# Emerging Digital Business Models in Developing Economies

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# Emerging Digital Business Models in Developing Economies: the case of Cameroon

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Digital business models in developing economies, such as Cameroon, are still at an early stage and in desperate need of institutional attention in order to develop the necessary know-how, skills and networks for confident and sustained value creation and capture.

## Key Points

- We develop and explore a conceptual framework for analysing the digital business models for micro-businesses in developing country setting.
- Technology, environment and organisational contexts influence the entry behaviour and post-entry strategic decisions of micro-digital entrepreneurs.
- Qualitative case studies developed in Cameroon reveal the digital value proposition, network architecture and digital value capture of emerging digital business models.
- Digital entrepreneurs require business knowledge/skills and institutional support to create a network infrastructure to effectively generate and capture revenue.

**Keywords:** Business model, digital businesses, network architecture, ICTs, Cameroon

## Introduction

In 2012, the African Development Bank (Yonazi *et al*., 2013) released a comprehensive report that highlights the rapid growth of home-grown technology hubs in Africa, which are becoming the primary drivers of entrepreneurship across the continent. Developments in the diffusion and use of information and communication technologies (ICTs) is creating opportunities for creating digital businesses and boosting economic development (Berman, 2012; Javalgi *et al.,* 2012; Mbalyohere and Boojihawon, 2014). Despite evidence of increases in the number of small digital businesses, compared to Western economies, "academic enquiry to date has merely skimmed the surface as to how small internet firms in poorly resourced and institutionally weak environments develop" (Javalgi *et al*., 2012, p. 743). This paper contributes to filling this gap by uncovering the nature of digital business models in Cameroon, a low middle income developing country. A developing country context is thus significant because, although existing research explores the adaptation and use of ICTs to improve work processes and performance in existing small businesses (e.g. Kyobe, 2004; Mansfield and Fourie, 2004; Okolo and Obidigbo, 2014), research in more advanced and emerging economies suggests that digital businesses are different and go beyond simply adopting and using ICTs.

For digital businesses, ICT and digital technology is both the trigger and enabler of strategy formulation and implementation, as well as the architecture within which the business is operated, and value created and captured (Javalgi *et al*., 2012; Mansfield and Fourie, 2004;

Onetti *et al*., 2012). Digital businesses range from those that provide e-commerce services (Javalgi et al., 2012), produce servitized products such as e-books (Vendrell-Herrero and Wilson, 2016), develop and commercialise hardware, software and digital applications (Hair et al., 2012) This suggests we need to look more closely at digital business models in developing economies, to better understand the significant entrepreneurial and business patterns, processes, actions and behaviour that characterise the growing number of digital business models. Two central questions follow: (1) *What is the nature of digital business models? (2) How do contextual factors influence the design and implementation of digital business models in a developing country context?*

Our objective in the current paper is to use the business model literature in order to analyse case studies of small digital businesses, and to uncover the entry choices and post-entry strategic decisions that digital entrepreneurs make when developing and operating their digital business models. This is because past decisions (entry choices) can facilitate or constrain future changes (post-entry decisions) in a business model as a result of contextual factors (e.g. increase in internet penetration rate and developments in digital technology) and rising consumer demand for online services (DaSilva & Trkman, 2014). We focus on smaller businesses to illustrate the growing efforts by entrepreneurs in developing countries to exploit home-grown digital solutions to societal problems (e.g. access to basic goods and services) through digital business models (Javalgi *et al*., 2012; Ngoasong *et al*., 2015). By providing "a useful framework for describing the way a firm delivers its products and services to customers and the way it makes money", (Richardson, 2008, p. 135), the business model is now recognised as a useful conceptual lens (DaSilva & Trkman, 2014). A business model is also an essential tool for use by any entrepreneur to create and commercialise products or services, to co-ordinate its activities and to capture revenue and profits (Osterwalder and Pigneur, 2010; Schlie et al., 2011).

