International Conference

Universities, Entrepreneurship and Enterprise Development in Africa – Conference Proceedings

8 – 9 September 2022

of the Building Expertise and Training for Growth in the consumer goods and food processing industry in Ghana platform (BET Ghana)

Universities, Entrepreneurship and Enterprise Development in Africa – Conference Proceedings 2022

Edited by Prof. Dr. Jürgen Bode & Oghenekome Umuerri

Imprint

Published by:
Bonn-Rhein-Sieg University of Applied Sciences

Editors (responsible according to German Press Law and the Media):
Prof. Dr. Jürgen Bode & Oghenekome Umuerri

Conference Pictures by:
Martin Schulz and Juri Küstenmacher.

Year of first publication:
2023

ISBN 978-3-96043-104-6
DOI:10.18418/978-3-96043-104-6

Table of Content

Foreword

These proceedings are the outcome of the 10th annual joint conference on "Universities Entrepreneurship and Enterprise Development in Africa"

These proceedings document the culmination of the 10th annual joint conference on "Universities, Entrepreneurship and Enterprise Development in Africa," which was held on the 8th and 9th of September 2022 at the Campus Sankt Augustin, Hochschule Bonn-Rhein-Sieg University of Applied Sciences. The conference was a collaboration between the University of Cape Coast, Ghana, and Hochschule Bonn-Rhein-Sieg University of Applied Sciences, Germany. The event was made possible through the bilateral university partnership project, "BET Ghana - Building Expertise and Training for growth in the consumer goods and food processing industries in Ghana," which is funded by the German Academic Exchange Service (DAAD) and the German Federal Ministry for Economic Cooperation and Development (BMZ). The Chamber of Commerce and Industry Bonn/Rhein-Sieg also provided additional financial support. The conference was an opportunity to discuss incubation, entrepreneurship, and application orientation in teaching and research. It also provided a platform for building networks between universities, students and graduates, companies, and government representatives from Germany and African countries. Our joint project began as a small cooperation to establish incubators at the University of Cape Coast and to learn from each other's experiences. Through this process, we have initiated a reflection process on the university's role in students' professional life and their responsibility to the local economy and society in general. Over the years, the conference has grown in attendance and importance, and it has increased awareness of the possibilities of doing business with African partners. We believe that there is still potential for growth, and we will continue to promote international and cross-sectoral exchange and contribute to the discussion on entrepreneurship and development in Germany and Africa. Our relationship has strengthened over time, and we plan to continue cooperating at other levels. The conference is just one example of this, and we are pleased to announce that the next conference will take place in Ghana, organized by the University of Cape Coast, at the beginning of November 2023.

Our special thanks go to Christine Freitag, Prof. Dr. Daniel Agyapong, Prof. Dr. Rosemond Boohene, Njavwa Mbao, and all conference contributors for supporting the publication of this proceedings.

Prof. Dr. Jürgen Bode

Vice President for
International Affairs and Diversity

Oghenekome Umuerri, M.Sc.

Project Manager
BET Ghana


THE ENTREPRENEURIAL MIND-SET
AT THE UNIVERSITY OF RWANDA,
LEGE OF BUSINESS AND ECONOMICS

Key Success Factors for Promoting Business to Business Collaboration between enterprises from Africa and the Global North

Dr. Phanuel Wunu
University of Cape Coast
Cape Coast, Ghana
email: pwunu@ucc.edu.gh

Dr Simon Züfle
Reutlingen University, ESB Business School
Reutlingen, Germany
email: Simon.zuefle@reutlingen-university.de

Abstract

The dawn of the 21st Century has witnessed a tremendous increase in trade pacts among nations, resulting in renewed hopes for sustainable enterprise development in emerging economies worldwide. Ghana and other sub-Saharan African (SSA) countries have signed onto several North-South and South-South free trade agreements with the hope of strengthening their presence in the international trade arena, and to promote economic growth in SSA. For over two decades, however, very little has changed, and many have dashed their high hopes as enterprises continue to struggle in SSA. Not even the African Continental Free Trade Agreement (AfCFTA) could renew the hopes of sceptics. Several studies opined that enterprises in SSA could improve their domestic and international competitiveness by establishing mutually beneficial partnerships with their counterparts from the Global North and South. This study delved into the issues that affect North-South and South-South business collaborations and recommends key success factors that could help promote mutually beneficial cross-border business partnerships. The research includes both literature and empirical information on the key success factors of business partnerships between African enterprises as well as between African enterprises and firms from the Global North. We approached the study qualitatively using a phenomenological research design. Research participants included important stakeholders in Africa and Europe's international trade and sustainable enterprise development ecosystem. The study identified several challenges with the current business collaborations and recommended new ways of making such partnerships more beneficial.

https://doi.org/10.18418/978-3-96043-104-6_6

Introduction

Trade among nations has been with humanity for several decades and has been primarily motivated by both economic and business arguments. Many developed countries in Asia, Europe, and the Americas have leveraged these international trade opportunities to produce high-quality goods and services and sold them successfully in global markets, bringing prosperity to these enterprises, individuals, and the state. David Ricardo's theory of comparative advantage also provides a strong justification for the specialisation and liberalisation of cross-border trade (Lawrence and Weber, 2017; Hayes, 2020). Therefore, the coming of the Free Trade Agreements (FTAs) era has been celebrated widely as a new window of hope for African countries to expedite the development of their enterprises and hence, their economies.

The free trade phenomenon has led to the development of multinational enterprises around the globe. Kuratko (2014) revealed that international entrepreneurs who took advantage of international trade opportunities were the champions of the massive economic growth in both local and international businesses. Likewise, Gil-Pareja et al. (2019) also noted that developing countries have relied on trade agreements to increase their exports to developed markets such as the European Union (EU). Data from The World Bank (2021) indicates that sub-Saharan African (SSA) countries have access to three main economic blocs (EU, US and Africa) with a combined GDP worth approx. 84,000 bn US Dollars and with a population of more than two billion people (World Population Review, 2021) through free trade agreements and preference systems like the African Growth and Opportunity Act (AGOA) or the EU's Generalized System of Preferences (GSP). In addition, this study comes in when the African Union initiated the African Continental Free Trade Agreement (AfCFTA) to provide a common platform for member states to trade among themselves as a linchpin to promote economic growth.

That notwithstanding, SSA seems to be lagging in this global trade windfall just as in many areas of development. Similar to other SSA countries, Ghana is currently able to tap only a negligible 0.04% of the combined market potential in Africa, USA, and Europe (Ghana Export Promotion Authority, 2020). Several studies have provided leads to the major issues that have militated against SSA's drive towards becoming active and significant players in the international trade arena. Some studies also discovered that the poor ecosystem of North-South and South-South collaborations accounts for SSA's inability to tap the benefits of these economic prospects (Osei-Assibey, 2015; Liu, 2016; Boateng, 2020).

Loconto (2014) observed that part of the challenges holding back Africa's economic and industrial revolution could be attributed to the lack of ready markets for production. Mutala (2014) and Fukui (2019) also noted that most

enterprises in developing countries fail in their internationalisation bid because they are ill-prepared for the global marketplace. On the contrary, Grossman (2016) argues that many individual countries and economic blocs in the developed world have joined forces over the years to "exploit their joint market power in trade" (p. 422). These findings corroborate the call for more effective business-to-business (B2B) collaborations in SSA, which is expected to help boost their economic fortunes in the international trade marketplace.

In general, business-to-business (B2B) partnerships may result in various benefits for the firms involved, including improving their cost positions, increased foreign market entry opportunities or refining their business model (Schmitz Whipple, Gentry, 2000). However, several critics observe that B2B partnerships in SSA did not come with the intended benefits (Liu, 2016; Fukui, 2019; Boateng, 2020). This serves as the motivation for this study to investigate further the issues that affect cross-border business collaborations and to come up with the key success factors (KSFs) that would promote collaborations between enterprises within Africa and between African countries and their counterparts from the Global North. These KSFs are expected to promote sustainable cross-border trade partnerships with a consequential benefit to sustainable enterprise and economic development in SSA.

The lack of detailed understanding of the reasons for the persistent failure of enterprises in SSA to get the maximum benefit from cross-border B2Bs resulted in our research question: What are key success factors of business-to-business collaborations between African enterprises and companies from Africa and the Global North? Our research objectives are twofold. First, we sought to examine the issues that affect cross-border business collaborations. Then, we also aimed to ascertain the key success factors that would promote cross-border B2B partnerships in SSA and between enterprises from Africa and the Global North.

The study was approached qualitatively using a phenomenological research design. First, the study provides a literature review on business-to-business collaborations and key success factors of business partnerships between African companies as well as between African companies and firms from the Global North. In addition, we collected and analysed empirical data using interviews, focus group discussions, and a workshop. The empirical data gathering also focused on broader consultations with major stakeholders in the international trade and sustainable enterprise development ecosystem in multiple countries within Africa and Europe. The combined analysis of literature and empirical data helped to generate new knowledge on KSFs for promoting South-South and North-South mutually beneficial and sustainable B2B collaborations.

The remainder of this paper is structured into four segments. First, we review the literature on B2B collaborations and the issues that affect successful partnerships. Then we discuss the research methodology adopted and how the

enquiry process was organised. After this section, we discuss the results and findings from the empirical data. The last section summarises the major findings and presents the conclusion of the study of the key success factors of cross-border B2B collaborations between SSA and the Global North.

Literature Review

Several types of business-to-business (B2B) partnerships can be distinguished in the literature, including strategic alliances and supply chain partnerships. Strategic Alliances are perceived as cooperative agreements between two or more firms (Das, Teng, 1998; Parkhe, 1993; Spekman et al., 1998). While the firms remain independent entities, they contribute to the strategic alliance in one or more areas critical to the alliance, including production, marketing or sales (Mockler et al., 1997). The supply chain partnership refers to the vertical integration of companies. It could be described as a collaborative relationship between a firm and its partners along the supply chain (Corsten, Kumar, 2005).

The academic debate has uncovered many aspects of the lifecycle of a B2B partnership, including its initiation, termination as well as success factors during its existence (Das, Teng, 1998; Kim et al., 2010). This paper focuses on the success factors of B2B partnerships. Partnership success is "the best outcomes the organisation could achieve through supply chain partnerships given its business situation, measured against a portfolio of project, early operational, and longer-term business results metrics" (Archer et al. 2006, p. 281). The success of a B2B partnership could simply include its long-term existence, given that many partnerships fail during the first three years of their existence. Success could also mean that the partnership is meeting its goals. This could include an improved competitive situation of the involved partners or a general satisfaction and financial performance of the partnership (Dyer et al., 2001).

Apart from outcome aspects such as satisfaction or performance, many papers have examined other success factors that positively affect B2B partnerships. They are organised along different theoretical standpoints. First, according to the social exchange theory, developing relational factors such as trust, commitment and communication are of utmost importance for a successful partnership. Mutual trust reduces the partners' concern about opportunistic behaviour (Gulati, 1995) and ensures that the partners believe in each other's credibility, reliability and good intentions (Ganesan, 1994; Smith, Barclay, 1999). Commitment means that the involved companies are willing to wield effort on behalf of the B2B partnership and follow a long-term orientation (Mohr, Spekman, 1994). In addition, communication includes the timely and accurate provision and sharing of credible information (Mohr, Spekman, 1994; Smith, 1997).

Second, resource-based perspectives emphasise the important role of the resources the partners possess and yield into the partnership. A B2B partnership constitutes an opportunity to build on the partners' resources and create new resources together. Therefore, the core success factors linked to that perspective include complementary resources (Lambe et al., 2002). Third, authors see a crucial role of relationship learning for partnership success. This includes learning intent, knowledge integration, and cross-cultural sensitivity in a global environment (Liu, 2012). Fourth, the transaction cost theory assumes that relationship-specific investments reduce the danger of opportunistic behaviour. One success factor found in empirical papers relates to the construct of asset specificity (Sambasivan et al., 2013). In addition, authors point out that a suitable governance mechanism through the formalisation of the partnership, including contracts to establish an equity Joint Venture, must be found (Ahmed et al., 1999).

Turning to B2B partnerships that involve African companies, the literature has also investigated success factors in collaborations between, on the one hand, African companies and, on the other hand, firms from Africa and the Global North. Starting with intra-African partnerships, Moalusi and Coetzee (2018) emphasised the important role of benevolence, integrity and reliability in promoting trust in business collaborations between South African companies. Similarly, a further study on South African buyer-supplier relationships underscored the central role of trust. Economic satisfaction, according to the authors, influences trust, which positively affects commitment. Both trust and commitment positively influence non-economic satisfaction, which covers affective and social elements of the relationship (Mpinganjira et al., 2017). Another study on supply chain partnerships in South Africa points out that, to improve performance, companies should focus on integrating resources and processes along the value chain (Mofokeng, Chinomona, 2019). In addition, a study on B2B relationships in Ethiopia found that personal bonds and longevity are critical for enhancing supplier relationship satisfaction. The positive relation between trust and supplier satisfaction was found only in situations where the producer depends on the supplier (Shanka, Buvik, 2019). Another study on Nigerian SMEs revealed that the institutionalisation of strategic alliances positively affects their performance (Nwokocha et al., 2020). For Ghanaian buyer-supplier relationships in the cocoa industry, a study concluded that cooperation, information-sharing and satisfaction reduce the perception of opportunistic behaviour (Glavee-Geo et al., 2020). A survey of supply chain partnerships in Kenya revealed that communication and joint decision-making between manufacturers and suppliers positively affect the manufacturing firm's operational performance (Onyango et al., 2015).

