of Remane et al. (2016), an established coding scheme from Weill et al. (2005) was used to categorize the business models of the enterprises identified for the study. A total of 91 digital enterprises were selected and reviewed in this study.

5.1 Dominant features of digital enterprises in Ghana

The 91 digital enterprises sampled for the study were initially profiled according to their country of origin, mode of operation, year of establishment, primary ownership type, founders and number of employees. It was discovered that most of the digital enterprises have their roots in Ghana (91.2 per cent). Thus, they primarily belong to the natives of Ghana. In all, 3.3 per cent originated from the USA while others originated from the UK (2.2 per cent), Nigeria (2.2 per cent) and South Africa (1.1 per cent). The proliferation of foreign digital enterprises in Ghana can be attributed to the various trade agreements the Government of Ghana has signed with economic communities, which provide a business-friendly environment for foreign businesses to operate. Some of such agreements have been made with the Economic Community of West African States (ECOWAS), the Economic Partnership Agreement (EPA) with the European Union and the African Growth and Opportunity Act (AGOA) with the USA (Hulse, 2018). In addition, majority of the digital enterprises were established in 2015 (22 per cent). This is closely followed by those established in 2016 (20.9 per cent), with the oldest enterprises being established in the year 2000 (2.2 per cent). The distribution in the establishment of the enterprises can be ascribed to the nascent nature of information technology in the developing economy, in terms of adoption and integration (Figure 1).
The study further delineates the ownership types of the digital enterprises sampled. It emerged that majority of the digital enterprises are partnerships (39.6 per cent), followed by sole proprietorship (38.5 per cent), private limited liability companies (19.8 per cent) and lastly public limited liability companies (2.2 per cent). Again, with respect to the number of founders of the enterprises, the analysis of the data indicated that most of the enterprises had two to four individuals (61.5 per cent) as their founders. Those with individual founders (38.5 per cent) followed this; however, there were enterprises which were founded by 2 to 4 individuals (61.5 per cent). This phenomenon is not different from the globally influential digital enterprises such as Facebook, Google, Amazon, Spotify, Airbnb and Uber – who started as digital ventures from garages, dormitories or on dining room tables by a student, entrepreneur or a small group of people (Zaheer et al., 2018).

Next, the number of employees in these enterprises was assessed as shown in Table I. It was discovered that majority of the digital enterprises (86.8 per cent) had less than 10 employees. Whereas, 12.1 per cent employed 10 to 20 workers and 1.1 per cent employed 21 to 50 workers, whereas none of the enterprises assessed had more than 50 employees. In a study on the critical success factors for digital enterprises conducted by Zaheer et al. (2018), it was discovered that the “lean start-up” was one of the determinant strategies for the survival of digital enterprises. Thus, the fewer employees help to improve the efficiency of operations of new firms. On the other hand, governments are encouraged to provide the needed support to these digital enterprises to enable them expand their capacities to employ more people.

The primary business activities of the digital enterprises sampled for the study were subsequently analyzed. In assessing the industry or primary activity of the enterprises, majority of the digital enterprises (26.4 per cent) were found to be in electronic commerce, digital marketing and advertising industry. This was followed by those in the administration,
professional and technical services sector (16.5 per cent), as well as the arts, entertainment and recreation industry and the health, hospitality and food services industry (both representing 12.1 per cent). Enterprises in the educational services and software and cloud solutions industry constituted 8.8 per cent each. 6.6 per cent of the enterprises were in the finance and insurance industry and 3.3 per cent operated in the agriculture, forestry and fishing industry. While 5.5 per cent belonged to other industries. The dominance of enterprises in the e-commerce, digital marketing and advertising industry can be attributed to the support from the digital ecosystem which allows businesses to benefit from an array of components, including the Internet, networks, people, things, machines and computers, all of which are used for carrying out sophisticated operations such as advanced data analytics and marketing (Lätti, 2016). Figure 2 provides an elaboration on the industry distribution of the digital businesses in Ghana.

More so, majority of the enterprises (76.9 per cent) indicated that they have never participated in any accelerator or incubator programs. This is contrary to the 23.1 per cent who had previously participated in accelerator or incubator programs. This smaller number may be because of the fewer number of incubator and accelerator programs available, especially in developing economies. The immense role of these programs for the digital enterprises cannot be overemphasized. Their influence results in startups gaining access to new knowledge, expertise, networks and cost-effective access to cutting-edge research (Barrow, 2001).