Empirically, we draw on Cameroon as our research context, from which we content-analysed interviews with entrepreneurs and owner-managers (Kimbu and Ngoasong, 2016), leading to the development of 12 mini-case studies of digital business models. Thus, in addition to applying the business model framework to uncover the nature of digital business models in under-researched settings, this paper also contributes to strategic change literature by showing the effects of contextual factors (technology, environment and organisational) (Gomes et al., 2012; Rashidirad *et al*., 2014; Vendrell-Herrero et al., In Press) in the success, or otherwise, of "the strategies, structures, and decision-making processes" (Brady and Saranga, 2013, p. 340) that micro-digital businesses use to attempt to create and capture revenue (Schlie *et al*., 2011). The study is organised as follows. A conceptual framework is presented followed by the research methods. The findings, discussion and conclusion are then presented.

## Digital Business Models: a conceptual framework

Our theoretical base builds on the emerging literature on digital entrepreneurship and business models. Digital entrepreneurship is a term that is used to describe the practice of pursuing "new venture opportunities presented by new media and internet technologies" (Davidson and Vaast, 2010, p. 8). It is similar to traditional entrepreneurship with regard to identifying and pursuing entrepreneurial opportunities for generating a return (financial and social), and being written into business activities by creating new enterprises or commercialising innovations (Davidson and Vaast, 2010). The main difference arises because in digital entrepreneurship "some or all of the entrepreneurial venture takes place digitally instead of in more traditional formats" (Hair *et al.*, 2012, p. 3). The extent to which a business may be

considered as pursuing digital entrepreneurship depends on the extent to which its key business activities and functions – production, marketing, distribution and stakeholder management – take place on digital platforms (Hair *et al.*, 2012). This dependence on digital technology suggests that digital businesses face unique challenges and opportunities with regard to entry mode, production methods, capturing of payments/revenues, and managing stakeholder relationships.

However, our empirical focus is not a comparison of digital and traditional entrepreneurship. Our aim is to analyse digital entrepreneurship on its own, and their underpinning business models. The uniqueness of digital entrepreneurship lies in the fact that ICTs provide the infrastructure which supports most, if not all, value chain activities and on which they are dependent. Two types of businesses fit this definition: 1) Businesses that use ICTs to reduce costs, improve internal operations and customer services through the adoption of digital platforms (Schlie *et al*., 2011; Onetti *et al*., 2012; Davidson and Vaast, 2010); and 2) Businesses that develop hardware, software, and networking technologies and use digital platforms to commercialise them. This includes businesses that provide online accounting, Wi-Fi hotspots, phone backup, artificial intelligence software (Vasilchenko and Morrish 2011), social computing and digital platforms for music consumption, mobile and Internet-enabled cataloguing, search engines, buy-sell marketplaces (Javalgi *et al.*, 2012) and multi-media businesses that sell digitized products and services (Hair *et al*., 2012; Onetti *et al*., 2012).

To examine the nature of digital businesses, we use the business model concept as a theoretical lens. While there is broad acceptance of the core elements of a business model, there is no agreed theoretical and practical definition (Baden-Fuller and Morgan, 2010; Teece, 2010; Morris *et al*., 2005; Coombes and Nicholson, 2013). To uncover the nature of digital business models, we consider the main component parts of the business model necessary for examining how the firm's resource base, strategy, markets and networks shape its creation and operations (Chesbrough and Rosenbloom, 2009; Mason and Spring, 2011; Richardson, 2008; Berman, 2012). From this strategy context, we adopt an approach that focuses on three parts of a business model (see Mason and Spring, 2011; Richardson, 2008; Ghezzi *et al*., 2010). These include value proposition (what the firm will deliver to its customers, why they will be willing to pay for it, and the firm's primary approach to competitive advantage); network architecture (how the firm will create and deliver that value to its customers and the source of its competitive advantage) and value capture (how the firm generates revenue and profit) (Table 1).