In general, there are only few pieces of research on strategic alliances or supply chain partnerships between companies from Africa and the Global North. Concerning B2B partnerships between African companies and firms

from the Global North, the literature identifies similar success factors. A study on alliances in the construction sector in inter alia Botswana, South Africa, Sweden and UK revealed that successful alliances had established equal stakes in the alliances, leading to strong levels of trust. In such cases, partners choose to exercise alliance activities while refraining from opportunistic behaviour (Ngowi, Pienaar, 2005). Another study on international alliances that also included a couple of African-European alliances found that companies may leverage cultural distance if they build on certain culture-specific complementarities and engage in frequent communication (Pesch, Bouncken, 2017). A further study on inclusive business in Ghana involving local, US and European companies concluded that contracts, trust and frequent decision-making meetings are prevalent to guarantee the stakes and resources of all parties (Amponsah et al., 2019).

Research Methods

The study used a qualitative inquiry approach to uncover the key success factors of business-to-business collaborations involving enterprises from Africa and the Global North. Qualitative research provides several design alternatives (Flick, 2018). Among these alternatives, phenomenology was selected as the dominant design for this study. Phenomenology became appropriate because this study investigated the issues with cross-border B2B collaborations as a phenomenon in SSA. Besides, Belz & Binder (2017) advised that sustainable entrepreneurship practices and related research are at the nascent stage and require a lot of qualitative inquiries to establish the necessary baselines for future studies.

Even though qualitative research does not follow a typical rudimentary approach as in the case of a typical positivist research, we followed systematic procedures recommended by Lincoln and Guba (1986), and Patton (2002) in the conduct of the study to ensure that the outcomes of this study are reliable and trustworthy. The qualitative research design enabled us to conduct in-depth interviews and intensive discussions with major stakeholders resulting in the co-creation of the knowledge in this study. The qualitative research approach also helped to generate an in-depth understanding and critical insights into purposefully selected samples and information-rich cases (Patton, 2002).

The data collection process involved multiple forms of interviews. There were ten in-depth interviews, two focus group discussions, and a workshop from January to July 2021. The study participants were perceived to have extensive knowledge of international business collaborations. These persons are international trade experts, private sector CEOs and managers, and enterprise development experts from Ghana and Germany. There were also significant contributions from Nigeria, Kenya, and Burundi participants. In addition, we interviewed trade facilitation

and regulatory agencies from Ghana. This sample was a build-up on similar to the participants selected by Osei-Assibey (2015) in a related study. The key informants were identified in the respective sampled institutions, considering their positions or roles in the respective organisations. Preference was given to persons with direct experience and knowledge in the discussed issues, which qualified them as subject matter experts and their availability to participate in the study. Therefore, the research team selected the key informants in consultation with the leadership of the participating institutions.

Guided by the recommendations of Knight (2013), the data collection instruments were designed to contain two open-ended questions. Each question has its respective prompts, which helped to understand further the important issues related to the main question. Real-time prompts relating to the research objectives were further investigated as follow-up questions to enrich the research data. However, we ensured that the informants or participants could respond to all the questions within the interview period 'without feeling rushed'. We were guided by the principles of epoche in phenomenological study to ensure that we "bracket" ourselves from the study to focus solely on the investigated phenomenon. Data saturation was reached after Focus Group Discussion (FGD) #1 and seven interviews. The additional data from three subsequent interviews and the closing FGD helped confirm and validate earlier participants' assertions.

This study's data collection procedures deployed recommended qualitative data collection practices. The collected data was cross-validated through multi-stage data collection from multiple sources to ensure that the research participants were subject matter experts. There was an initial focus group discussion; then interviews were conducted in-between, followed by the workshop, then the closing focus group discussion to validate the collected data. The study also used the focus group discussions to synthesise and validate claims in real-time; include all important stakeholders in the discussions; cross-check collected data with the informants for validation, and ensure that the researchers strictly maintain a facilitation role in all discussions.

The summary of the processes is depicted in Table 1 as follows:

Table 1: Summary of Data Collection Processes

Stage	Activity	Participant Institutions
	In-depth interviews	▪ Private sector enterprises ▪ Trade regulators and support service providers

Data collection stage 1 (January – March 2021)	Focus Group Discussions	▪ Business associations ▪ International consulting firms ▪ Enterprise development experts
Data collection stage 2 (May – July 2021)	Focus Group Discussions	▪ Trade Policy Group ▪ Business Associations ▪ Private sector enterprises group
	Workshop	▪ Group of entrepreneurs from sub-Saharan Africa and Europe
	In-depth interviews	Follow-up interviews

Source: Author's Construct (2022)

The data analysis was done manually and approached from an inductive reasoning perspective. To further guarantee the reliability of the process, all the interviews, the workshop, and FGD sessions were recorded and later transcribed. The original transcripts were subjected to cleaning to guarantee their quality before analysis. The data analysis process used "multiple coders and observed inter-coder consistencies to establish the validity and reliability of the themes that form the basis of the data analysis" (Patton, 2002, p. 267, emphasis in original). The coding process began with framework analysis of predetermined codes based on research objectives and concepts, but this was open to accommodate emerging codes as the data analysis progressed. A line-by-line coding approach was used initially. Later, we deployed an interpretative phenomenological analysis (IPA) technique to understand how the participants perceived the investigated issues. The line-by-line and IPA coding approaches were applied to the structured analysis. At the same time, the emerging codes were determined through an in-vivo coding method as recommended by Saunders, Lewis, and Thornhill (2009) and Turner (2019).

The coding frame was alpha-numeric to provide unique identities to the various themes that emerge from the data analysis as the key success factors for cross-border B2B collaborations. The frame has numeric codes of one and two, representing the two objectives of the study. Each numeric code had alphabetic sub-coding to identify each sub-

theme and link it to a particular theme or objective. For example, code "2a" on the transcript refers to objective "2" a priori theme "a." The coding was mainly deductive but flexible to make room for newly observed codes from the transcripts. We also used differentiated colouring to distinguish between the themes related to the various objectives, which enhanced the easy identification and grouping of data for further analysis. This process helped to smoothen the process that helped to identify the themes and trends during data analysis. The comparison of a priori themes and emerging themes also helped to synthesise data further to identify new knowledge, which formed the basis of the results from this study.

Ethical issues in this study were approached based on the recommendations for social constructivist research by Patton (2002), and Batmanabane & Kfouri (2017). As a result, we followed confidentiality and data protection norms to safeguard the personal identities of key informants. There were no inducements to manipulate the inputs from key informants. Interview durations were limited to the 90-min maximum limit suggested by Knight (2013). Most participants were interviewed only once, and where follow-ups were necessary, we ensured that none of them was interviewed more than twice. This helped to avoid research fatigue among the participants.

Results and Discussion

From the analysed data, several factors were found to affect the development of sustainable international B2B collaborations within SSA and between African businesses and their counterparts from the Global North. The factors that emerged from the analysed data are country-level international image and reputation; enterprise level reputation and credibility; building trust, foreign culture orientation; building trust; foreign culture orientation; business language effect; negotiation power and capacities; pursuing comparative advantage; and moving towards sustainable partnerships. These factors are discussed in the next sections.

Country-level international image and reputation

The research participants were almost unanimous that country-level reputation affects prospects for successful B2B collaborations. With high optimism, one discussant at Focus Group Discussion (FGD) #1 said, "it is remarkable to know that some credible rankings placed Ghana among the top five investor destinations and enterprise development hubs in Africa, alongside Nigeria, South Africa, Egypt, and Kenya." They argued that these rankings open up prospects for potential collaborations for enterprises in these countries that make it to the top list of international acclaim in Africa.

Research Participant #5 who is an expert in EU-Africa business collaborations, revealed that:

> Many European countries are looking at West Africa from the eyes of Ghana and Nigeria. However, doing business in Ghana is more convenient and less complicated compared to Nigeria. This gives Ghana a very strong competitive advantage over its West African peers. Ghana is the international community's West African 'darling' even though Nigeria has a far bigger economy and market. Ghana is a good entry-level country in West Africa. Entering the Nigerian market is more difficult, and Ghana's market is very decent even though it is not very big like Nigeria or South Africa (Research Participant #5, 2021).

Research participants were unanimous that Ghana's political stability and consistent economic growth in the last two decades have created a niche for the country as one of the most stable and business-friendly countries in sub-Saharan Africa (SSA). An EU trade diplomat who participated in Workshop #1 explained how his working visit to Ghana in 2019 helped informed his willingness to accept collaborations from that country. Other research participants turned in that Ghana's reputation is an important marketing tool for Ghana and creates a positive image for Ghanaian businesses in the international business arena. This is their opinion: "I found it very interesting the way of life of Ghanaians (…) very open and accommodating (…) we were greeted with open arms everywhere, and that is still hanging on me".

These revelations by the research participants underscore the importance of country-level reputation in promoting cross-border collaborations. The sub-themes that emerged under country-level reputation are overall international credibility, political stability, ease of doing business, safety and hospitality, market potential, and economic growth rate. When these indicators are positive, the country's international image also looks positive to foreign investors and businesses who may be motivated and willing to accept business collaborations from such countries. On the other hand, the research participants believe business collaborations will suffer tremendously if the country-level image and reputation appear unacceptable.

Enterprise-level reputation and credibility

Research participants point to enterprise-level reputation and credibility as extremely important requirements for successful cross-border business collaborations. The important indicators to assess the enterprise level reputation include a strong, reliable partnership with the buyer(s); strict compliance with relevant certification requirements; and development of trust through the delivery of consistent quantity and quality of produce. The research participants indicated that every enterprise requires a strong positive outlook with these indicators to be able to attract potential partners abroad. As indicated by one key expert, a firm in SSA that is contemplating international collaborations

should not "try to play smart because in the end you will be exposed, and the relationship will be curtailed in the short term" (Research Participant #1, 2021).

Building trust

The research participants disclosed that sincerity, truthfulness, and honesty are important pillars of building trust and creating sustainable partnerships. They revealed that dishonesty is, perhaps, the most destructive character in creating and building effective international collaborations. Research Participant #8 cautioned that dishonest entrepreneurs from Africa "can fool the Whiteman once, but you cannot fool him all the time, and you can get blacklisted." They explained that some African enterprises "try to be smart" when dealing with their foreign counterparts, but such tendencies are extremely hurtful and cannot promote sustainable collaborations. The main thrust here is that successful business collaborations will thrive only when the entities involved have been able to build trust among themselves and then they can now leverage on this goodwill to undertake mutually beneficial business collaborations.

Foreign culture orientation

Enterprises that want to go global and collaborate with foreign firms must consider important contextual issues like language, business culture, and domestic regulations for doing business. A research participant explained further that language is the currency of communication. Businesses who identify markets in foreign destinations are expected to understand the language and business culture of the people. "When language issues are handled carefully, that will also help smoothen international business collaborations" (Research Participant #7, 2021). Participants also mentioned that collaborating partners should understand their potential collaborators' business norms and rules as an important step in ensuring mutual understanding and adaptation for effective and sustainable business collaborations.

Business language effect

The English language came up as an important lingua franca for successful B2B collaborations between African businesses and those from the Global North. Research participants maintained that the diversity of international languages makes it "tricky" to believe that a national language is what is needed to benefit from business collaborations. However, Research Participant #5, who is very familiar with business dynamics in Africa, revealed that the English Language has become a great asset in international collaborations. According to the expert, English is widely spoken in many countries globally. Even countries whose primary official language is different are likely to adopt English as the second language for business and social purposes. Contributions from the research participants

indicate that the EU, US, China and many other developed markets are "comfortable" with the English language for business purposes. This has given a unique advantage to English-speaking countries in SSA. They recommend that all businesses in Africa promote English as part of their business languages.

Negotiation power and capacities

In the international business arena, country-level agreements are influenced by the negotiation power of the countries involved. The research participants believe these also affect enterprise-level negotiations. Considering that the size of many enterprises in SSA is very small, research participants noted with regret that this affects their collaboration fortunes. Collaboration enterprises from the Global North often require certain logistical capacities before availing themselves for such partnerships. Since many enterprises in SSA fall short of these expectations, they are usually at the "mercy" of collaborators from developed countries. Participants observed that SSA businesses lack effective negotiation expertise, making them "not confident and assertive enough" to engage their counterparts in arms-length negotiations in developed countries. This phenomenon leads to unbalanced negotiation power, affecting such collaborations' effectiveness and sustainability.

Research participant #5 observed that many firms in developing countries are usually excited about international collaborations without carefully considering the benefits they want from such partnerships. They cautioned that this "rush to partner without clear objectives" puts the partnership at the mercy of the dominant partner, usually those from developed countries. "It is not a matter of just going global or into Europe; the benefits must be clear; completely clear," Research participant #5 added.

Research Participant #7 also linked the confidence and capacity of collaborators to the state and competitiveness of their domestic market. They explained that enterprises in developing countries should develop a formidable domestic market as an important first step before going international. Research participant #5 added further that this approach will avoid a situation where enterprises are placed at the mercy of their foreign counterparts because "they have nothing locally to compare with the offer from an international partner."

Pursuing comparative advantage

In separate interviews, three participants suggested that firms in Africa could be more successful in their international negotiations if they focus their business operations ons products that give them a comparative advantage and pursue them. In their opinion, if firms in Africa offer goods or services of higher quality or cheaper than others in the international market, they will have higher confidence and capacity to negotiate and dominate partnership

discussions to their benefit. Likewise, SSA businesses are expected to acquaint themselves with up-to-date market information in their target market, for example, the EU, and then decide "how to fit in." In this regard, potential collaborators are to first "identify the cash cows (in their target foreign markets) and then strategise and milk that cow" (Research Participant #9, 2021). This makes it imperative for B2B candidates to have a strong market intelligence function to navigate their way to success.

Moving towards sustainable partnerships

Research Participant #7 expressed grave concern that many collaborations are short-lived because they have short-term goals of "merely securing business deals." They opined that a partnership that is meant to be sustainable must be built on "win-win" strategies where each party has some benefits as long as the partnership continues to exist. They argued that when parties to such collaborations contemplate a long-term relationship, they are likely to act in the interest of each other, and they would be equally concerned about the gains of the other party, without which the partnership cannot stand firm.