5.2 Digital business models of Ghanaian digital enterprises

As stated previously, the study adopted the business model typology, proposed and used by Weill et al. (2005) to classify the revenue streams of the top 1000 enterprises in the US economy. The digital enterprises were classified based on two dimensions – Assets involved and Rights being sold. The Table II presents a cross-tabulation that highlights the 16 business model classifications. To address the research objectives, a cross-tabulation analysis was done per the two dimensions, to map out the digital enterprises in Ghana based on their business models.

Majority of the digital enterprises in Ghana sold creator rights representing 31 per cent, as shown in Table II. Most of the enterprises used intangible assets such as brand image, intellectual property and goodwill, including enterprises like TinyDavid Limited and Vokacom Enterprise that are the developers of the digital addressing systems “Snoocode”

![Figure 2 Industry of digital businesses in Ghana](image)
and “AsaaseGPS”, respectively. Also, other technological tools such as social media and cloud computing form part of the intangible assets employed by these enterprises to achieve their business objectives. The dominance of intangible assets possesses some logical consistency given that it is peculiar to most enterprises operating purely online business models.

The enterprises, which operated using physical assets, were made up of 37.5 per cent of the creator rights sellers and these assets include laptops, mobile devices, clothing and others. However, financial assets were found to be the least used by the digital enterprises in this study probably because these digital enterprises face significant challenges in gaining the needed acceptance and trust in a developing economy context such as Ghana. Fido Money Lending Limited (2018) is one of the few licensed financial institutions in Ghana. It is a purely online enterprise that provides fast and easy short-term loans using a mobile app. Nonetheless, none of the enterprises among the Creator right sellers used human assets because it is unlawful in Ghana to create a human in any form (this is added for logical reasons).

From the cross-tabulation above, distributors ranked second (28.7 per cent) in terms of the rights being sold by the enterprises. Among the distributor enterprises, majority use physical assets (48.6 per cent). These technology-driven enterprises offer mainly ecommerce, retail and advertising services to their target customers. Saya, Zished, Ahonya and OMG Digital are prime examples of such digital enterprises in Ghana. However, because of the digital nature of their business operations, they also employ some intangible assets (35.1 per cent). Again, the findings reveal a low patronage for financial assets and there were no distributors of humans involved for the same legal reason as that of creators of humans.

The third rights sold by the digital enterprises is the Landlord. These enterprises sell the rights to use but not to own the assets for a specified period. Owing to the online nature of these enterprises, they tend to sell rights to more intangible assets as intellectual landlords (40.6 per cent). These intellectual landlords offer online services on subscription bases. Rappa (2004) presents a similar business model, which he classified as the subscription model, where users are charged on a periodic basis be it daily, monthly, or annual fees to subscribe to a service. Examples of such digital enterprises include Devless, SMSGH and Asoriba among others. The findings also show that the human landlords (contractors)

<table>
<thead>
<tr>
<th>Table II</th>
<th>Cross-tabulation of the 16 components business model</th>
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<tbody>
<tr>
<td>Basic business model archetype</td>
<td>Financial</td>
</tr>
<tr>
<td>Creator (ownership of asset with significant transformation)</td>
<td>Entrepreneur (12.5%; 5)</td>
</tr>
<tr>
<td>Distributor (ownership of asset with limited transformation)</td>
<td>Financial Trader (16.2%; 6)</td>
</tr>
<tr>
<td>Landlord (use of asset)</td>
<td>Financial Landlord (9.4%; 3)</td>
</tr>
<tr>
<td>Broker (matching of buyer and seller)</td>
<td>Financial Broker (5%; 1)</td>
</tr>
<tr>
<td>Total by Asset Type</td>
<td>(11.6%; 15)</td>
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Notes: *These models are illegal in Ghana because they involve selling human beings. They are however included for logical completeness.
formed 37.5 per cent of the enterprises that sold the rights to use assets. In this case, the assets are people who perform services for interested parties, but are not owned or directly employed by the contracting firm. These enterprises outsource services such as cleaning, delivery, technical support services among others. Examples of these enterprises include Farmerline, eCoach Solutions, Ansbyte Solutions and others, which employ few physical (12.5 per cent) and financial (9.4 per cent) assets.

The final and the least category among the business models are the Broker enterprises (15.5 per cent). These enterprises do not sell assets or rights directly, but rather serve as matchmakers between buyers and sellers. Rust and Hall (2003) suggest that matchmakers might be “more appropriate for trading standardized commodities and assets for which the volume is sufficiently large to produce ‘thick’ and ‘active’ markets.” Tonaton, OLX Ghana and SellGh are some popular examples of digital enterprises involved in matchmaking services. The human resource brokers in this category ranked highest (40 per cent) and this is because of the increasing number of recruitment and job seeking services offered in the digital economy space. Examples of such digital enterprises include AfricanJober, Jobberman, Mo’Go and JobHouse Ghana. The internet protocol brokers representing 30 per cent, who utilize intangible assets to match buyers and sellers online, follow these.

