A Conceptual Model to Guide the Evaluation of E-Business Value in Small and Medium-Sized Enterprises in Botswana

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Abstract. The implementation of electronic business (e-business) in organisations has led to a major improvement in business performance in both developed and developing countries. This improvement as well as market forces have put pressure on Small and Medium-sized Enterprises (SMEs) to adopt e-business. However, the e-business models adopted by SMEs are often abstruse and poorly represented, which leads to time consumption and miscommunication between the stakeholders involved, the business operations and Information Technology (IT) functions. These unclear e-business models make it difficult to evaluate its value. In Botswana, SMEs are the major drivers of the economy. This research examines the elements necessary for this e-business value creation and draws from different disciplines and theories to create a comprehensive model for e-business evaluation in SMEs. This model can help (1) stakeholders investigate, communicate and make appropriate decisions and (2) aid SMEs to successfully integrate e-business in their business processes and practices.

Keywords: E-business · E-business value · SMEs · Evaluation
Conceptual model · Botswana

1 Introduction

The continued use of the internet has become a predominant game changer in business practices in both developed and developing countries [1]. More companies have had to re-think how they conduct business, which is a result of the major investments made in Information and Communication Technology (ICT) adoption in businesses today. With the rapid growth of electronic business (e-business) and as more companies adopt and invest in it, it is crucial to investigate its value creation, more so in Small and Medium-sized Enterprises (SMEs) as they have become significant contributors to employment creation and helpers of local improvement and innovation [2]. In Botswana, [3] conducted a study that revealed that ICT SMEs help the Botswana government immensely with over 80% of business activity. However, with this significant growth of SMEs in Botswana and e-business, little has been done to measure the value created in e-business adoption in Botswana SMEs.

It is essential to better understand the post-adoption differences in usage and value [4] of e-business in order for companies to appreciate this value and to fully enjoy it.

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This study argues that there is no conceptual model that measures this e-business value creation in SMEs in Botswana. Such a model could assist stakeholders of SMEs in Botswana that have adopted e-business, or would like to adopt e-business to recognise the essential elements that are critical to the company and an e-business model and to understand e-business operations in order to create e-business value.

This paper will therefore learn and acquire from different viewpoints to create a comprehensive model that evaluates the value of e-business in SMEs in Botswana. It aims to develop a comprehensive model by providing an answer to the question: How is the value of e-business in SMEs in Botswana evaluated? Such a model could also assist SMEs to be able to successfully integrate e-business in their business processes and practices, and to avoid the failure of e-business.

1.1 Definitions

E-Business: According to [5], e-business is defined as the use of internet to conduct or support business activities along the value chain [6].

SMEs: The criteria for the definition of an SME differs from country to country [7]. In Botswana, an SME is defined as an entity that takes on less than 25 employees and has an annual turnover of between P60,000 and P1,500,000, and a medium-sized enterprise with less than one hundred workers including the owner and an annual turnover of between P1,500,000 and P5,000,000 [8]. Because this study is focused in Botswana, it will adopt the definition provided by BICA.

E-Business Value: [9] define e-business value as the effect of using e-business for firm performance. Furthermore, they discuss that the firm's performance is determined by the downstream sales, upstream procurement and internal operations along the value chain. These are the major activities of the value chain, and this suggests that value is created if e-business adoption within the firm results in an increase in sales and a better customer service, a reduction in costs of purchasing business goods and products, improvement in coordination with the suppliers and employee effectiveness and efficiency of inter-organizational processes.

2 E-Business in Botswana

When it comes to e-business development, research shows that the common challenges that most developing countries encounter are based on a lack of economic, infrastructural, social and political factors. [10] categorise these factors under e-readiness, which they suggest is lower in developing countries than developed countries. E-readiness is defined as the degree to which a country or organisation is willing to adopt ICT for value creation and competitive advantage [11]. [12] argue that, based on a recent study conducted by [13] on e-readiness in Africa, Botswana has one of the best performing economies in Africa, and that on a five-point scale, and an African e-readiness mean of 2.22, it comes in second after South Africa with a score of 2.47. However, even with this good score of e-readiness, Botswana still encounters challenges when it comes to adopting e-business activities.