According to the research participants, a sustainable collaboration should result in a perpetual win-win, growth and development of all partners involved. Research Participant #10 also suggested that B2B collaborators from developed countries should support the capacity development of their collaborators from SSA because it will be to their mutual benefit if they are well resourced and are able to meet the required standards for effective collaboration. Participants #4, #5, and #7 also added that logistical and resource support components are usually conspicuously missing in most of such collaborations, and even when they exist, they are hardly implemented adequately to serve the interest of their counterparts from developing countries. Collaborators from developed countries are, therefore, encouraged to support their trade partners who are less industrialised to help improve their capacities so they can become jointly competitive.

Conclusion

The study began with theoretical underpinnings of international trade and how B2B collaborations play a key role in promoting cross-border trade. Then came the economic and business arguments from literature on the need for sustainable collaborations to promote international trade in sub-Saharan Africa (SSA). This context resulted in the need to identify the success factors for B2B partnerships and how they help to developed international enterprises. Literature analysis indicate that African enterprises are not benefitting adequately from cross-border B2B collaborations. This led to the identification of the missing gap to find out how international B2Bs can become more

beneficial African businesses. This formed the basis for the development of the appropriate instruments for empirical data collection from multiple stakeholders. The results are the outcomes of both the literature analysis and empirical data collected during the research period between January 2021 and March 2022.

The following emerged out of the study as key success factors for promoting partnerships between firms in SSA and their foreign counterparts. The KSFs are:

1. International image and reputation of the entrepreneur's home country.
2. Reputation and credibility of the enterprise that is seeking a partnership.
3. Ability to build trust to attract and maintain partnerships.
4. The level of understanding and integration into the home culture of the foreign partner.
5. Ability to establish a common business language with the partner.
6. A balanced negotiation power and capacity of the partners.
7. Ability to pursue comparative advantage to offer unique value to the foreign partner.
8. Being committed to establishing sustainable partnerships.

Table 2 summarises the key success factors for ensuring effective collaboration between SSA firms and their counterparts from developed countries. It also provided an analysis of economic actors who should primarily take responsibility to o ensure that the indicators for the various KSFs are positive and generate the needed benefit from such collaborations for a win-win cross-border business.

Table 2: Key Success Factor for Promoting Sustainable Collaborations Between Entrepreneurs in SSA and their Global North Counterparts

S/N	Key success factor	Primary responsibility
1.	International image and reputation of the home country	Government and citizens
2.	Enterprise-level reputation and credibility	Enterprises
3.	Building trust	Enterprises
4.	Foreign culture orientation	Enterprise executives and their agents

5.	Business language effect	Government, enterprise executives, and their agents
6.	Negotiation power and capacities	Enterprise executives and their agents
7.	Pursuing comparative advantage	Government and enterprises
8.	Moving towards sustainable partnerships	Government, enterprise executives, and their agents

Source: Authors' construct (2022)

Table 2 also ascribed primary responsibilities to the respective stakeholders who are expected to ensure that the benefits are derived from these potential success factors. The KSFs could have either negative and positive effects on international business partnerships, depending on how they are managed. That is why it is important to ensure that all stakeholders play their respective roles in ensuring that the South-South and North-South business partnerships are re-engineered and promoted to benefit all parties involved. It would be useful to continue investigating the cross-border B2B situation in SSA in several ways. This study has created a general understanding of the success factors of B2B partnerships. It would, therefore, be interesting to have some case studies of partnership pairs between, for example, African and European enterprises to provide a contextual understanding of this phenomenon. Additionally, it would be useful to have further in-depth studies into B2B collaborations by productive sectors such as manufacturing, service, agriculture, trade, or other areas of interest to countries SSA.

References

Ahmed, F., Patterson, P. and Styles, C. (1999). The Determinants of Successful Relationships in International Business. Australasian Marketing Journal, **7**, pp. 5–21.

Amponsah, S., Okada, Y. and Stanislawski, S. (2019). Partnership, Innovation, Commitments and Gains of the Poor Business in Inclusive Ghana: Multiple Case Studies. Journal of Business Diversity, **19**, pp. 10–21.

Archer, N. P., Maheshwari, B., Kumar, V. and Kumar, U. (2006). Optimising success in supply chain partnerships. Journal of Enterprise Information Management, **19**, pp. 277–291.

Batmanabane, V. and Kfouri, J. (2017). Qualitative data collection: Interviews. Available at: https://lms.su.edu.pk/download?filename=1588528363-interviews-jk-vb-v7-march-1.pdf&lesson=22717

Belz, F. M. and Binder, J. K. (2017). Sustainable entrepreneurship: A convergent process model. Business Strategy and the Environment, **26**, pp. 1–17.

Boateng, K. (2020). Local content and the continental free trade agreement: How local SMEs can fully participate. Ghana: Invest in Africa and Mastercard Foundation Masterclass. C Available at: hrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://appghana.com/uploads/growthub/Local%20Content%20&%20AFCTA.pdf

Corsten, D. and Kumar, N. (2005). Do Suppliers Benefit from Collaborative Relationships with Large Retailers? An Empirical Investigation of Efficient Consumer Response Adoption. Journal of Marketing, **69**, pp. 80–94.

Das, T. K. and Teng, B.-S. (1998). Between Trust and Control. Developing Confidence in Partner Cooperation in Alliances. Academy of Management Review, **23**, pp. 491–512.

Dyer, J.F., Kale, P. and Singh, H. (2001). How To make Strategic Alliances Work. MIT Sloan Management Review, **42**, pp. 37–43.

Flick, U. (ed.) (2018). The SAGE handbook of qualitative data collection. London: Sage. doi: https://www.doi.org/10.4135/9781526416070.

Fukui, S. (2019). Economic development in developing countries and the future of trade agreements, Japanese Journal of Agricultural Economics, **21**, pp. 50–55.

Ganesan, S. (1994). Determinants of long-term orientation in buyer-seller relationships. Journal of Marketing, **58**, pp. 1–19.

GEPA (2020). 2019 Report on analysis of non-traditional export statistics. Accra. Available at: https://www.gepaghana.org/export-statistic/gepa-annual-report-2019-full-version-2/ (Accessed: 12 May 2020).

Gil-Pareja, S., Llorca-Vivero, R. and Martínez-Serrano, J. A. (2019). Reciprocal vs nonreciprocal trade agreements: Which have been best to promote exports? PLoS ONE, **14**, pp. 1–15.

Glavee-Geo, R., Burki, U. and Buvik, A. (2020). Building Trustworthy Relationships with Smallholder (Small-scale) Agro-commodity Suppliers: Insights from the Ghana Cocoa Industry. Journal of Macromarketing, **40**, pp. 110–127.

Grossman, G. M. (2016): The Purpose of Trade Agreements, in Handbook of Commercial Policy, pp. 379–434. doi: 10.1016/bs.hescop.2016.04.016.

Gulati, R. (1995). Does Familiarity Breed Trust? The Implications of Repeated Ties for Contractual Choice in Alliances. Academy of Management Journal, **38**, pp. 85–112.

Hayes, A. (2020). Comparative Advantage, Investopedia. Available at: https://www.investopedia.com/terms/c/comparativeadvantage.asp (Accessed: 12 May 2020).

Kim, D.-Y., Kumar, V. and Kumar, U. (2010). Performance assessment framework for supply chain partnership. Supply Chain Management: An International Journal, **15**, pp. 187–195.

Knight, S. (2013). Interview guide preparation and use, Office of Faculty Excellence Presentation: Formulating In-Depth Interview Questions, pp. 1–4. Available at: http://core.ecu.edu/ofe/StatisticsResearch/KNIGHT Preparing Interview Guide.pdf (Accessed: 12 May 2020).

Kuratko, D. F. (2014). Introduction to Entrepreneurship. 9th edn. South-Western, Cengage Learning.

Lambe, C. J., Spekman, R. E. and Hunt, S. D. (2002). Alliance Competence, Resources, and Alliance Success. Conceptualisation, Measurement, and Initial Test. Journal of the Academy of Marketing Science, **30**, pp. 141–158.

Lawrence, A. T. and Weber, J. (2017). Business and Society. 15th edn. New York: McGraw-Hill Education.

Lincoln, Y. S. and Guba, E. G. (1986). But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. New directions for program evaluation, 30 (1986), pp. 73–84.

Liu, C-L. E. (2012). An investigation of relationship learning in cross-border buyer-supplier relationships: The role of trust. International Business Review, **21**, pp. 311–327.

Liu, X. (2016). Trade agreements and economic growth. Southern Economic Journal, **82**, pp. 1374–1401.

Loconto, A. (2014). Sustaining an enterprise, enacting sustainabiliTea. Science, Technology, & Human Values, **39**, pp. 819–843.

Mockler, R. J., Dologite, D. G. and Carnevali, N. M. (1997). Type and structure of multinational strategic alliances: the airline industry. Strategic Change, **6**, pp. 249–260.

Mofokeng, T. M. and Chinomona, R. (2019). Supply chain partnership, supply chain collaboration and supply chain integration as the antecedents of supply chain performance. South African Journal of Business Management, **50**, pp. 1–10.

Mpinganjira, M., Roberts-Lombard, M. and Svensson, G. (2017). Validating the relationship between trust, commitment, economic and non-economic satisfaction in South African buyer-supplier relationships. Journal of Business & Industrial Marketing, **32**, pp. 421–431.

Mutala, A. M. (2014). Trade agreement between Europe and Africa: Ghana and the Economic Partnership Agreements in Perspective. University of Ghana. Available at: http://ugspace.ug.edu.gh (Accessed: 12 May 2020).

Ngowi, A. and Pienaar, E. (2005). Trust factor in construction alliances. Building Research & Information, **33**, pp. 267–278.

Noble, H. and Heale, R. (2019). Triangulation in research, with examples, Evidence-Based Nursing, **22**, pp. 67–68.

Nwokocha, V. C. and Madu, I. A. (2020). Strategic Alliance and Its Influence on the Performance of Small- and Medium-scale Enterprises in Enugu State, Nigeria. Global Journal of Emerging Market Economies, **12**, pp. 199–216.

Onyango, O. J., Onyango, M. B., Kiruri, S. N. and Karanja, S. N. (2015). Effect of Strategic Supplier Relationship Management on Internal Operational Performance of Manufacturing Firms: A Case of East African Breweries Limited, Kenya. International Journal of Economics, Finance and Management Sciences, **3**, pp. 115–124.

Osei-Assibey, E. (2015). Export Promotion in Ghana. Available at: http://includeplatform.net/wp-content/uploads/2015/03/GTF-Export-Promotion-in-Ghana-SR-formatted.compressed.pdf (Accessed: 12 May 2020).

Parkhe, A. (1993). Strategic Alliance Structuring. A Game Theoretic and Transaction Cost Examination of Interfirm Cooperation. Academy of Management journal, **36**, pp. 794–829.

Patton, M. Q. (2002). Two Decades of developments in qualitative inquiry: A personal, experiential perspective. Qualitative Social Work, **1**, pp. 261–283.

Pesch, R. and Bouncken, R. B. (2018). The double-edged sword of cultural distance in international alliances. Cross Cultural & Strategic Management, **24**, pp. 33–54.

Sambasivan, M., Siew-Phai, L., Mohamed, Z. A. and Leong, Y. C. (2013). Factors influencing strategic alliance outcomes in a manufacturing supply chain: Role of alliance motives, interdependence, asset specificity and relational capital. International Journal of Production Economics, **141**, pp. 339–351.

Saunders, M., Lewis, P. and Thornhill, A. (2009). Research methods for business students. Fifth Edition. Pearson Education Limited.

Schmitz Whipple, J. and Gentry, J. J. (2000). A network comparison of alliance motives and achievements. Journal of Business & Industrial Marketing, **15**, pp. 301–322.

Shanka, M. S. and Buvik, A. (2019). When Does Relational Exchange Matters? Social Bond, Trust and Satisfaction. Journal of Business-to-Business Marketing, **26**, pp. 57–74.

Smith, J. B. and Barclay, D. W. (1999). Selling Partner Relationships: The Role of Interdependence and Relative Influence. Journal of Personal Selling & Sales Management, **19**, pp. 21–40.

Spekman, R. E., Forbes, T. M., III., Isabella, L. A. and MacAvoy, T. C. (1998). Alliance Management. A View from the Past and a Look to the Future. Journal of Management Studies, **35**, pp. 747–772.

The World Bank (2021). GDP (current US$) Data, World Bank national accounts data, and OECD National Accounts data files. Available at: https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2020&start=1981(Accessed: 12 May 2020).

Turner, D. (2019). Beginners guide to coding qualitative data, YouTube. Available at: https://www.youtube.com/watch?v=lYzhgMZii3o (Accessed: 12 May 2020).

World Population Review (2021). 2021 World Population by Country, 2021 World Population by Country. Available at: https://worldpopulationreview.com/ (Accessed: 28 September 2021).