Nonetheless, the above discussion is not meant to be comprehensive; instead, it makes for a clear and simple categorization of the Digital enterprises in Ghana based on the adopted 16-factor business model.

5.3 Critical enablers of digital enterprises in Ghana

This section discusses the critical survival factors for digital enterprises in Ghana. The factors discussed include economic factors, technological factors and social networking channels. These are elaborated in the ensuing sections.

5.3.1 Economic factors that enable the survival of digital enterprises. This section takes a closer look at the financial factors that facilitate the operations of emerging digital enterprises in Ghana. Hudson and Khazragui (2013) in their study indicated that enterprises in the early stages of development encounter the financial gap, which limits their ability to both innovate and commercialize their products. This phenomenon has been dubbed “The Valley of Death”. Figure 3 displays the sources of funding for the digital enterprises and it was revealed that the major source of funding for almost all the digital enterprises studied was from Own/Family/Friends sources (97.8 per cent).

![Figure 3: Digital enterprises' sources of funding](attachment://figure3.png)
This finding is corroborated in literature (Alden, 2011) where it is asserted that most new enterprises, especially digital enterprises, rely heavily on personal savings and support from family and/or friends because of their limited debt capacity – the inability of the digital enterprises to repay the loans. This can be attributed to the uncertainties in the digital economy where the banks and investors find it very risky to offer support; considering the low survival rate where most new enterprises do not survive beyond 42 months after their establishment (Allen et al., 2007). The only available source of funding is therefore personal savings and family and/or friends support.

Regarding equity, the key investors for digital enterprises are angel investors and venture capitalists. Angel investors are usually wealthy individuals who are willing to invest in small projects that fit with their intrinsic values and agenda and as such only require a proven establishment in the market despite its limited history. Whereas, Jozić (2011) posited that venture capital funds are mostly focused on high-risk projects with potentially high return on investments, the angel investors seek to support young, creative and innovative people who want to start a business. Studies portray venture capitalists as valuable contributors in both filling the financial gap and providing value-added services like financial, technological, managerial support and networks (Bertoni et al., 2011). The findings of the study reveal that few digital enterprises benefit from equity financing (19.8 per cent for Angel Investors and 18.7 per cent for Venture capitalists).

Bank loans are probably one of the oldest formal sources of financial support for many entrepreneurs especially in developing economies. However, Åstebro and Bernhardt (2003) have opined that the unconditional correlation between bank loan and sustainability is negative. The findings from the study show that digital enterprises in Ghana do not depend on bank loans except for 8.8 per cent. Calopa et al. (2014) asserted that most digital enterprises seek to avoid bank loans as they are usually related to complex procedures and are given based on the firm’s credit history and property which most digital enterprises lack.

In recent times, crowd funding has become an alternative source of funding for digital enterprises especially those who lack access to traditional sources of funding. According to Ordanini (2009), the concept of crowd funding is a collective effort of various individuals, who come together to “pool” funds, to support new potential projects, organizations and businesses. However, crowd funding thrives on some level of trust and confidence in the vision of the project up for support. For this reason, the findings suggest crowd funding as the least source of funding for digital enterprises in Ghana. For crowd funding to be a viable alternative to traditional sources of funding, there needs to be a trustworthy online community (Belleflamme et al., 2010). This is however not so for the Ghanaian online community, hence the low record for crowd funding.

5.3.2 Technological factors that enable the survival of digital enterprises. The potential of the digital economy has been expanded substantially by new generation technologies that are opening the doors for the rapid growth of digital enterprises globally. This study focused on three core technologies that are enhancing the growth of many online enterprises namely: social networks, cloud computing and Big Data analytics. Figure 4 shows the cumulative results of the digital enterprises with respect to the technologies they employ in their business operations.

The results show that all the digital enterprises studied are leveraging on social networking channels as an enabling platform for creating value and engaging with their customers. Again, 34 per cent of the enterprises use cloud computing services, while very few (24.2 per cent) of them are using Big Data analytics to spiral growth in their operations. The findings indicate that social networking is the leading technological enabler (100 per cent) for digital enterprises in Ghana. In congruence with our findings, Lewis et al. (2012) posited that the development of social networking is perhaps one of the greatest events in recent years as it represents a new means of communication, interaction and organization in contemporary societies. Understanding the role of social networking is critical because of
advances in Web 2.0 that have promoted greater interaction between people and organizations (Pacheco et al., 2010). Nascimento and da-Silveira (2016) in a social media mapping study found that social media is utilized in content creation for service and innovation improvement by businesses. Some social networking sites used by these enterprises include Facebook, Twitter, LinkedIn, Instagram and Google+ (Figure 5).