Conceptualizations of a 'business model' suggest that the creation and use of a model is a practical activity involving adjustments that are based on the objective(s) to be achieved, rather than the apparent suitability of such adjustments (Mason and Spring, 2011). A rationalistic approach to the study of models has been shown to be unable to fully account for practical challenges (Morris *et al*., 2005; Zott *et al*., 2011). Therefore, we conceptualise a business model as a subjective process in which a firm combines different types of resources to undertake key activities (transactions) that generates and captures value for both the firm and its key stakeholders (DaSilva & Trkman, 2014; Vendrell-Herrero *et al.,* 2016). To understand the creation and capturing of revenue, we also draw on the 'SimplySeven' framework developed by Schlie *et al.*, (2011). The authors depict three evolving phases used by Internet executives and entrepreneurs to develop digital business models by learning from 'offline' businesses. In phase one (early 1990s to 2001), entrepreneurs learned from conventional 'offline' business models. Phase two is associated with the early dot.com businesses, based on more sophisticated 'freemium' business models. The current phase three requires entrepreneurs to use the building

blocks in more creative ways to provide flexible services that are tailored to the needs of individuals (Schlie *et al*., 2011).

Though the SimplySeven framework was primarily designed for Internet businesses, we extend its use in consideration of other ventures harbouring high degree of digital dependence, including IT-based social and community-based enterprises. By demonstrating that many businesses cannot describe what their business model is, Baden-Fuller and Morgan (2010) suggest the need to focus on the extent to which a firm's owner-manager's decisions are consciously or unconsciously in line with business model thinking. This is where contextual factors (technology, environment and organisational) can be crucial (Rashidirad *et al*., 2014), especially in under-researched developing world contexts providing added lens to review existing theories (Gomes et al. 2012; Vendrell-Herrero et al., In Press). Contextual factors can either facilitate or constraint the use of business models by entrepreneurs to choose a "path to follow to refine their positioning, choice of product-service features to emphasise to attract potential investors" (Doganova and Eyquem-Renault, 2009, p. 1566) and customers (DaSilva & Trkman, 2014). By applying this theoretical basis to the case of Cameroon, we also complement recent research on digital business models in emerging economies, which explore the servitization strategies of emerging market firms, the practical implications for globalizing digital businesses (Xing *et al.,* 2016; Zghidi and Zaiem, 2017).

**Table 1**. The key conceptual elements of a digital business model

| **Component parts** | **Key characteristics** |
|---|---|
| Digital Value proposition | • Offering: Products, services and product-services, including freemiums<br>• Target customer: Customers and market segments<br>• Strategy: Internal configuration of functions carried out, used to produce value proposition and serve market segment (how to win customers and gain competitive advantage) |
| Network architecture (online and offline based) | • Value creation network: e.g. links to suppliers, partners, and customers<br>• Organisation: the value chain, activity system, and business processes.<br>• Resources & Capabilities: Turnover structure, cost structure, revenue flows potentially from producing the offering, under the contingency of value proposition and value chain chosen |
| Digital Value Capture | • Formulation of how to build and sustain firm capabilities and competencies over rivals<br>• Financial and non-financial assets, processes and activities that translate inputs into value for customers; used technology (product, production, process technologies), organisational structure and operational practices |

*Sources*: Based on Richardson (2008), Chesbrough and Rosenbloom (2009), Ghezzi et al., (2010), Mason and Spring (2011), Schlie *et al.*, (2011)

## Method

### *Empirical context*

Our research setting is Cameroon, justified on the basis of an ICT-rich business environment context (Rashidirad *et al*., 2014). Indeed, government policy, complemented by foreign aid (financial and technical advice), has contributed positively to the mushrooming and growth rate of ICT penetration in various sectors in Cameroon. This has included the establishment of multimedia resources centres in universities and many professional, technical and secondary schools; training monitors to manage MRCs, and signing legislation towards equipping 80% of primary schools with ICT infrastructure (Ndongfack, 2007). The Network Readiness Index, which measures the national propensity to exploit the opportunities offered by ICTs, ranked Cameroon at 125 out of 142 countries in 2012 (Gathege and Moraa, 2013). While these ICT indicators are low by international standards, it is a positive development for Cameroon, a lower middle-income economy that is in the top 15 in Africa with regard to internet penetration and digitisation, estimated at 12% (Nwagwu and Ibitola, 2010; Gathege and Moraa, 2013). This positive development is evident in success cases such as mHealth, a project that uses SMS and mobile phones to remind patients to attend hospital appointments (Bigna *et al*., 2013); and the Cameroon Mobile Phone SMS, a two-way mobile phone text messaging communication service between patients and health workers designed to improve adherence to antiretroviral medication (Mbuagbaw *et al.*, 2013).