Psychological Precursors of Entrepreneurial Intentions Among Tertiary Students in Ghana

Inuusah Mahama (PhD), Ebenezer Acheampong and Isaac Nketsiah
University of Cape Coast, Ghana
Cape Coast
Ghana
email: inuusah.mahama@stu.ucc.edu.gh
email: ebenezer.acheampong@ucc.edu.gh
email: isaac.nketsiah@ucc.edu.gh

Abstract

Entrepreneurship is labelled as the panacea for graduate unemployment in Ghana. In the training process, students are mandatorily required to read a course in entrepreneurship, so as to be able to start their own businesses in the face of job adversities caused by the inadequacy of job opportunities created by government and lack of government drive to diversify the economy for more jobs to be created. This study, therefore aimed at investigating the critical precursors of entrepreneurial intentions among higher education students in Ghana. Using the analytical cross-sectional survey design, 250 respondents were recruited from public universities using probability sampling techniques (stratified-disproportionate and simple random) to participate in the survey. Respondents were required to respond to three constructs (entrepreneurial scaffolding, psychological capital, and entrepreneurial intentions). The data analyses were performed using multivariate regression. The study findings showed that entrepreneurial scaffolding and psychological capital were significant predictors of entrepreneurial intentions. The researchers concluded that students' convictions in succeeding or otherwise and planning to engage in entrepreneurial behaviours depended on proper entrepreneurial guidance and a positive mind-set. Therefore, it was recommended that higher education institutions in Ghana strengthened and included practical guides to entrepreneurial training. This will encourage higher education students to consider entrepreneurship, hence, reducing graduate unemployment in Ghana.

https://doi.org/10.18418/978-3-96043-104-6_24

Introduction

Statistically, the young population (between 15-25 years) of Africa is around 60%. It is reported that the current population of Africa stands at 1.3 billion, with the projection that it will multiply twice by 2050. The increase in population shows that the search for jobs by the young will eventually increase over time (Penar, 2021). The increase in the young population has led to the transformation of Labour market analysis in most African countries in recent years (Meyer & Mncayi, 2021). However, it is noted that employment and unemployment measures have not been adequate in understanding the growing intricacies of labour markets (Lacmanovic, Burić, & Tijanić, 2016; Wilkins & Wooden, 2011). This assertion is supported by the International Labour Organisation (ILO, 2016a) report, which re-echoed that statistics on unemployment underreport the veracity of challenges faced by young people in the labour market. ILO (2016a) notes that, with the skills and educational development of young people, their inclusion in the labour market are critical to acknowledging a thriving, sustainable, and a fair socio-economic environment. On the hand, Berglund, Håkansson, Isidorsson, and Alfonsson (2017) and ILO (2020a) allege that high structural unemployment and underemployment among youth are significant risks facing the global economy. This situation might increase exponentially in the African continent as most higher education institutions continue to graduate young ones every academic year without readily available job opportunities. In 2016, Kelvin Balogun, the President of Coca Cola stated that 'Almost half of the 10 million graduates churned out of the over 668 universities in Africa yearly do not get job'. This unemployment phenomenon was attributed to the lack of required skill set needed for these graduates to get absorbed in the job market. According to the United Nations Resident Coordinator in Kenya, one critical reason that prevents organisations from engaging graduates of sub-Saharan Africa is that these graduates complete their education without possessing the required skills to be engaged in any meaningful job opportunity (Obonyo, 2019).

The issue of unemployment is dangerous to the graduates themselves and their respective African nations. The World Bank (2014) report shows that this ever-increasing unemployment situation in Africa has compelled many young graduates to resort to crime, radicalisation, and risking their precious lives to pass through routes to Europe in search of decent and befitting jobs (World Bank, 2014). Unemployment is a political, socioeconomic, and development challenge for any affected nation. Unemployment harms economic growth and development in every nation (Mohseni & Jouzaryan, 2016). Unemployment affects economic growth. While economic growth helps create jobs, more jobs lead to economic growth and development.

With no immediate antidote to the unemployment situation in Africa, most higher education institutions (HEIs) have resorted to imparting entrepreneurial knowledge onto their students so that they can best be equipped to face-off the glary picture of unemployment by engaging in self-motivated entrepreneurial jobs. According to Wu

and Tian (2022), entrepreneurship is significant that researchers have begun investigating the key factors that drive individuals to become entrepreneurs and harbour initial entrepreneurial behaviours. Entrepreneurship is an activity or action that includes identifying, judging and taking opportunities to develop new goods and services, strategies of organising, marketing and processing of raw materials through organised efforts that were not evident initially (Shane & Venkataraman, 2000). According to Diandra and Azmy (2020), entrepreneurship is a part of business life that contributes to successful business organisation. Those who actively deal with business activities are most responsible for achieving their vision in entrepreneurial ventures.

It is important to note that people's behaviours most often are by their intention. From the psychological point of view, if "any human being wants to achieve something, there should be an intention for that" (Bhasin & Gupta, 2017, p. 26). This is synonymous to entrepreneurship as those engaged in it need to possess an entrepreneurial intention as a foundation. According to Moriano, Gorgievski, Laguna, Stephan, and Zarafshani (2012), the entrepreneurial intention has been defined 'as the conscious state of mind that precedes action and directs attention towards a goal such as starting a new business.

Wu and Tian (2022) note that, numerous scholars have recognised the importance of entrepreneurial intention (EI). For example, Krueger, Reilly, and Carsrud (2000) reported that reflexive behaviour does not initiate entrepreneurial behaviour. Instead, it is intentional from the person. Likewise, Cai and Zhao (2014) and Kolvereid and Isaksen (2006) stated that people who engage in entrepreneurial activities are those who possess strong EI. For students in higher education institutions (HEIs) in Africa, the zeal to engage in entrepreneurial behaviours and actions could come from entrepreneurial intentions and the needed actions towards any chosen self-motivated, entrepreneurial entity. The intention of students in HEIs to engage in entrepreneurial actions can be influenced by entrepreneurial scaffolding (ES) from their institutions and their psychological possessions, such as psychological capital (PsyCap).

Entrepreneurial Scaffolding and Entrepreneurial Intention

In the field of psychology, scaffolding is a strategy in which professionals in a given field display the process of problem solving for their students and then explain each step as they go along. After providing a few preliminary explanations, the instructor will then step back from the students and only provide assistance when it is required (Lantolf & Poehner, 2014; Nordlof, 2014; Vygotsky, 1987). Applied in business and entrepreneurship, entrepreneurial scaffolding is the support, training, strategies, and ideas offered to people to pursue business as a way of becoming independent in the job market. The importance of entrepreneurial scaffolding in fostering the development of a business mindset in individuals cannot be overstated. According to Nambisan, Siegel, and Kenney (2018) and Scott, Penaluna, and Thompson (2016), the role of entrepreneurship scaffolding is considered

to be one of the primary factors in creating optimistic expectations of capabilities for new business start-up ventures, cultivating desirable self-employment behaviours, and aspirations for entrepreneurship. This is because the role of entrepreneurship scaffolding is considered to be one of the primary factors in creating optimistic expectations of capabilities for new business start-up ventures (Scott, Penaluna, & Thompson, 2016).

Entrepreneurial scaffolding in this study covers entrepreneurial educational support, entrepreneurial activities support, and entrepreneurial commercialization support. According to Tarling, Jones, and Murphy (2016), entrepreneurial instruction imparts the numerous features of starting a new business through sequences of subjects and hands-on activities that aim to increase the probability of entrepreneurial success. Literature demonstrates that entrepreneurs can be fostered by entrepreneurship education (Gibb, 2002; Gianiodis & Meek, 2020; Liu et al., 2019). Also, Entrialgo and Iglesias (2016) assert that entrepreneurship education is necessary because it can support and shape entrepreneurial intentions and reduce the likelihood of start-up failure.Available literature shows that entrepreneurial scaffolding is necessary since it allows for discovery, revival, and entrepreneurship confidence building (Karimi, Biemans, Lans, Aazami, & Mulder, 2016; Parker, 2018). Entrepreneurial scaffolding in terms of education and awareness activities helps transform the unfavourable impression of entrepreneurship and helps replace the entrepreneur's uncertainties (Nabi, Lián, Fayolle, Krueger, & Walmsley, 2017). Entrepreneurial scaffolding promotes entrepreneurial intent and spirit, improves knowledge, reduces ambiguity, and boosts confidence (Kierulff, 2005; Michaelides & Benus, 2012; Mozahem & Adlouni, 2021).

With entrepreneurial scaffolding, higher education institutions play a key role in fostering student entrepreneurship and implementing entrepreneurship through entrepreneurial education, special lectures, awareness sessions, club activities for concept development, and commercialization support (Maresch, Harms, Kailer, & Wimmer-Wurm, 2016; Minai, Raza, bin Hashim, Zain, & Tariq, 2018). Entrepreneurial scaffolding helps establish an entrepreneurial attitude toward starting a new firm (Schwarz et al., 2009). Literature acknowledges the relevance of an entrepreneur's education, as it helps in generating positive opinions of start-up businesses' competency (Scott, Penaluna, & Thompson, 2016). Entrepreneurial scaffolding leads to better behaviour and innovative start-up plans (Liao, Javed, Sun, & Abbas, 2022). Students who took entrepreneurship classes were more entrepreneurial than others (Neto, Rodrigues, & Panzer, 2017). An effective entrepreneurial education curriculum and university entrepreneurial encouragement urge young people to pursue an entrepreneurial future (Van der Zwan, Thurik, Verheul, & Hessels, 2016).

Liguori, Bendickson, and McDowell (2018) discovered that many students' entrepreneurial aspirations are hampered by poor preparation, insufficient market experience, and an unwillingness to take risks. Shamsudeen,

Keat, and Hassan (2017) said entrepreneurial education helps participants build creativity and the drive to think creatively and see transitions as opportunities. Kraaijenbrink, Bos, and Groen (2010) suggested quantifying their impact on students, even though higher education institutions foster entrepreneurship in other ways. Entrepreneurship scaffolding procedures vary. First, institutions should teach the general information and abilities needed to launch a new project to demonstrate entrepreneurial talents. Second, institutions may offer more focused resources to students or student groups to develop entrepreneurial companies (Lim, Oh, & De Clercq, 2016; Mustafa, Hernandez, Mahon, & Chee, 2016).

Souitaris, Zerbinati, and Al-Laham (2007) used the pre-test and post-test experimental design to find out about undergraduate students' entrepreneurial education and their plans to start their own business. The study found that the average values of subjective norm and intention to work for oneself after the programme were higher than they were before the programme. However, entrepreneurial intentions at the end of the programme had nothing to do with emerging entrepreneurs. They said that the lack of a link between entrepreneurial education and intention at the end of the programme could be explained by the fact that there is a well-known time lag between entrepreneurial intentions and actions. However, the study found that entrepreneurship programmes provide students with 'trigger events' that make them want to try business ventures.

Psychological Capital (PsyCap) and Entrepreneurial Intention

Psychological capital (PsyCap) is an aspect of positive psychology. Positive psychology emerged in the late 1990s, emphasising what is good about people rather than what is wrong (Csikszentmihalyi & Seligman, 2000; Seligman, 1975; Snyder & Lopez, 2002). According to Cameron, Dutton, and Quinn (2003), positive psychology has two channels of manifestation, including the macro-oriented positive organisational scholarship (POS) movement and the micro-oriented state-like positive organisational behaviour (POB) approach. Therefore, psychological capital consists of numerous sub-components of these channels of manifestation in positive psychology. Psychological capital refers to the mental state of a person who demonstrates excellent organisational behaviour and strong job performance (Costa & Neves, 2017). Luthans (2002) defines PsyCap as the positive psychological development of an individual, including self-efficacy, optimism, hope, and resilience. In addition, Jiang and Na (2013) assert that PsyCap consists of six dimensions: self-efficacy, hope, optimism, resilience, opportunity recognition, and social ability. Psychological capital affects a person's career and personal success and influences their behaviour in numerous ways. PsyCap places a greater emphasis on power, success, adornment, and happiness (Donaldson, 2013), and it can increase both performance and satisfaction. Psychological capital also affects an individual's entrepreneurial behaviour. Psychological capital is tied to an individual's accomplishments and well-being. When

created, this evidence will determine the existence of entrepreneurial intent and the growth and success of a business (Costa & Neves, 2017; Darvishmotevali & Ali, 2020; Margaça, Hernández-Sánchez, Sánchez-García, & Cardella, 2021; Peters, Kallmuenzer, & Buhalis, 2018; Stephan, 2018). PsyCap can influence the ability of entrepreneurs to acquire financial and human capital (Zhao, Wei, Chen, & Yien, 2020). In a study, it was found that PsyCap (self-efficacy, need for achievement), and entrepreneurial orientation were highly related to entrepreneurship ambitions (Frese & Gielnik, 2014). In other research works, EI was found to relate to all components of PsyCap (e.g., self-efficacy and resilience) (Contreras, De Dreu, & Espinosa, 2015). Hmieleski (2008) found that entrepreneurs' PsyCap could explain variance in new venture performance. In a study among higher education students in China, Zhao, Wei, Chen, and Yien (2020) found that PsyCap indirectly predicted their entrepreneurial intentions.

The Case of Ghana

It is reported that small businesses represent about 85% of businesses and contribute about 70% of Ghana's gross domestic product (GDP) (World Bank, 2020). Regardless of SMEs dominance and their contribution to the GDP, they are faced with several financial and regulatory challenges. For instance, the World Bank Report on Doing Business for 2020 indicated that the average cost of starting business in Ghana is US$125.46 whiles it only cost US$56.51 and US$32.32 in Togo and Benin respectively (Amaglo, 2019; Poole, 2021; Sodokin, 2022; World Bank, 2020). For those in Rwanda, registering a new business is free and small businesses are exempted from all fees for a period of two years. Among 10 countries, Ghana is ranked 7th best African country out of 10 to become an entrepreneurial hub (CEOWORLD Magazine Entrepreneurship Index, 2022). Despite this, entrepreneurship is seen as one of the major drivers of the economy. According to Bawakyillenuo and Agbelie (2021), several Ghanaians consider entrepreneurship to be a good occupational choice. In this regard, government have made a step by providing financial backing to aspiring entrepreneurs through flagship programmes such as National Entrepreneurship and Innovation Programme [NEIP] (2020) and Ghana Enterprise Agency [GEA] (2021). This complement with these efforts, government keeps imploring universities to be entrepreneurial-oriented in their programmes. By this, universities could help hone entrepreneurial skills through entrepreneurial support strategies so that their products can take advantage of the available government's funding opportunities.