Most studies on the adoption of e-business in Botswana identify technological, environmental and organisational factors as major impediments to e-business development. [3] adopt a technology-organisation-environment framework in their paper, as well as the owner/manager challenge. They argue on technological challenges in Botswana such as slow internet speed, organisational challenges such as the way in which organisations prefer to do business, for example by face-to-face interactions, environmental challenges such as economic and political instability in the country as well the owner/managers' lack of visionary leadership and entrepreneurial ability, as major impediments to e-business adoption in organisations in the country. Although organisational challenges are discussed in their paper, little is discussed in terms of internal business challenges as inhibitors of e-business, such as the business mission and strategy as well as business processes.

Another study conducted by [14] on e-commerce technology adoption by SMEs in Botswana aims to assess the adoption of e-commerce in the country. The findings of their study revealed that to create e-business value in terms of return on investments, support of SMEs is essential in areas such as financial resources, capability of users and technology. However, these authors looked at this value creation and support from a technological point of view, and discussed the need for financial resources and capable users in support of this technology. From the existing literature, it is evident that the majority of the studies conducted on e-business and e-commerce in Botswana discuss and focus more on the technological, environmental and external organisational aspects of the business. Little research has been done in evaluating e-business from an internal business perspective. The Table 1 below shows the gaps identified in literature in the Botswana context.

Table 1. Gaps identified in literature

Source/study	Business mission and strategy	Business processes	Entrepreneurial drive	Management capabilities	Financial resources	Users capabilities	Technology	E-Business value
Shemi and Proctor (2013)			X	X	X	X	X	
Olatokun and Kebonye (2010)		X	X	X	X	X	X	X
Mutula and van Brakel (2006)		X			X	X	X	
Uzoka and Seleka (2006)		X					X	
Nkwe (2012)		X		X	X	X	X	
Mutula and Mosbert (2010)			X	X	X	X	X	
Chinyanyu Mpofu and Watkins-Mathys (2011)			X	X	X	X	X	
Ntozintle Jobodwana (2009)			X	X	X	X	X	X
Dlodlo and Dhurup (2010)			X	X	X	X	X	X

*X represents what's covered in the study

3 E-Business Value

There are several approaches that explain e-business value. [15] Value-Chain Model focuses on the economic implications (i.e. costs and value) of business functions and activities by identifying the primary activities (which have a direct impact on value creation) and support activities (which affect value through their impact on the primary activities performance) and the value they add in the chain. If all these activities add value to the chain, overall value is created. The Resource-Based View is another approach that explains value. Here, value is created by using various resources that are economically valuable, difficult to imitate, or imperfectly mobile across firms [16, 17]. This means that e-business value is created by focusing on using e-business resources in a firm that are efficient and effective, cannot be copied by any other firm, and cannot be moved across the firm. This approach fits well with the needs of SME managers and owners, as they are able to strategically focus on resources that are critical to the company and align them with the company's strategic intent (which is developed by the company's management), resulting in value creation through key performances or successes [18]. Economic theory suggests that value is created by looking at the supply, i.e. large capital investments on Information Systems and demand side: increase of users of information technology, taking into consideration the uncertainty of actual benefits of the technology and switching costs [19]. This assumes that value is created by using Information Systems on a large scale, and where the demand to use technology is high. Each approach looks at value from a different perspective. While Porter's Value-Chain Model looks at value from a business activity perspective, the Resource-based view focuses on the resources of the firm. The economic theory, on the other hand, looks at demand and supply of IS/IT. The aim of this study is to come up with a framework that measures the overall value created in SMEs. It will therefore encompass some dimensions from each of these theories.

4 Determinants of E-Business Value

When it comes to discussing e-business requirements, this paper uses the viewpoints discussed in the paper by [20]. They state that in the development of IS, three major perspectives have to be considered. These are the value viewpoint which represents the creation of economic value, the process viewpoint which suggests the use of business processes for the operationalization of the value perspective, and lastly, the system architecture viewpoint, which is the IS that enables and supports e-business processes. However, [21] suggests that for there to be competitiveness in the buying and selling of goods over the internet, resources, capabilities, processes or firm knowledge that provides firm performance have to be involved. Therefore aside from the viewpoints of [20], this paper also recognises and incorporates the human factor capabilities, the business mission and strategy as well as the resources available.