However, digital entrepreneurs grapple with challenges facing all types of businesses, including limited know-how, financing constraints, complex business registration processes and tax structures, and logistics and transport difficulties (Kimbu and Ngoasong, 2016; Hinson and Adjasi, 2009; Van der Vorst *et al*., 2002). However, Cameroon is seeing the emergence of a new generation of digital entrepreneurs, largely helped by a specially-created ICT Hubs model, the Activspaces Model, with branches across the four main regions of the country, incubating new digital start-ups (Gathege and Moraa, 2013). Thus, Cameroon is akin to a developing African country with a nascent digital sector and resource-constrained environments (Gomes et al., 2012), and therefore appropriate for studying the nature of digital business models.

***Research design, data collection and analysis***

This study therefore adopts a case-based approach to producing context-relevant (Rashidirad *et.al*, 2014; Vendrell-Herrero et al. (*in press*)) stories of digital business models that are distinctly African, using Cameroon as a starting point, albeit acknowledging that this might not be representative of SSA as a whole. Based on a cross-sectoral selection of cases, this study uses the critical incident approach to produce a richer picture of digital business models in SSA. From a Cameroonian perspective, the application is expected to provide insights into the emergence and development of ICT-based businesses and the localised challenges to entrepreneurial success. We also selected Cameroon for ease of access to digital businesses facing entrepreneurship-related questions that can facilitate new theory in under-researched developing world contexts (Vendrell-Herrero *et al.*, In Press).

Using purposive sampling (Yin, 2003) we recruited study participants through one of the co-author's local professional network and through the ActiviSpaces incubator, an incubator that has branches in three regional capitals of Cameroon (Gathege and Moraa, 2013). We created a list of 31 potential participants, who were then interviewed. The interviews included face-to-face interviews and informal email exchanges (Table 2). We also examined the websites of the emergent list of digital enterprises, where they existed. The interview data was completed by informal discussion with six secondary participants, in order to understand the contextual factors

affecting small digital businesses and to corroborate information from interview transcripts (Bernard, 2012; Yin, 2003). They included two government authorities (Ministry of Small and Medium-Sized Enterprise and Handicraft and Ministry of Communication), an ICT consultant for a large telecom provider, two University lecturers (entrepreneurship and computer sciences), and one owner-manager of a medium-sized technology firm.

**Table 2.** Demographics of digital businesses

| *Case Study* | *Legal Status* | *Digital business* | *No. of staff*[a] | *Start-up capital (US$)*[b] | | *No of Years* |
|---|---|---|---|---|---|---|
| | | | | *size* | *Source* | |
| A | Informal | Online TV Chatroom | 6 | 7000 | Own funds, Venture Prize | 3 |
| B | CIG | E-ticket and itinerary sales for inter-city travel firms | 5 | 7500 | Own funds, venture capital | 2 |
| C | Ltd Company | Digital urban guide | 6 | 5000 | Own funds | 3 |
| D | Informal | Multi-media services | 5 | 9500 | Self-funded | 8 |
| E | Co-operative | E-commerce | 6 | 14500 | Grant, Venture Prize, Own funds | 4 |
| F | CIG | E-sales of tours, tour guides and tour packages | 5 | 1500 | Self-funded | 0.5 |
| G | Ltd company | Security, networking systems and telecom services | 8 | 20000 | Self-funded | 8 |
| H | CIG | E-payments | 2 | 11000 | Own funds and Crowdfund | 2 |
| I | Ltd Company | Multi-media, Cyber café and computer maintenance | 8 | 10500 | Family investment | 6 |
| J | Ltd Company | Software development and ICT consultancy | 4 | 15000 | Own funds | 8 |
| K | CIG | Online database for public exams | 2 | 2300 | Own funds | 0.5 |
| L | Ltd Company | Software design and IT systems support | 10 | 12000 | Own and family funds | 6 |

[a] Includes part-time staff; [c] Exchange Rate: $US 1:578 FCFA in nearest hundred.