No matter how innovative an entrepreneurial programme may look and offered to students, its success can barely be realised without considering their entrepreneurial intention as a key variable, which is also influenced by entrepreneurial scaffolding and psychological capital. Several scholarly works have been conducted on the factors

influencing EI from diverse dimensions. Recent studies precisely investigated psychological characteristics such as internal locus of control and personality traits as determinants of EI (Arkorful & Hilton, 2021; Bazkiaei, Heng, Khan, Saufi, & Kasim, 2020; Tentama & Abdussalam, 2020; Uysal, Karadağ, Tuncer, & Şahin, 2022; Wang, Chang, Yao & Liang, 2016; Vodă & Florea, 2019). However, it is advised that emphasis should be placed on developmentally-based psychological resource (PsyCap) and school-oriented support strategy (entrepreneurial scaffolding) because they are the key drivers of entrepreneurial behaviour (Darvishmotevali & Ali, 2020; Khuong & An, 2016; Margaça, Hernández-Sánchez, Sánchez-García, & Cardella, 2021; Peters, Kallmuenzer, & Buhalis, 2018; Saeed, Yousafzai, Yani-De-Soriano, & Muffatto, 2018; Stephan, 2018; Wegner, Thomas, Teixeira, & Maehler, 2019). Again, it is important to note that scaffolding and psychological capital (PsyCap) are frequently studied in education and health but are rarely employed in business-related areas (entrepreneurship). This creates a huge gap in the literature and the current study seeks to bridge this gap by analysing the entrepreneurial intention using entrepreneurial scaffolding and psychological capital (PsyCap) as predictors among Ghanaian universities. In this way, a representation of the underlying connection among the variables will be established through the following questions:

1. Will the entrepreneurial scaffolding leads to entrepreneurial intention among HEIs students in Ghana?
2. Will students' psychological capital lead to entrepreneurial intention among HEIs students in Ghana?

Methods and Procedures

Participants

The study design was an analytical cross-sectional survey, where final-year undergraduate students were recruited. The analytical cross-sectional design was chosen because several final-year undergraduate students in public and private institutions were identified from different locations and situations in Ghana. In all, 250 students were selected through stratified and simple random procedures. The stratification was done because the universities had different population figures, which required fair representation. The simple random sampling (table of random numbers) was applied to ensure fairness in the selection of cases to respond to the survey.

Measures

Entrepreneurial Scaffolding

Institutional entrepreneurial scaffolding is assessed using a HEInnovate self-assessment (European Commission, 2012). The scale was used for students to assess the entrepreneurial level of their universities. The tool comprised 37 items across seven components. This allowed students to assess their entrepreneurial support ranging from 1=totally disagree to 5=totally agree. leadership and governance, (5-items), organizational capacity (5-items),

entrepreneurial teaching and learning (5-items), preparing and supporting entrepreneurs (6-items), knowledge exchange and collaboration (5-items), the internationalised institution (5-items), and measuring impact (6-items). Sample statements on the seven components of the scale include "entrepreneurship is an important part of my university's strategy, business goals are supported by a wide range of sustainable financing and investment sources, the university offers several formal learning opportunities to develop entrepreneurial skills, the university emphasises the value of entrepreneurship, the university is committed to collaborating and sharing knowledge with the industry, the public sector, and society, internationalization is an important part of the university's entrepreneurial agenda, and the university regularly assesses the impact of its entrepreneurial agenda". The scale recorded an improved internal consistency of .87 less than the generally established internal consistency of .98.

Psychological Capital (PsyCap)

Students' psychological capital was measured using Compound Psychological Capital Scale [CPC-12] (Lorenz, Beer, Putz, & Heinitz, 2016). The components are hope (3-items; e.g., 'Right now, I see myself as being pretty successful'); resilience (3-items, e.g., 'Sometimes I make myself do things whether I want to or not'); optimism (3-items, e.g., 'The future holds a lot of good in store for me') and self-efficacy (3-items, e.g., 'I can solve most problems if I invest the necessary effort'). Items were answered using a 5-point Likert-type scale ranging from 1 = 'strongly disagree' to 5 = 'strongly agree'. The scale recorded an improved internal consistency of .85 against the original reported as .82 by Lorenz et al. (2016).

Entrepreneurial Intention

Students' entrepreneurial intentions were measured using adapted items from the entrepreneurial intentions questionnaire (EIQ) developed by Linan and Chen (2009). These items are designed specifically to assess intentions to engage in entrepreneurial activities. The scale is uni-dimensional and had 5-items, with a sample item as e.g., 'My professional goal is to be an entrepreneur'. Items were answered using a 5-point Likert-type scale ranging from 1 = 'strongly disagree' to 5 = 'strongly agree'. The internal consistency of the scale was .71, is less than .77 to .94 threshold established by Linan and Chen (2009) in the validation process.

Analysis

The data analysis was performed after taking into consideration data management. Specifically, multiple linear regression was used as the main statistical procedure because the aim of the study to ascertain the contribution of the independent variables on the dependent variable.

Results of the Study

Gender of the Respondents

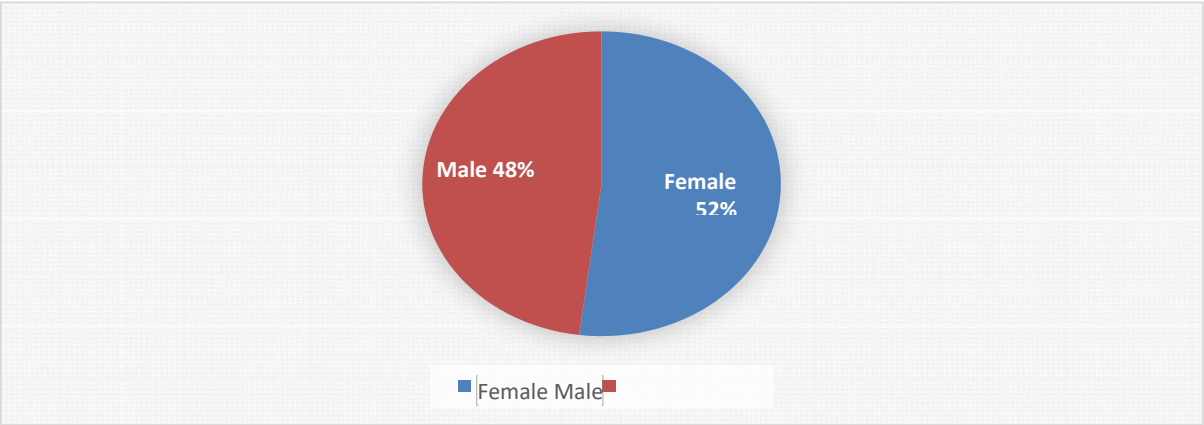


Figure 1: Pie Chart on Respondents' Gender

The pie chart reflects gender of the respondents and it is evident that the number of female respondents (N=130) were slightly more than male respondents (120).

Table 1: Descriptive Statistics

Variable	N	Mean	SD	Skewness	Kurtosis
Entrepreneurial Scaffolding (ES)	250	5.25	1.223	-0.85	0.76
Psychological Capital (PsyCap)	250	5.44	1.32	-1.04	0.86
Entrepreneurial Intention (EI)	250	5.43	1.37	-1.11	1.01

Descriptive statistics showing on Table 1 indicates that PsyCap generated the highest mean and standard deviation, followed by entrepreneurial intention and entrepreneurial scaffolding. The examination of the results concerning departure from symmetry, skewness statistics produced negative values less than zero, with the implication that data were negatively skewed while kurtosis statistics show platykurtic (less peaked with less outliers) with values less than three (Westfall, 2014).

Table 2: Correlation and Collinearity Results

Variable	ES	PsyCap	EI	*p*	Tolerance	VIF
Entrepreneurial Scaffolding (ES)	1	.586	.699	.000	.53	1.88
Psychological Capital (PsyCap)	.586	1	.734	.000	.56	1.99
Entrepreneurial Intention (EI)	.699	.734	1	.000	.50	1.79

From Table 2, it is evident the variable correlated significantly among themselves but there were no issues of multicollinearity among the predictors (ES and PsyCap) as the values of Variance Inflationary Factor (VIF) were all less than 2 (Johnston, Jones, & Manley, 2018).

Table 3: Regression Results

Variable	B	SE	β	R	T	R^2	Ad R^2	F	Sig.
ES*EI	.389	.053	.376	.808	7.34	.653	.649	154.14	.000
PsyCap*EI	.564	.061	.466	.808	9.25				.000

a. Predictors: Entrepreneurial Scaffolding (ES) and Psychological Capital (PsyCap)

b. Dependent Variable: Entrepreneurial Intention (EI)

Table 3 indicates the result of regression analysis of entrepreneurial scaffolding and psychological capital predicting entrepreneurial intentions among undergraduate students. The regression correlation shows that there is a large significant positive relationship among the variables. This implies that entrepreneurial scaffolding and psychological capital jointly explained 80.8% of the variance in students' entrepreneurial intentions (R^2=.808, F (2, 247) =154.14, p<.000). Further interpretation shows that there were significant predictions among the variables. For instance, entrepreneurial scaffolding experienced by students positively and significantly predicted students' entrepreneurial intentions (β=.376, p<.000) while students' psychological capital positively and significantly predicted their entrepreneurial intentions (β=.466, p<.000). The results imply that a unit increase in either entrepreneurial scaffolding or psychological capital will lead to a unit increase in students' entrepreneurial intentions.

Conclusion

The study aimed to ascertain the contribution of universities' drive in entrepreneurship through entrepreneurial scaffolding and mental possessions through psychological capital on entrepreneurial intentions among undergraduate students of a Ghanaian university. The study found that entrepreneurial scaffolding provided by higher education institutions and psychological capital positively influenced undergraduate students' drive to engage in entrepreneurial ambitions and behaviours. The revelation shows that these undergraduate students regard the theoretical-based entrepreneural education and training offered as most laudable and may venture into personal enterprises after graduating. The intentions harboured by the undergraduate students to engage in entrepreneurial activities could be motivated by the constant reports made by stakeholders in the job market

that graduate unemployment kept soaring, hence the need for graduates to refocus and re-orient their prospects for jobs.

Recommendations for Policy and Practice

In Ghana, the job market looks blurry as the government's drive to provide jobs for the teeming youth appears to experience a nosedive. Therefore, it is crucial to make entrepreneurial training compulsory for all higher education institutions. This will allow every higher education student to have entrepreneurial training and offer the needed guidance and support for job creation. For this to be achieved, higher education institutions that are yet to enrol entrepreneurial courses in general and provide occupational guidance/opportunities for thier students should embrace themselves and accept any entreprenueral proposal from the government or stakeholders so that the canker of unemployment can be marginalised. For higher education institutions that have implemented entrepreneurial education and training already, there is the need to advocate for its value and strengthen the training program from theory to practice so that those trained can apply the knowledge in their start-ups. In moving from theory to practice, higher education institutions could help their students with start-up capital for minor entrepreneurial ventures while they are under training so that the knowledge gained can be applied in such ventures.

Limitations and Future Research Directions

As much as the study findings contributed to literature in the area of entrepreneurship, it is not free from limitations. For instance, the study used only two higher education institutions in Ghana. Hence, concluding that findings reflect all higher education institutions will be problematic. Therefore, future research should focus on all public and private higher education institutions in Ghana, with diverse backgrounds that could influence the outcome. In addition, the study is more or less perceptual and reflects not the entrepreneurial actions of those involved. Therefore, future research should focus on tracer studies so that those churned out from the higher education institutions could be tracked and studied on the application of entrepreneurial knowledge.

References

Ajzen, I. (1991). The theory of planned behaviour. Organizational Behaviour and Human Decision Processes, 50(2), 179–211.

Alves, C., & Paiva, T. F. T. (n.d.). HEIs' digital capacity in supporting innovation and entrepreneurship: self-assessment by HEINNOVATE. Advances in Higher Education, 17.

Arkorful, H., & Hilton, S. K. (2021). Locus of control and entrepreneurial intention: a study in a developing economy. Journal of Economic and Administrative Sciences.

Bawakyillenuo, S., & Agbelie, I. S. K. (2021a). Environmental consciousness of entrepreneurs in Ghana: How do entrepreneur types, demographic characteristics and product competitiveness count? Sustainability, 13(16), 9139.

Bawakyillenuo, S., & Agbelie, I. S. K. (2021b). Environmental consciousness of entrepreneurs in Ghana: How do entrepreneur types, demographic characteristics and product competitiveness count? Sustainability, 13(16), 9139.

Bazkiaei, H. A., Heng, L. H., Khan, N. U., Saufi, R. B. A., & Kasim, R. S. R. (2020). Do entrepreneurial education and big-five personality traits predict entrepreneurial intention among universities students? Cogent Business & Management, 7(1), 1801217.

Berglund, T., Håkansson, K., Isidorsson, T., & Alfonsson, J. (2017). Temporary employment and the future labour market status. Nordic Journal of Working Life Studies, 7(2), 27-48.

Bhasin, J., & Gupta, M. (2017). Entrepreneurial intentions of students in higher education sector. Amity Journal of Entrepreneurship, 2(2), 25-36.

Cai, Y., & Zhao, N. (2014). Analysis of college students' entrepreneurial intention based on principal component regression method. Higher Education Exploration, 4, 160-165.

Cameron, K. S., Dutton, J. E., & Quinn, R. E. (2003). An introduction to positive organizational scholarship. Positive Organizational Scholarship, 3(13), 2–21.

CEOWORLD (2022). Magazine entrepreneurship index. https://citibusinessnews.com/2022/06/ghana-ranked-7th-best-african-country-for-entrepreneurs-in-2022-top-10-rankings/

Contreras, F., De Dreu, I., & Espinosa, J. C. (2015). Examining the relationship between psychological capital and entrepreneurial intention: An exploratory study. Canadian Center of Science and Education.

Costa, S., & Neves, P. (2017). Job insecurity and work outcomes: The role of psychological contract breach and positive psychological capital. Work & Stress, 31(4), 375-394.

Csikszentmihalyi, M., & Seligman, M. (2000). Positive psychology. American Psychologist, 55(1), 5–14.

Darvishmotevali, M., & Ali, F. (2020). Job insecurity, subjective well-being and job performance: The moderating role of psychological capital. International Journal of Hospitality Management, 87, 102462.