Value Viewpoint. This can be understood from the economic theory perspective. [20] suggest that there are various dimensions or aspects which form the e^3-value ontology. This paper considered some of these value aspects which are (1) the actor (an

independent economic entity capable of making a profit, for example. an individual, an entrepreneur an SME etc.); (2) the value object (the service, product, money or consumer experience that is exchanged between actors); (3) the value port (an interface or a connection point that interconnects actors so that they may exchange value objects); (4) the value interface (a mechanism that allows two or more actors to communicate or interact e.g. a website); (5) the value exchange (the act of giving value objects and receiving them in return or trading value objects between actors); (6) the value offering (the act of giving an actor the opportunity to exchange a value object) and (7) the value activity (the act of performing a process that is profitable between two or more actors). These value aspects are interlinked in that each one is dependent on another and each is necessary for value creation. For instance, the actor instigates value activity by creating value objects, which are then offered (value offering) to other actors for exchange (value exchange). These value objects are offered to other actors through value interfaces, and value exchange is enabled by value ports as they aid with this interconnection. Therefore if all of these aspects are present in an e-business model, they form e-business value.

Process Viewpoint. According to [20], the process viewpoint discusses the operationalization of the value viewpoint by using business processes. This simply means integrating the business processes with the value viewpoint. This integration can clearly be explained by the value chain theory [15], as it looks at value-adding activities within the firm. The value chain theory predicts that overall value is created if each of the primary and support activities within an organisation add value. [22] discuss [23] PIT model of ICT Adoption by SMEs. This model consists of processes used by SMEs through the adoption of ICT. For the availability, interaction and exchange of these processes within the e-business, channels in which these processes are transferred from one end to another must be in place. [24] discuss that this exchange and interaction of services, products and information sharing can occur between channels such as the business-to-business (B2B), business-to-consumer (B2C), business-to-employee (B2E), business-to-government (B2G) and a Hybrid of B2B and B2C models. Although they discuss other channels of e-business such as consumer-to-consumer (C2C), this study focuses only on those that are directly impacted by the business. Overall, if the e-business process is effectively and efficiently integrated with the value viewpoint, this results in e-business value creation.

Architecture Viewpoint. In this paper, the architecture perspective implies the technology used to support these business activities. [20] discuss this viewpoint as an IS/IT enabler and supporter of the e-business processes. This is explained by the technology theory, specifically the theory of ICT as an enabler. [25] predicts that five (5) levels of IT-enabled business configuration should exist in an organization for there to be added value. These levels include the IT functionality within a business, leveraging IT throughout the entire business, business process integration, business network integration and business scope integration. These levels explain how technology is used to support and enable internal and external business processes as well as the organization as a whole for added value. [24] discuss the specific technologies that support and enable e-business as being the electronic data interchange (EDI) and internet. Both

these technologies use telecommunication infrastructure for electronic connections which enable information transactions.

Furthermore, [24] discuss how the availability of broadband channels, which are cables or fibre optic lines that allow more and faster data transfer, have been the final breakthrough for the enablement of e-business. With this advanced technology, e-business processes are better supported and enabled, which results in e-business value creation within organisations.

Human Factor. This factor is explained by the entrepreneurship theory discussed by [26]. According to this theory, entrepreneurs need to possess an entrepreneurial orientation consisting of certain methods, practices and organizational behaviours in order to keep the firm competitive. The human factor discusses this entrepreneurial orientation. For the successful adoption and value creation of e-business, an SME needs to have visionary and capable leaders. These leaders include the entrepreneur and managers. [27] argues that for the success of IS, entrepreneurs have to possess certain qualities and traits that distinguish them from others. Furthermore, he suggests that behaviour characteristics such as attitude to technology, risk taking, commitment and control over resources influence the entrepreneur's ability to effectively respond to technology adoption. [28] also suggest that the entrepreneur's knowledge of IT and outlook of innovation drive this e-business adoption. The SMEs' managers also need to possess these traits. They should have the relevant ICT information good managerial skills and should be able to allocate their time, resources and encouragement for the use of IS within the firm [29]. If the human factor within an organization consists of all these traits and capabilities, e-business is more likely to be adopted and efficiently implemented in the organization, resulting in the creation of e-business value.