We then undertook a content-analysis of the interview transcripts, which involves a detailed case-by-case and cross-case review of interview transcripts to isolate themes and patterns in data (Brady and Saranga, 2013; Ngoasong and Kimbu, 2016). For each transcript we identified and classified themes under the three parts of a digital business model (digital value proposition, network architecture and digital value capture) theorised earlier. Both authors analysed all transcript manually independently and later compared the analyses to validate the findings. While doing this, we highlighted sections of the accounts provided by participants (Gomes et al. 2012; Kimbu and Ngoasong, 2016) for used as direct quotations to support analysis of the nature of digital business models and the ways in which their design is shaped by contextual factors. The findings are reported below.

## Findings

The business models for the 12 small digital businesses in Cameroon are summarised in Table 3, below. From the table, the three parts of the business model are broken down to detail the strategy of each small digital business studied. Regarding value proposition (offering, target customers and delivery strategy) (Richardson, 2008), we note that the business models cover a range of value creation across different sectors of the economy (travel and tourism, public information, agribusiness, security services and ICT). What emerges from the interview data is how the entrepreneurs describe their business models regarding firm value creation (financial/economic returns) and societal value creation (solving societal problems). They emphasised societal value creation rather than economic value creation, and this in many ways appears to influence the commercial viability of the business models, especially for nascent entrepreneurs (Cases A & H) that were still grappling with how to design and execute a strategy for capturing value.

**Table 3. Key features of the digital business models studied**

| Case | Value proposition | Network architecture | Value Capture |
|---|---|---|---|
| A | - Online chatroom for anyone watching TV (free access)<br>- Third party advertisement fee | - Digital platform<br>- Externally-hosted server | ? |
| B | - Individual inter-city travellers & small travel firms<br>- Service fee for sales of e-tickets and display of travel itineraries | - Digital platform<br>- Externally-hosted server | - Cash payments (B2C)<br>- Bank transfers (invoices) (B2B) |
| C | - Digital urban guide (free access)<br>- Third party advertisement fee | - Web, mobile app and SMS<br>- Externally-hosted server | - Cash payments |
| D | - B2C & B2B multi-media services<br>- Service sales | - Externally-hosted server | - Cash payments |
| E | - E-commerce: Rural food crop farmers (sellers), urban consumers (B2C) & hospitality firms (B2B)<br>- Subscription fee plus discount sales through membership and retail sales for non-members | - Web, mobile app and SMS<br>- Own warehouse and retail outlets<br>- Third-party logistics providers<br>- Externally-hosted server | - Cash payments |
| F | - High-end market (foreign & domestic tourists)<br>- Online sales of tour packages and tour guide services<br>- Commission on completed sales | - Digital platform links tour guides, nature resorts & packs to tourists (Intermediary)<br>- Externally-hosted server | - Online payments; deducts commission, then pays tour guides, resorts/packs. |
| G | - B2B security, networking systems and telecom services<br>- Service sales | - Externally-hosted server | - Cash payments |
| H | - E-payment platform | - Digital platform<br>- Externally-hosted server | ? |

| | | | |
|---|---|---|---|
| I | - Low end users of cyber cafés & multi-media services<br>- Service sales | - Physical office space & equipment<br>- Externally-hosted server | - Cash payments |
| J | - Internet & multi-media service to users, build/support website for organisations<br>- Service sales | - Physical office space & equipment<br>- Externally-hosted server | - Cash payments |
| K | - Users of public exams information (no fee)<br>- Third party advertisement fee | - Externally-hosted server | - Cash payments |
| L | - B2B web and mobile app design and IT systems support<br>- Service sales | - Externally-hosted server | - Cash payments |

There is evidence of five of the seven revenue creation options (service sales, retail, commission, subscription and advertising) available to digital businesses (Schlie *et al*., 2011). Two revenue creation options were notably missing from the firms studied, namely digital license sales (the purchase of a digital product) and financial management skills (taking a position according to an expected financial outcome) (Schlie *et al*., 2011). This partly suggests that the emerging digital business models in resource-scarce settings such as Cameroon are very basic in their approach, and rely on limited knowledge. The entrepreneurs explained that they are still "learning how to incorporate more sophisticated revenue-generating mechanisms" (Interview: Owner-Manager, Case B) into their current businesses.