Diandra, D., & Azmy, A. (2020). Understanding definition of entrepreneurship. International Journal of Management, Accounting and Economics, 7(5), 235-241.

Entrialgo, M., & Iglesias, V. (2016). The moderating role of entrepreneurship education on the antecedents of

entrepreneurial intention. International Entrepreneurship and Management Journal, 12(4), 1209–1232.

European Commission (2012). Communication from the commission to the European parliament, the council, the European economic and social committee and the committee of the regions, a blueprint to safeguard Europe's water resources.

Fernández-Pérez, V., Montes-Merino, A., Rodríguez-Ariza, L., & Galicia, P. E. A. (2019). Emotional competencies and cognitive antecedents in shaping student's entrepreneurial intention: the moderating role of entrepreneurship education. International Entrepreneurship and Management Journal, 15(1), 281–305.

Frese, M., & Gielnik, M. M. (2014). The psychology of entrepreneurship. Annual Review of Organizational Psychology and Organizational Behaviour, 1(1), 413–438.

Ghana (2020). The national entrepreneurship and innovation programme. https://mobd.gov.gh/neip/

Gianiodis, P. T., & Meek, W. R. (2020). Entrepreneurial education for the entrepreneurial university: a stakeholder perspective. The Journal of Technology Transfer, 45(4), 1167–1195.

Gibb, A. (2002). In pursuit of a new 'enterprise'and 'entrepreneurship'paradigm for learning: creative destruction, new values, new ways of doing things and new combinations of knowledge. International Journal of Management Reviews, 4(3), 233–269.

Herrington, M., & Kelley, D. (2012). African Entrepreneurship: Sub-Saharan African Regional Report; International Development Research Centre, 1-74.

Hmieleski, K. M., & Carr, J. C. (2008). The relationship between entrepreneur psychological capital and new venture performance. Frontiers of Entrepreneurship Research.

International Labour Office (2020). Global employment trends for youth 2020: Technology and the future of jobs. International labour office.

International Labour Organisation (2016). World employment social outlooks: Trends for youth.

Johnston, R., Jones, K., & Manley, D. (2018). Confounding and collinearity in regression analysis: a cautionary tale and an alternative procedure, illustrated by studies of British voting behaviour. Quality & Quantity, 52(4), 1957-1976.

Karimi, S., Biemans, H. J., Lans, T., Aazami, M., & Mulder, M. (2016). Fostering students' competence in identifying business opportunities in entrepreneurship education. Innovations in Education and Teaching International, 53(2), 215–229.

Khuong, M. N., & An, N. H. (2016). The factors affecting entrepreneurial intention of the students of Vietnam national university-a mediation analysis of perception toward entrepreneurship. Journal of Economics, Business and Management, 4(2), 104-111.

Kierulff, H. E. (2005). Entrepreneurship education in Poland: Findings from the field. Human Factors and Ergonomics in Manufacturing & Service Industries, 15(1), 93-98.

Kolvereid, L., & Isaksen, E. (2006). New business start-up and subsequent entry into self-employment. Journal of Business Venturing, 21(6), 866–885.

Kraaijenbrink, J., Bos, G., & Groen, A. (2010). What do students think of the entrepreneurial support given by their universities? International Journal of Entrepreneurship and Small Business, 9(1), 110–125.

Krueger Jr, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. Journal of Business Venturing, 15(5/6), 411-432.

Lacmanović, S., Burić, S. B., & Tijanić, L. (2016). The socio-economic costs of underemployment. Management International Conference, Pula, Croatia.

Lantolf, J. P., & Poehner, M. E. (2014). Sociocultural theory and the pedagogical imperative in L2 education: Vygotskian praxis and the research/practice divide. Routledge.

Liao, S., Javed, H., Sun, L., & Abbas, M. (n.d.). Influence of entrepreneurship support programs on nascent entrepreneurial intention among university students in China. Frontiers in Psychology, 4205.

Liguori, E. W., Bendickson, J. S., & McDowell, W. C. (2018). Revisiting entrepreneurial intentions: a social cognitive career theory approach. International Entrepreneurship and Management Journal, 14(1), 67-78.

Lim, D. S., Oh, C. H., & De Clercq, D. (2016). Engagement in entrepreneurship in emerging economies: Interactive effects of individual-level factors and institutional conditions. International Business Review, 25(4), 933-945.

Liñán, F., & Chen, Y. W. (2009). Development and cross–cultural application of a specific instrument to measure entrepreneurial intentions. Entrepreneurship Theory and Practice, 33(3), 593-617.

Liu, X., Lin, C., Zhao, G., & Zhao, D. (2019). Research on the effects of entrepreneurial education and entrepreneurial self-efficacy on college students' entrepreneurial intention. Frontiers in Psychology, 10, 869.

Lorenz, T., Beer, C., Pütz, J., & Heinitz, K. (2016). Measuring psychological capital: Construction and validation of the compound PsyCap scale (CPC-12). PloS One, 11(4), e0152892.

Luthans, F. (2002). Positive organizational behaviour: Developing and managing psychological strengths. Academy of Management Perspectives, 16(1), 57-72.

Maresch, D., Harms, R., Kailer, N., & Wimmer-Wurm, B. (2016). The impact of entrepreneurship education on the entrepreneurial intention of students in science and engineering versus business studies university programs. Technological Forecasting and Social Change, 104, 172-179.

Margaça, C., Hernández-Sánchez, B., Sánchez-García, J. C., & Cardella, G. M. (2021). The roles of psychological capital and gender in university students' entrepreneurial intentions. Frontiers in Psychology, 11, 615910.

Margaça, C., Sánchez-García, J. C., & Sánchez, B. H. (2020). Entrepreneurial intention: A match between spirituality and resilience. Understanding the Relationship Between Religion and Entrepreneurship, 1-24.

Meyer, D. F., & Mncayi, P. (2021). An analysis of underemployment among young graduates: The case of a higher education institution in South Africa. Economies, 9(4), 196.

Michaelides, M., & Benus, J. (2012). Are self-employment training programs effective? Evidence from Project GATE. Labour Economics, 19(5), 695–705.

Minai, M. S., Raza, S., bin Hashim, N. A., Zain, A. Y. M., & Tariq, T. A. (2018). Linking entrepreneurial education with firm performance through entrepreneurial competencies: A proposed conceptual framework. Journal of Entrepreneurship Education, 21(4), 1-9.

Mohseni, M., & Jouzaryan, F. (2016). Examining the effects of inflation and unemployment on economic growth in Iran (1996-2012). Procedia Economics and Finance, 36, 381-389.

Moriano, J. A., Gorgievski, M., Laguna, M., Stephan, U., & Zarafshani, K. (2012). A cross-cultural approach to understanding entrepreneurial intention. Journal of Career Development, 39(2), 162-185.

Mozahem, N. A., & Adlouni, R. O. (2021). Using entrepreneurial self-efficacy as an indirect measure of entrepreneurial education. The International Journal of Management Education, 19(1), 100385.

Mustafa, M. J., Hernandez, E., Mahon, C., & Chee, L. K. (2016). Entrepreneurial intentions of university students in an emerging economy: The influence of university support and proactive personality on students' entrepreneurial intention. Journal of Entrepreneurship in Emerging Economies.

Nabi, G., Liñán, F., Fayolle, A., Krueger, N., & Walmsley, A. (2017). The impact of entrepreneurship education in higher education: A systematic review and research agenda. Academy of Management Learning & Education, 16(2), 277-299.

Nambisan, S., Siegel, D., & Kenney, M. (2018). On open innovation, platforms, and entrepreneurship. Strategic Entrepreneurship Journal, 12(3), 354–368.

Neto, R. do C. A., Rodrigues, V. P., & Panzer, S. (2017). Exploring the relationship between entrepreneurial behaviour and teachers' job satisfaction. Teaching and Teacher Education, 63, 254–262.

Nordlof, J. (2014). Vygotsky, scaffolding, and the role of theory in writing centre work. The Writing Centre Journal, 45–64.

Obschonka, M., Stuetzer, M., Gosling, S. D., Rentfrow, P. J., Lamb, M. E., Potter, J., & Audretsch, D. B. (2015). Entrepreneurial regions: Do macro-psychological cultural characteristics of regions help solve the

"knowledge paradox" of economics? PloS One, 10(6), e0129332.

Parker, S. C. (2018). The economics of entrepreneurship. Cambridge University Press.

Pejic Bach, M., Aleksic, A., & Merkac-Skok, M. (2018). Examining determinants of entrepreneurial intentions in Slovenia: Applying the theory of planned behaviour and an innovative cognitive style. Economic Research-Ekonomska Istraživanja, 31(1), 1453–1471.

Peters, M., Kallmuenzer, A., & Buhalis, D. (2019). Hospitality entrepreneurs managing quality of life and business growth. Current Issues in Tourism, 22(16), 2014–2033.

Poole, D. L. (2021). Entrepreneurs and SMEs in Rwanda: The Model Pupil Paradox. Bloomsbury Publishing.

Saeed, S., Yousafzai, S., Yani-De-Soriano, M., & Muffatto, M. (2018a). The role of perceived university support in the formation of students' entrepreneurial intention. In Sustainable Entrepreneurship (pp. 3–23). Routledge.

Saeed, S., Yousafzai, S., Yani-De-Soriano, M., & Muffatto, M. (2018b). The role of perceived university support in the formation of students' entrepreneurial intention. In Sustainable Entrepreneurship (pp. 3–23). Routledge.

Said, N. M., Uthamaputhran, S., Zulkiffli, W. F. W., Hong, L. M., & Hong, C. W. (2021). The mediating effects of entrepreneurial education towards antecedents of entrepreneurial intention among undergraduate students. International Conference on Business and Technology, 2029–2040.

Schwarz, E. J., Wdowiak, M. A., Almer-Jarz, D. A., & Breitenecker, R. J. (2009). The effects of attitudes and perceived environment conditions on students' entrepreneurial intent: An Austrian perspective. Education Training, 51(4), 272-291. https://doi.org/10.1108/00400910910964566

Scott, J. M., Penaluna, A., & Thompson, J. L. (2016a). A critical perspective on learning outcomes and the effectiveness of experiential approaches in entrepreneurship education: do we innovate or implement? Education+ Training.

Scott, J. M., Penaluna, A., & Thompson, J. L. (2016b). A critical perspective on learning outcomes and the effectiveness of experiential approaches in entrepreneurship education: do we innovate or implement? Education+ Training.

Seligman, M. E. (1975). Helplessness. On Depression, Development and Death.

Shamsudeen, K., Keat, O. Y., & Hassan, H. (2017). Entrepreneurial success within the process of opportunity recognition and exploitation: An expansion of entrepreneurial opportunity recognition model. International Review of Management and Marketing, 7(1), 107–111.

Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. Academy of

Management Review, 25(1), 217-226.

Simons, J. C., & Buitendach, J. H. (2013). Psychological capital, work engagement and organisational commitment amongst call centre employees in South Africa. SA Journal of Industrial Psychology, 39(2), 1-12.

Snyder, C. R., & Lopez, S. J. (2002). The future of positive psychology. Handbook of Positive Psychology, 751-767.

Sodokin, K. (2022). Access to microfinance institutions, official banks, and the impact on small business in Togo. International Journal of Economics and Finance, 14(1), 1-46.

Souitaris, V., Zerbinati, S., & Al-Laham, A. (2007). Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources. Journal of Business Venturing, 22(4), 566-591.

Stephan, U. (2018). Entrepreneurs' mental health and well-being: A review and research agenda. Academy of Management Perspectives, 32(3), 290-322.

Tarling, C., Jones, P., & Murphy, L. (2016). Influence of early exposure to family business experience on developing entrepreneurs. Education+ Training, 58(7/8). 10.1108/ET-03-2016-0050

Tentama, F., & Abdussalam, F. (2020). Internal locus of control and entrepreneurial intention: A study on vocational high school students. Journal of Education and Learning (EduLearn), 14(1), 97-102.

Uysal, Ş. K., Karadağ, H., Tuncer, B., & Şahin, F. (2022). Locus of control, need for achievement, and entrepreneurial intention: A moderated mediation model. The International Journal of Management Education, 20(2), 100560.

Van der Zwan, P., Thurik, R., Verheul, I., & Hessels, J. (2016). Factors influencing the entrepreneurial engagement of opportunity and necessity entrepreneurs. Eurasian Business Review, 6(3), 273–295.

Velástegui, O. V., & Chacón, S. C. (2021). Emotional competencies and entrepreneurial intention: An extension of the theory of planned behaviour case of Ecuador. Cogent Business & Management, 8(1), 1943242.

Vodă, A. I., & Florea, N. (2019a). Impact of personality traits and entrepreneurship education on entrepreneurial intentions of business and engineering students. Sustainability, 11(4), 1192.

Vodă, A. I., & Florea, N. (2019b). Impact of personality traits and entrepreneurship education on entrepreneurial intentions of business and engineering students. Sustainability, 11(4), 1192.

Vygotsky, L. S. (1987). The collected works of LS Vygotsky: Problems of the theory and history of psychology (Vol. 3). Springer Science & Business Media.

Wang, J.-H., Chang, C.-C., Yao, S.-N., & Liang, C. (2016). The contribution of self-efficacy to the relationship between personality traits and entrepreneurial intention. Higher Education, 72(2), 209-224.

Wegner, D., Thomas, E., Teixeira, E. K., & Maehler, A. E. (2019a). University entrepreneurial push strategy and students' entrepreneurial intention. International Journal of Entrepreneurial Behaviour & Research, 26(2), 307-325. https://doi.org/10.1108/IJEBR-10-2018-0648

Wegner, D., Thomas, E., Teixeira, E. K., & Maehler, A. E. (2019b). University entrepreneurial push strategy and students' entrepreneurial intention. International Journal of Entrepreneurial Behaviour & Research, 26(2), 307-325. https://doi.org/10.1108/IJEBR-10-2018-0648

Westfall, P. H. (2014). Kurtosis as peakedness. The American Statistician, 68(3), 191-195.