Business Mission and Strategy. Stakeholders of SMEs need to be able to understand the business mission (what the business is about) so that they can develop and implement proper and innovative business strategies that support, drive and help the business to achieve this mission. The business mission provides the overall direction in which the business is going. Both the business mission and strategy are explained by the strategic management theory. [30] discusses innovation in strategic management as a fundamental consideration in adding value in a business. This means that for an organization to create and add value, it needs to have innovative strategies that support the business mission. According to [24], IT managers need to be aware of the business strategy and e-business plan in order to develop the right e-business technology to support the business processes. [31] discuss strategic competencies as those that establish a direct link with customers, use technology to stand out from the rest of the companies and develop and provide new products and services. It is hence essential to be able to understand and know these competencies when developing the business strategy, so as to ensure proper alignment with the e-business plan and technology. This alignment drives e-business adoption and influences e-business value.

Availability of Resources. In order for companies to fully experience e-business value, it is essential for them to stay interactive and maintain the e-business. This element is explained by the resource-based view [16, 17], which discusses the use of resources that are efficient and effective, cannot be copied by any other firm, and cannot

be moved across the firm. This paper focuses on financial resources and the users of the e-business for the creation of e-business value. [31] discuss the need for financial resources which are necessary to invest in the right technology, to be able to regularly maintain the business websites, to integrate the company's information management systems and to provide proper interfacing with customers. To stay interactive with the e-business, companies also need to have employees in place who ensure that this interaction is maintained. [32] suggest that these employees need to possess some IT knowledge, IT technical capability, technical expertise and an intellectual resource (the employee's educational qualification and work experience that distinguish them from the others). These traits make it easier to train these employees when adopting the new system, and makes them more aware in determining the value created by the system. This is especially necessary in SMEs, as they are characterized by a smaller number of employees. With the use of financial resources and capable employees, the e-business is well maintained and stays interactive, which results in e-business value.

5 Evaluation of E-Business Value

In order to improve business performance by using e-business in SMEs, it is important to evaluate the elements that lead to its value creation. [33], define evaluation as the decisive assessment of defined entities, based on a set of criteria, to solve a given problem. In this study, the evaluation process will involve a critical assessment of some elements of the value creation approaches and determinants of e-business value discussed above, in the context of Botswana, which, if exist in a business, create e-business value. [34] suggest that evaluation be achieved by examining (i) outset situations (organisational norms and values, IS project contingencies and IS project resources), (ii) the business development process (for example IS development and procurement) and (iii) the outcomes (for example. success of IS implementation, investment and functionality). This e-business value evaluation will furthermore examine the outset situations of e-business (for example. the organizational mission and strategy, the processes involved, technology and e-business resources), and its outcomes and post-adoption (i.e., the e-business value created).

6 Research Framework and Propositions

Following the above discussion, the conceptual model below (Fig. 1) has been developed to evaluate the value of e-business in SMEs in Botswana. It adopts some dimensions from each of the theories discussed, which are specific to the nature of SMEs, as defined in this study. It aims to fully capture the overall value created in e-business for SMEs. Following the conceptual model, Table 2 below summarizes the constructs used, their definitions, the theories they discuss and their sources.