Regarding network architecture, that is, the infrastructure in which transactions are executed, and interactions among stakeholders take place (Mason and Spring, 2011), the entrepreneurs studied emphasised the challenges rather than successes of their business models. The challenges are related to contextual factors due to the technology, environment and organisation contexts, all of which affect firms' competitiveness through e-value creation (Rashidirad *et al*., 2014). We examined our data with regard to these contextual factors in Cameroon. Consider Cases A and H, for which a question mark (?) is indicated in their value capture in Table 2. To successfully operate business models, digital businesses must be able to collect payments for services provided. This includes on-time online payments directly linked to financial services, especially in situations where cash payments are either not feasible or are costlier to implement (Schlie *et al*., 2011). As shown in the following quotation, a major contextual challenge is convincing banks and financial services providers to join as partners, to ensure that payments can be captured.

> When customers log in to our platform if they have money in your account you can transfer it to some other person or you can use the money in that account to buy from a website that uses one of our APIs, just like PayPal does it. Banks convert physical cash deposits into digital cash for customers to use on our platform. We've spoken to a couple of bank managers, but so far it's not been very positive because they've not been seeing the value we can create for them to justify their investment in linking to our platform. (Interview: Owner-Manager, Case H)

The claims illustrated in the above quotation were a common feature in most of our interviews, revealing issues of mistrust and a lack of institutional support provided to digital

entrepreneurs, preventing them from building robust financial management systems within their models. Thus, despite creating business models that have value-creating potential, Table 3 shows that most of the entrepreneurs collected cash payments directly (cash-in-hand) rather than implementing built-in financial management systems (e.g. e-payments) within their business models, to capture value. This scenario of mistrust and reduced interface through linkages with financial institutions (e.g. banks) is also related to the slow pace of growth in the adoption of Internet banking in Cameroon, compared to other African countries such as Kenya, where strong institutional support and government interventions have created ICT infrastructures that have enabled online payments and money transfer opportunities for small digital businesses (Ngoasong *et al*., 2015).

The entrepreneurs further explained that cash payments are also preferred due to the low internet and mobile penetration rate, especially for people in rural areas without bank accounts. As a business that connect rural farmers to urban consumers of food crops, Case E is a typical example. One of the co-founders captured this vividly as follows: "our digital concept facilitated information exchange but failed to make trade happen as wanted. … many food crop farmers do not have bank account for online payments. … We revised our model such that we now have warehouses where farmers take food to, and shops where consumers come to pay and collect food" (Interview: Owner-Manager, Case E). Without interventions to develop online payment infrastructre, emerging digital businesses in Cameroon will continue to be unable to implement revenue creation models, such as those used in advanced economies, to undertake digital business sales and online financial management (Schlie *et al*., 2011).

Another notable feature of the emerging digital business models studied relates to access to the information needed to develop the various parts of the business models. All the entrepreneurs studied explained how they had to spend considerable time and money collecting market- or industry-relevant information (e.g. about customers and partners) in order to build a critical mass, seen as crucial to the success of digital businesses (Mason and Spring, 2011). They all spoke along the following lines: "we do not have a list of tourism businesses, so I have to travel to tourist attractions to identify them physically. Kribi is popular in Cameroon as a tourist site, but then when you get there, you realise that there are no tourism agencies in Kribi only tour guides" (Interview: Owner-Manager, Case F). Also, individual customers are hard to reach due to limited connectivity. The entrepreneurs have developed innovative ways in which they are trying to resolve this (e.g. through SMS messaging, group purchase, reliance on relatives' bank details and off-line intranet). These are built into their network architecture to ensure the effective operation of their business activities.