World Bank. (2014). Youth employment in sub-Saharan Africa. World Bank Publications.

World Bank (2020). Small and medium enterprises (SMEs) finance. https://www.worldbank.org/en/topic/smefinance

Wu, X., & Tian, Y. (2021). Predictors of entrepreneurship intention among students in vocational colleges: A structural equation modeling approach. Frontiers in Psychology, 12.

Zhao, J., Wei, G., Chen, K.-H., & Yien, J.-M. (2020). Psychological Capital and university students' entrepreneurial intention in china: mediation effect of entrepreneurial capitals. Frontiers in Psychology, 10, 2984.

Distribution Channel Strategies and Customer Choice in the Fast-Moving Consumer Goods Industry: A Case Study in the Upper East Region, Ghana

Sampson Kwaku Tsey, Prof. Dr. Francis Boachie-Mensah, Dr. Gloria Agyapong
University of Cape Coast
Cape Coast, Ghana
email: fboachie-mensah@ucc.edu.gh
email: gagyapong@ucc.edu.gh

Abstract

Channels of distribution are important factors in the connection between goods and services produced for the final consumer and, therefore, determine the effectiveness with which they are delivered and ultimately availed to the final consumers. Globally, studies show that channels of distribution and sales play an essential role in building bonds between manufacturers, retailers, wholesalers and their consumers. The main purpose of this study is to examine the influence of distribution channels and networks on customer choice of fast-moving consumer goods (FCMG) in the Upper East Region of Ghana. The study adopted a quantitative approach and questionnaires were used to collect primary data from 110 customers of Unilever Ghana Limited in the Upper East Region of Ghana. The findings reveal that product-related factors, such as the price of products, perishability of products, size and weight of products, promote the effective distribution of Unilever goods and services, whilst consumer-related factors, such as the number of customers and increased consumer base, promote effective distribution channels. The study also established a positive influence of factors, such as incentives, receiving feedback and sales performance, on customer choice of fast-moving consumer goods (FMCG). Managers and producers in the FMCGs industry should implement reward and incentive programmes and policies to boost the sale and distribution of fast-moving consumer goods and services in the retail industry in Ghana.

https://doi.org/10.18418/978-3-96043-104-6_42

INTRODUCTION

Channels of distribution are important factors in the connection from goods and services production to the final consumer and therefore determine effectiveness with which they are delivered and ultimately availed to the final consumers (Affran & Asare, 2019). Globally, evidence shows that channels of distribution and sale play an essential role in building bonds between manufacturers, retailers, wholesalers and their consumers (Adesoga & James, 2019). This means that distribution network and effective sales will help consumers to choose and make repeated buying. Effective sales and distribution network impacts sales turnover and profits margins of organisations.

Distribution involves a network of activities that are related to the sale of economic goods between manufacturers and their wholesalers, retailers and consumers. It comprises a coordinated and systematic preparation of manufactured and processed goods in accordance with their type and volume, space and time, in order to meet supply deadlines and achieve customer satisfaction especially when producing for an anonymous market (Domschke & Schield, 2010). The system of distribution is divided into two main sections which is the distribution system of acquisition and the logistics distribution system. The acquisition distribution system deals with bridging the space and time by transportation and storage, as well as order processing and shipment. Logistic distribution system relates to the supply and movement of materials (Segetlija et al., 2011).

The concept of distribution network is used to describe the creation of value in channels of distribution by means of well-co-ordinated activities by actors at different levels. In a typical distribution network, a confederation of specialists organises various distribution activities adopting various strategies to achieve common desired goals (Anderson et al., 1997). Channels of distribution are therefore considered networks of mutually dependent establishment included in the process of making goods or services available for use or consumption. Moreover, a marketing channel is the external contractual organisation that management operates to achieve its distribution objectives (Weinberg et al., 2007).

Fast-moving consumer goods (FMCG) sector is one of the biggest industries globally. FMCG are generally cheap products that have a short shelf-life span and are purchased by consumers on a regular basis. FMCG is a classification that refers to a wide range of frequently purchased consumer products and services. The main segments of the sector are branded, packaged food and beverage (health beverages, soft drinks, staples, cereals, dairy products, chocolates, bakery products), household care items (detergents and household cleaners), personal care items (oral and hair care, soaps, cosmetics, toiletries) and to some extent tobacco products. Some of the globally acknowledged FMCG companies include Unilever, The Coca-Cola Company and Johnson & Johnson. Within the Africa region, FMCG retailers generally operate in a low-margin environment. As a result, the existence

of a large market is crucial to the success of these companies (Nyaga, 2014). Despite Africa having a population of around one billion, the region remains relatively under-served by FMCG companies.

The FMCG retail industry is responsible for the distribution of final products and services to the consumer and the public (Yeboah et al., 2013). In practice, most companies use a mix of different distribution channels; in particular, they may complement a direct sales force, calling on the larger accounts, with agents, covering the smaller customers and prospects. However, the major challenge now facing the retail industry is the power of customers. The reason is that customers are becoming increasingly knowledgeable, impatient, not wishing to wait for the suppliers' products for any period. This coupled with the fact that distribution companies are now trying to implement specific distribution strategy based upon their unique set of competitive priorities and business conditions to achieve the desired level of performance, has led to an investigation into the sales and distribution channels available to fast-moving consumer goods and how this has affected the profit margin and operations of these FMCG companies.

Statement of Problem

Studies have focused on the effective sales and implementation of channels of distribution from diverse perspectives. For instance, Gabrielsson et al. (2002) studied multiple channels strategies in the personal computer industry in Europe; Banyté et al., (2011) examined variations in marketing channel formation; Kabadayi et al. (2007) investigated the performance implication of multiple distribution channels; Karanja et al. (2014) focused on the distribution networks and performance of mobile service provider intermediary organisations. Stojkivic et al. (2016) also examined multichannel as a dominant approach in innovative retailing. However, none of these studies focused specifically on effective sale strategies and innovative distribution network adopted by Fast Moving Consumer Goods companies in the Ghanaian context.

A study by Liwali (2013) found that factors such as cost, crime, culture, language, technology, infrastructure, interconnectivity, trade rules and laws, taxes, lack of professionalism and other financial issues are limitations to the effective implementation of distribution channels. Sule et al. (2013) noted that the unavailability of adequate and reliable market information on the demand and taste pattern of customers (wholesalers and retailers), non-improvement in operational performance of companies in relation to their competitors, and inadequate infrastructural facilities that should improve an efficient distribution channel system are challenges faced by firms while implementing distribution channels strategies for consumer goods in the country. All these resulted in ineffective products availability to the final consumers and poor marketing performance within the FMCGs sector in the country.

Within the recent academic and scholarly research, not much emphasis is placed on the effective sales and distribution networks used by fast moving consumer goods by companies for effective operational and marketing of their products and services. Therefore, the purpose of this study to examine the effective use of distribution channels and networks by FMCGs, by Unilever Ghana Limited in operating in the Upper East region of Ghana. The main objective of this study is to examine the distribution strategies and consumer choice of FMCGs, by Unilever Company Limited in operating in the Upper East region of Ghana. The study also seeks to examine the best distribution strategy for the effective sales of products and service that meet customer satisfaction, to identify factors that promotes effective distribution channels of products and services in the retail industry, to examine factors influencing consumer choice of Fast-Moving Consumer Goods, to examine the challenges associated with effective distribution and sale of fast-moving consumer goods in the retail industry.

This study will make significant contributions to existing literature, marketing and policy decision making by provide additional data and information with respect to effective sales and distribution of FMCGs and services products and its effect on the retail industry in Ghana. Thus, the information collected will give vivid understanding of the importance and effectiveness of developing multiple distribution channels. This will assist in the formulation and implementation of appropriate marketing policies which will improve the design and effectiveness of distribution networks in the retail industry. Furthermore, this study will help retail products marketers identify and consider the most reliable and more consumer-friendly ways of marketing their products to increase customer patronage. The findings of this study will also add to the body of knowledge on the effective distribution and sale of FMCGs and how this impact an organization's operations and profits margin as well as customer satisfaction.

This study is limited to only fast-moving consumer goods manufactured and distributed by Unilever Ghana Limited and wholesalers and retailers in the Upper East region. The choice of Unilever Ghana Limited products is due to the following reasons: First, it is considered Ghana's leading manufacturer of fast-moving consumer goods. Secondly, Unilever as a FMCGs distribution and marketing company adopts modern trade, horsecars and traditional distribution channels that reached the remotest parts of Ghana with very efficient national distribution through various network of branches and clients. The study will only consider the activities of Unilever in the Upper East region and the choice of this study area is for easy and convenience sampling of respondent by the researcher.

LITERATURE REVIEW

Theoretical Base of the Study

The emergence of successful distribution strategies in the current keenly competitive business and marketing environment cannot be over emphasized. The phenomenon of market deregulation and globalization has caused a rise in competitiveness which has prompted manufacturers and other industry players to relook into the channels of distribution strategies and critically evaluate the strategies being used as well as their inability to solve the current opportunities and challenges (Stern & Sturdivant, 2006). This study was anchored on two relevant theories namely Economic distribution theory and marketing theory.

Economic Distribution Channel Theory

The Economic Distribution Channel theory posits that the most suitable distribution system is one that is established through exploration of that which the customer wants in relation to service outputs from distribution channels, the amount of money they are willing to pay for a certain level of service, the way the provision of services will be done as well as the cost of alternative channels of distribution (Stern et al., 2006). Considering this, it is argued that the distribution system that meets the wants of the customer in the most efficient way can be established. The distribution channel strategy that the company adopts must take the customer's view and analyze the output from the commercial part of the varying distribution channels and associates it to the costs and benefits of the customer from the varying service output levels which distribution channels available offer (Cohen et al., 2003).

According to this theory, the distribution system that meets the wants of the customer in the most efficient manner must be established. Therefore, an economic distribution channel model places the customer's view first, it does an analysis of the output from the commercial perspective of different distribution networks and associates it to the benefits and costs of the consumer from the varying service output levels that the distribution channels available offer (Leroy, 2017).

Marketing Theory

The relationship marketing theory is a type of marketing created from marketing campaigns that involve direct response and which emphasize on customer retention and satisfaction instead of dominantly focusing on sales transactions (Ojwang, 2014). Relationship marketing as a practice is different from the other types of marketing because it does recognize the long-term customer relationships' value and it does extend communication past advertising that is intrusive as well as sales promotional messages (Leroy, 2017). Relationship

marketing keeps on evolving and moving forward because of growth of mobile platforms and the internet, this technology brings about communication channels that are more collaborative and social (Mulky, 2017). Relationship marketing principle that is key is the customers retention by different means as well as practices to ensure trade that is repeated from pre-existing customers through ensuring satisfaction of requirements beyond those of firms in competition with by an association in which the benefits are mutual (Otieno, 2018).

Many classic marketing theories centre on the means of distribution channels aimed to attract customers and creating transactions. Profitability increase that comes about because of customer retention efforts is experienced due to the many factors which take place the moment a relationship with a customer has been created (Porter, 2011).

Empirical Studies and Knowledge Gaps

Best distribution strategies for the effective sales of products and services

According to the studies were carried out to explore different distributive and marketing strategies. Saxena (2011) focused the study on marketing innovation in FMCG sector through different models which provide suggestion to bring innovativeness in marketing. Bressoud (2013) carried studies on innovation in FMCG by testing it in experimental versus real store and found virtual store testing is not successful which is a new method in comparison to real store. Khare and Ali (2015) focused his studies on marketing innovation in FMCG sector. Moss and Sculling, (2004) define what branding is; describe the advantages of developing brands in the pharmaceutical industry and highlight the key differences between brands in the FMCG and pharmaceutical industry.

Some studies have also discussed the appropriateness of different branding strategies for the FMCG sectors (Mann & Kaur, 2013). Individual brand type is advocated to be the most appropriate for FMCG companies (Kotler & Armstrong, 1997). However, Laforet and Saunders (2005) find that in actual practice, FMCG companies are using individual brand type in combination with corporate or house brand type. Saunders and Guoqun (1996) empirically demonstrate that consumers prefer corporate and individual brand types together for an FMCG product than either brand type used alone. In contrast, Laforet (2011) reports that corporate brand does not add any value to products in the FMCG sector. For the services sector, corporate brand type is recommended as the best option (Berry, 2000; McDonald et al., 2001). On the contrary, Rahman and Areni (2009) argue that service companies should also develop individual brands and should use them in combination with their corporate brands. For durables, corporate brand type is opined to be the most appropriate choice (Anisimova, 2007).

Some of the major strategies adopted by FMCG companies for making their brands outstanding compared to competitions are as follows: I. Multi-brand Strategy II. Product Flanking III. Brand Extensions IV. Building Product Lines V. New Product Development VI. Product Life Cycle Strategy VII. *Taking advantage of wide distribution network.

Multi-brand Strategy

A company often nurtures several brands in the same category. There are various motives for doing this. The main rationale behind this strategy is to capture as much of the market share as possible by trying to cover as many segments as possible, as it is not possible for one brand to cater to the entire market. This also enables the company to lock up more distributer shelf space.

Product Flanking

Product flanking refers to the introduction of different combinations of products at different prices, to cover as many market segments as possible. It is basically offering the same product in different sizes and price combinations to tap diverse market opportunities. The idea behind this concept is to flank the core product by offering different variations of size and price so that the consumer finds some brand to choose from. Cornflakes in small sachets and premium detergents in small pouches are examples of this strategy. Refers to the introduction of different combinations of products at different prices, to cover as many market segments as possible. It is basically offering the same product in different sizes and price combinations to tap diverse market opportunities.

Brand Extensions

FMCG firms make brand extensions in the hope that the extensions will be able to ride on the equity of successful brands, and that the new brand will stand in its own right in the course of time. A well-respected brand name gives the new product instant recognition and easier acceptance. It enables the company to enter new product categories more easily. Companies make brand extensions in the hope that the extensions will be able to ride on the equity of the successful brands.