Cloud Computing according to Yamin (2013) presents the opportunity for new businesses with very little capital to have access to data storage, software, infrastructure, and services. Other studies found that cloud computing although slow in adoption will significantly change the landscape of the affordability of computing power and infrastructure of the third world nations (Abubakar et al., 2014). There is a gradual widespread adoption of cloud services by digital enterprises in developing economies because it provides scalable and flexible infrastructure and software for businesses at competitive prices (Allan, 2012). Hence, it was expected that some digital enterprises in Ghana (34 per cent) will be using cloud computing services. Nonetheless, the rate of utilization is not as much as social networking perhaps because of data integrity, confidentiality and security issues.

Figure 5 Social networking channels enabling digital enterprises in Ghana

![Social networking channels enabling digital enterprises in Ghana](image-url)
Finally, within the innovation landscape, Big Data analytics technologies have been recognized as the “next big thing for innovation” (i.e., a potential source of business value and competitive advantage). The findings show that Big Data analytics was the least (24.2 per cent) used technological innovation among the digital enterprises in Ghana. The adoption of Big Data technologies is not that widespread in developing economies perhaps because of the limited expertise in data mining (including other related skills) and the absence of efficient computational algorithms for handling the volume, variety and velocity of data. This finding corroborates a study by Villars et al. (2011) who discovered that enterprises are unable to run good analysis on data without high computing power since the process tends to be slow and laborious. In the long term, it is hoped that the digital enterprises in Ghana will identify the opportunities presented by Big Data technologies and leverage them for sustainable competitive advantage, just like social networking.

5.3.3 Social networking channels that enable the survival of digital enterprises. With the proliferation of social networking sites, digital enterprises and small companies have improved collaboration within their operations (Krell, 2011), as well as customer engagement. With regard to the outcome of the analysis, social media platforms used by digital enterprises in Ghana, as shown in Figure 5, indicate that the dominant social networking platform used is Facebook (1st), followed by Twitter (2nd), LinkedIn (3rd) and was Instagram (4th).

The finding indicates that the nature of social commerce activities undertaken by the digital enterprises in Ghana, hinges on the use of Facebook and Twitter predominantly. Even though LinkedIn is highly used by management and employees to create and promote professional networks, Facebook dominates their business operations. As compared to the traditional way of operations, these digital enterprises considered social media platforms to be effective means through which their products could be marketed and services rendered. The finding is in line with a study by Needleman (2010) which found that Facebook has a primary potential in being the most popular social networking site, as more companies were deploying it in their marketing and business strategies. It also confirms the findings of Zhao et al. (2013) who argued that the emergence of social networking sites has changed the focus of doing business in most developing economies.

6. Conclusion and recommendations

The study sought to map out digital enterprises in Ghana based on their business models and to explore some economic and technological enablers that facilitate their growth and development.

To begin, the study contributes to knowledge by providing a mapping review of the digital business models of Ghanaian digital enterprises. This knowledge is arguably the first of its kind in the context of a developing economy and hence provides a stepping-stone for future studies to explore other areas in the digital economy, especially in developing economy contexts.

In addition, the study draws to the attention of current and hopeful entrepreneurs, the fierce competition in the digital economy, as well as the opportunities available. It provides awareness to entrepreneurs who wish to venture into the digital ecosystem of Ghana, on the economic, financial and technological factors that enable the survival of digital enterprises in the digital economy. In addition, it provides potential investors in the digital economy with information on the dominance of online matchmakers and application developers, as well as the paucity of online financial service providers in this developing economy.

Nonetheless, in terms of policy, it is important for governments to realize that there is an increasing rise in digital enterprises in developing economies, these enterprises are creating jobs and providing business solutions locally that would hitherto be sought from developed economies. There is, therefore, the need for some legal frameworks to be established to cushion these enterprises from the fierce competition that stagnates their
growth. Furthermore, infrastructure and financial support should be given to these enterprises to enable them develop and employ more people. Finally, more accelerator and incubator programs should be setup to provide exposure for the innovative ideas of these enterprises and enable them to attract funding from alternative sources.

References


Lätter, R. (2016), Value Creation and Strategy in the Hyperconnected World the Current Wave of Digitalization Explained through the Study of Finnish Forerunner Companies, Aalto University, Finland.


Zikmund, W.G. (2003), Business Research Methods, Thomson and South-Western, Mason, OH.


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