## Discussion and Conclusion

This article applies the business model concept (Richardson, 2008; Schlie *et al*., 2011; Mason and Spring, 2012) as a theoretical lens through which to analyse digital business models in a developing country setting. It focuses on three parts of a business model, namely digital value proposition, network architecture and digital value capture. In addition to this theoretical significance, our findings have two important practical implications for entrepreneurs wishing to learn how to articulate parts of the business models in order to seek legitimacy from resource providers (Doganova and Eyquem-Renault, 2009) as well as create and capture revenue and profits (DaSilva and Trkman, 2014). First, most of the entrepreneurs studied focused too much on value creation (revenue) through digital technology, with a relative neglect of the network

architecture, a contextual factor. This restricted their capacity to capture the revenue they could potentially create, particularly over longer term. This is line with Ghezzi *et al*. (2010) suggest that entrepreneurs who leave their value creation configuration unmapped are likely to get their business model design wrong for sustained profits. Secondly, the importance of prior planning, identifying and interlinking the features of the three parts of a business model before launching the business (entry decisions), and understanding the significance of their interconnections to managing their growth (post-entry choices) (DaSilva and Trkman, 2014).

These business models had all component parts fully integrated in their design, while contextual factors such as poorly resourced external infrastructure (e.g. logistics and mode of transport) and access to local trusting partners (e.g. banks and suppliers) constrained implementation. While such contextual challenges are not new (Rashidirad *et al*., 2014) their impacts are significant where they are beyond the immediate control of the entrepreneurs. Most of the entrepreneurs studied were restricted to simple digital business models with less sophistication and less complex network infrastructure, when compared to those in advanced emerging and developed economies (Javalgi *et al*., 2012; Vasilchenko, and Morrish, 2011). In line with this, Gomes *et al*., (2011) call for trust-based alliances between African organisations to enhance firm-specific competitiveness (Gomes et al. 2015; Angwin et al. 2016). A typical case for this would be alliances between Nigerian banks and the digital businesses studied, which could facilitate financial transactions and create mutual benefits for all (see, also Gomes et al. 2012).

This is where policy implications become crucial. The territorial competitiveness of specific regions and the competitiveness of the overall economy can be enhanced based on the use of technology by new digital start-ups (Lafuente et al., In Press; Vendrell-Herrero and Wilson, 2016). Although there are some attempts by the government of Cameroon to develop the ICT infrastructure and increase the adoption and use of ICTs individuals and businesses, more focused and supportive policy intervention, however, is needed to sustain business models overtime. This has worked in other parts of Africa. For instance, through the central bank, the Kenyan government has created a world-leading digital infrastructure on Internet banking, creating opportunities for smaller digital businesses to benefit from secure online payments (Ngoasong *et al.,* 2015). A similarly productive ICT policy reported in India has encouraged innovative digital business models (Javalgi *et al*., 2012). This can also ensure that financial institutions do not only focus on direct financing to micro-businesses, but also take advantage of digital technology to provide additional services that facilitate online payment management. This connectivity has the potential to improve the effective functioning of the supply chain in resource-scarce environments. For example, firms that produce physical products can partner with digital retailers (Bustinza *et al*., 2013; Vendrell-Herrero and Wilson, 2016) such as the cases we studied reach consumers that they are otherwise unable to reach due to logistics and transportation challenges.

A limitation of this research is that our conceptual framework is based on studies that conceptualise business models as consisting of three parts (Mason and Spring, 2011; Richardson, 2008). When combined with our discussion of revenue models (Schlie *et al*., 2011), our findings reveal how contextual factors (e.g. ICTs and digital technology, logistics and mode of transport, and organisational requirements) (see Rashidirad *et al.,* 2014) can facilitate the development of digital business models in resource-scarce settings. Future research can extend our analysis by applying a business model canvas framework, consisting of nine building blocks (Osterwalder and Pigneur, 2010) to provide more in-depth coverage of specific contextual factors. Secondly,

by adopting purposive sampling, our findings can be argued to be relevant to the specific setting only (here, Cameroon) and the 12 cases studied. Future research can either replicate our approach to other African settings, or repeat our study using probabilistic sampling, in order to increase the generalizability of our findings (Bernard, 2012).

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