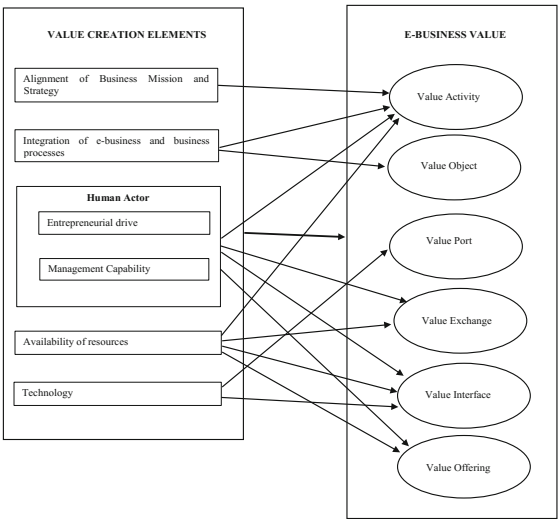

Fig. 1. A research model of the elements that create e-business value

Table 2. Constructs, explanations and sources

Construct	Explanation	Theory	Source
Business mission and strategy	Competent and innovative strategies support and aid the achievement of the business mission which leads to the growth and development of the business	Strategic Management Theory	[15, 24, 31]
E-business and business processes	This is the integration of business processes with the e-business so as to operationalize the e-business model. For example, using e-business to order and purchase inventory online and generate automated billings	Value Chain Theory	[10, 12, 14, 15, 20, 22–24]
Human actor	Consists of the entrepreneur's drive to adopt technology and management's capabilities which ensure the smooth integration of this e-business adoption within the SME	Entrepreneurship Theory	[3, 14, 15, 27–29]
Availability of resources	This is the use of financial resources that support, maintain and enable e-business, as well as employees who are skilled, experienced and have knowledge of ICT to use the e-business for business processes	Resource – Based Theory	[3, 10, 14, 16, 17, 19, 31, 32]
Technology	This is the technology needed to support and enable the business processes in the e-business	Technology Theory	[3, 10, 12, 14, 19, 20, 24]
E-business value	This is the tangible and intangible value created in e-business. Value is broken down into actors, value activities, value objects, value interfaces, value ports, value exchanges and value offerings	Economic Theory	[14–17, 19–21]

From the research model above, the following propositions have been formulated:

Proposition 1: The more aligned the business strategy is with the business mission in an SME, the greater the value activity.

Proposition 2: The stronger the integration of e-business is with the business processes in an SME, the greater the development of value objects and occurrence of value activity.

Proposition 3a: The more the capabilities of the human actor are in an SME, the greater the value activity and better the value interface.

Proposition 3b: The more the capabilities of the human actor are in an SME, the greater the value offering and value exchange.

Proposition 4a: The more the financial resources and employees there are in an SME, the greater the development of value objects and occurrence of value activity.

Proposition 4b: The more the financial resources and employees there are in an SME, the greater the value offering and value exchange.

Proposition 5: The more the technology there is in an SME, the greater the value ports and better the value interface.

Proposition 6: The more value creation elements there are in an SME, the greater the e-business value.

7 Conclusion

The main objective of this study was to develop a conceptual framework that evaluates the value of e-business in SMEs in Botswana. In order to achieve this, the literature review drew from several different disciplines and theories, and identified gaps which led to the development of this multi-theoretical model. The model reveals some factors that have not been looked at in previous research. Most studies show that the main challenges that impede e-business adoption and value are technological challenges, lack of resources such as financial and user capabilities and challenges in business processes. However, there are other factors which have not been sufficiently explored in previous research such as a misalignment of business mission and strategy, lack of entrepreneurial drive and management capabilities, which also greatly impede e-business adoption and value creation. While this study focuses in Botswana, the developed model is not just limited to the country, but is also applicable to other countries as well. This model can also guide further research in assisting stakeholders in SMEs on e-business operations and elements necessary for the smooth running of the e-business. Such studies will have implications in practice as it can help guide government policies and initiatives in order to encourage the diffusion of new ICT technologies in Botswana. There is also a need to educate and train entrepreneurs and managers on the benefits of e-business as well as technology as a whole, as they are drivers of the business. Such training would help them possess competent capabilities necessary for them to make informed and innovative decisions on the business mission

and strategy, processes and practices. On a theoretical level, such research will advance theories such as the economic theory, value chain theory, resource-based theory, entrepreneurship theory, strategic management theory and technology theory and show how they can be applied to the e-business value context.

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