Building Product Lines

Some companies producing FMCG add related new product lines to give the consumer all the products he/she would like to buy below one umbrella.

New Product Development

A company can add new products through the acquisition of other companies or by devoting one's own efforts on new product development. With the help of new products, a company can enter a growing market

for the first time and supplement its existing product lines. For instance, Proctor and Gamble is leading company in the world as reputed for new products development. Companies that fail to develop new products would expose themselves to great risk and might face stagnation in future. The existing products are vulnerable to changing consumer needs and tastes, new technologies, shortened product life cycles and increased domestic and foreign competition. A company can develop new products either through R&D in-house or by acquiring other company or both. It is seen that a lot of products being brought into the market day in and day out. Some companies which have thrived in the market due to innovative product development are FMCG companies. However, new product development is not an easy ball game. There are many aspects which the company must take into consideration before even thinking of new product development.

Product Life Cycle Strategy

Economic conditions change, competitors launch new assaults, and the products encounters new types of buyers and new requirements are situations in which a FMCG company try to extend the Product Life Cycle. In the mature stage of the Product Life Cycle, some companies abandon their weaker products. They prefer to concentrate their resources on their more profitable products and quickly develop new products. An FMCG has short life cycle whereas an industrial product has long Product Life Cycle. According to Product Life Cycle, companies plan to develop new products after abandoning the old product which has experienced the decline stage of product life cycle curve. FMCG products are those products which have short life span which are used for short time and are replaced within days, week and month or within a year. Since FMCG products are replaced rapidly so they are having high market demand. They operate at a lower margin. Some of the FMCG products are such as packaged foodstuff, household accessories, soaps, detergents, shampoos, toothpaste, shaving products and shoe polish, etc. Therefore, marketers continually try to introduce new brands to offer something new and meet the changing requirements of customer. It is prudent for a marketer to innovate from time to time both by technological expertise as well as from the consumer's or dealer's feedback.

****Wide Distribution Network***

Modern companies' distribution network has a great impact on the success of any business. In the FMCG segment, the role of an excellent distribution channel becomes even more crucial because the delivery of FMCG product is confined to day to day basis. Therefore, to survive and thrive in a highly competitive market you must have a distribution channel which has no problem at any point of the distribution channel. An extensive distribution system can be developed over time, or the company may acquire another company which has an extensive distribution network. Some of the values of FMCG industry, which made this industry as a potential

one, are low operational cost, strong distribution networks, presence of renowned FMCG companies. Some of the well-known FMCG companies are Nestlé, Unilever, Procter & Gamble, Coca-Cola, Pepsi.

Coca-Cola and PepsiCo's or Nestle and Danone's wide distribution network systems have made them market leaders. A company usually expands the market for its brand in two ways, either to increase the number of customers or by encouraging more consumption per intake. The usage rate of the consumers can be increased in 3 ways: 1) It may try to educate or persuade customers to use the product more frequently. 2) The company can try to induce users to consume more of the product on each occasion. 3) The company can try to discover new product uses and convince customers to use the product in more varied ways.

Factors promoting effective distribution channels of products and services.

A descriptive survey by Brown and Dant (2014) examined the factors which influence distribution of fast-moving consumer goods using 120 distributors specializing in Eveready East Africa brands in Kenya. The findings depict skewed competition, pricing, brand promotions and demand forecasting are critical drivers of distribution channels. Though existence of skewed competition attributed to cheap imports was seen as distressful to the market forces its actual impact on the distribution channels and retailer's decision for stocking were not fully examined.

Empirical evidence indicates that most on indirect channels and retail restocking decision has centred on the restocking cost element. Ultimately restocking is subject to storage quality easiness to accessibility. These factors wield significant influence on the unit cost that retailer assign to products with intent to accrue maximum margins. However, literature analysed from past studies has does not offers a clear connection between indirect distribution channels and restocking decisions amongst retailers.

The study by Anđelkovićet et al. (2017) offers a comprehensive insight into the scope of distribution channels towards optimization of retail efficiencies and offering consumer's convenience and value. The study however fails to offer any connection between efficient distribution channels, whether direct or indirect and restocking decisions by retailers in cosmetics industry. Al Badi (2018) in a study that focused on marketing mix role towards boosting competitive advantage, confirmed the effect of marketing mix factors including product, place, price and promotions having significant moderating association on the small medium enterprises (SME) competitive advantage. The study however failed to demonstrate the connection between marketing mix elements as moderators of indirect channels towards restocking decisions made by SME retailers. Additionally, the study fails to capture the hair product segment of SME and retail operational choices on product restocking. The study by Tih et al. (2008) submitted evidence on the relevance of indirect distribution channels towards in retailer

operations, with quality factor cited as critical influence of retailer stocking decisions. The study however focused exclusively on tropical fruits distribution channels, thus limited in explaining whether similar trends can be observed for the cosmetics industry.

The study by Van Baal (2014) found associative effect across channels both positive and negative attributed to retailer distribution channel activities. The study showed corresponding outcome in results across parallel distribution channels. This however fails to answer whether indirect channels exert an influence on the retailer restocking decisions. Cao and Li (2014) demonstrated the positive returns in embracing distribution channels integration in boosting sales growth but failed to demonstrate how such integration can be realized amongst retailers in hair product industry. The study by Rambocas et al. (2015) focuses on international distribution networks for crane services presenting a divergent view on direct and indirect channels on general business performance. The study fails to demonstrate how indirect networks influence operational decisions by retailer regarding restocking and further it centres on crane export services which cannot effectively explain the dynamics in hair product sector.

Factors influencing consumer choice of FMCG.

In today's highly competitive market, the FMCGs consumers are enjoying the benefits of making their purchase decision from several brands which differ in price, quality, attributes etc. Consumers' preferences and attitudes towards certain brands also vary due to their affordability, product availability, brand awareness, lifestyle etc. As a result, the rural marketers of FMCG products must differentiate themselves on designing strategies targeting the rural consumers (Hundal, 2008). FMCG sectors received researchers' attention to help companies regarding consumer behaviour, brand awareness, customer preference, customer loyalty, purchase behaviour, decision making and satisfaction. Customer preference and purchasing decisions are the important elements for gaining the customer, increasing sale and profit margins.

A study by Somashekar and Kaboor (2016) found factors that influenced consumer choice of FMCG. These factors are categorised into five groups namely quality aspects, promotional aspects, preferential aspects, image aspects and retailer's influence. Items such as Quality, fragrance, long lasting freshness and ingredients are grouped as factor 1 and are named as quality aspects. Price, free offers, eye-catching display, and easy availability are grouped as factor 2 and named as promotional aspects. Advertisement, attractive package and availability of variants are grouped as factor 3 and named as preferential aspects. Brand image and corporate image are grouped as factor 4 and named as image aspects. Retailers' influence and recommendations from friends and relatives are grouped as factor 5 and named as external influence.

According to Kumar and Malini (2015), buying decision of rural customer varies from urban customer. Rural customer demands quality product with low price and they prefer branded product as quality product. Rural customers are less aware with brand, they only focus on quality. Companies can promote product based on quality because a rural customer measures brand in terms of quality. They highly consider customer recommendation while buying the product. Customers usually recognize the product by their shape, color and logo. Bahal and Sahay (2015) in their study on rural consumers found that awareness is increasing due to increasing income and change in educational status customers are moving towards branded products, they also prefer quality products. Ali et.al (2012) analyzed the factors influencing the purchase of FMCG products by rural consumer in South India and found that marketers should use low price strategy and focus on quality. Chovanova et al., (2015) studied the impact of brand on consumers and revealed that they mostly consider quality factor while buying the product. Consumers associate brand with products information which they utilize while making purchase decision.

Narayana and Mathew (2015) stated that price and quality are the most preferred factors, influencing purchase behaviour of rural customer. Male and female customer have different attitude towards selection of brand which also varies with age. Painoli (2017) argued that economic value of the detergent cake and powder emerged as the most accepted factor for customer preference. Retailer advice has importance for customer in making purchase decision. Social image and promotional activities affect purchase behaviour of customers. Abbas (2013) revealed from the study regarding brand awareness and customer preference of rural consumer that price is not matter of concern they prefer quality product irrespective of price. According to Meera et.al (2017), majority of customer take their own decision while purchasing FMCG products and they believe in the availability of preferred brands in the shop. Television is the most effective source of information for the products. Customer generally switches to another brand due to unavailability of product in the shop and recommend products to others, when satisfied with the product. Brand name is considered as a measure of quality, packaging, small sachet are the factors which influences purchase behaviour of customer regarding FMCG.

Again, according to Singh and Singh (2014) price, quality, warranty, advertisement, brand, friends' recommendations, family members' recommendation and packaging were found to be influential while taking the FMCGs purchase decision by the rural consumers. In their study it was also found that factors effect on rural consumers vary according to the demographic factors like age and the income level. Sulekha and Mor (2013) in a study dealing with 22 variables loaded on six factors also concluded that the rural customers are not only price sensitive but also think about quality, performance, reliability, brand, packaging, lifestyle and other critical aspects while purchasing fast moving consumer goods.

Challenges associated with effective distribution and sale of FMCG.

One of the major challenges of marketing directors, and producers is how to transfer manufactured goods to the target markets. Decisions about the way of transfer of goods to the place of purchase or consumer is such major decisions of marketing managers. These decisions will determine what part of the duties related to the sale of goods shall be transferred to the intermediaries and distributors and manufacturer how lost part of surveillance and control over their products. This allows manufacturers to save money and time to fund their main job and gain more revenue (Sarkis, 2003). Competition involves rivalry between businesses competing to sell similar products in the same target market. Many businesses entities adopt various strategies to counter the threat of competition from business rivals (Porter, 2008). Existence of many FMCGs distributors from different companies creates an intense competition in the market and this makes it difficult for most of the FMCGs companies to distribute a large volume of products in the target market.

Challenges of poor distribution channels and underdeveloped transportation and other infrastructure were reported as affecting FMCGs firms servicing consumer market (Adesoga & James, 2019). Liwali (2013) identified some of the factors that constrained the effective implementation of channel strategies in Nigeria to include cost, crime, culture and language, technology, infrastructure, interconnectivity, trade rules and laws, taxes and other monetary issues, lack of professional staff. In addition, Sule et al. (2013) noted that non-availability of adequate and reliable market information on the taste, demand pattern of the consumers, improvement trends in quality and company's operational performance in relation to other competitors and inadequate infrastructural facilities that should facilitate an efficient channel system are challenges faced by firms while implementing channels strategies for consumer goods in the country. All these resulted in ineffective products availability to the final consumers and poor marketing performance within the FMCGs sector in the country.

Other challenges that FMCG companies in India face in tackling sale and distribution of products and services especially in rural markets include geographically scattered nature of rural markets, their small size, remoteness, poor connectivity and tremendous heterogeneity. Low level of literacy, too many languages and dialects, cultural diversities, inadequate banking facilities, spurious products, low per capita disposable incomes, acute dependence on the monsoon seasonal demand, and media darkness (Sathyanarayana, 2011). Distribution costs and non-availability of retail outlets are the major problems faced by the marketers. The unique consumption patterns, tastes, and needs of the rural consumers should be analyzed at the product planning stage so that they match the needs of the rural people. Therefore, marketers need to understand the social dynamics and attitude

variations within each village though nationally it follows a consistent pattern, and each group exerts influence on the behaviour of people in remote and hard to reach areas.

RESEARCH METHODS

Research Design

The study employed an explanatory quantitative approach to examine the link between distribution strategies and customer (wholesalers and retailers) choice in FMCGs by Unilever Company Limited in operating in the Upper East region of Ghana. This approach helps in understanding the effective sales and distribution network for FMCGs and services. There are three main research strategies: qualitative, quantitative, and mixed approach that can be adopted for a study. The decision to use any strategy depends on the nature of work, the objectives of the study, the level and nature of the research questions and the practical considerations related to the research environment among others (Shih,1998). While quantitative is hard, objective and standardized, qualitative is soft, rich and deep (Hopkins, 2000). The mixed approach combines the two approaches together in a study (Hesse-biber 2010). The study adopted a quantitative methodological approach because quantitative method allows explanation of a phenomenon by collecting numerical data that are analysed using mathematically based method, particularly statistics (Muijs, 2004). The researcher used cross-sectional survey technique for data collection. Cross-sectional survey allows information to be collected from sampled respondents from a larger population which is prohibitively expensive to study (Swanson & Holton, 2005). To gather data for the study, the researcher employed the use of questionnaire survey as the research design.

Population

The population of the study consist of the staffs and customers (mainly wholesalers and retailers) of Unilever Ghana Limited operating in the Upper East region of Ghana. The management level comprises the manager and staffs consist of the Sales Team in the region. Customers include wholesalers and retailers of Unilever for at least a year.

Sample and Sampling Technique

Out of the staff population of Unilever Ghana Limited in Upper East region, a sample frame of working staffs who have worked with the organisation for a considerable period of two years will be chosen at random to provide data. The sample frame will comprise of Unilever staff and retail consumers in the Upper East Region. This sample will include both males and females who will be selected by simple random sampling technique. This sampling technique will give the respondents equal chance to be selected for the study. In all, a sample size of

110 respondents (10 Unilever staff and 40 wholesalers and 60 retailers of Unilever products) was chosen for data collection. This sample size can provide a good representation of the subject matter at Unilever Ghana Limited. The sampling techniques employed are purposive and simple random sampling. Purposive sampling technique was used to select the respondent at the management level. Purposive sampling will be chosen because of the following reasons (i) Based on the researcher's judgement about where respondents were appropriate, have the requisite knowledge and technical know-how on the subject under study (Babbie, 2007). (ii) The purposive sampling procedure of selecting respondents is the appropriate means of getting respondents who are knowledgeable and well abreast with the subject of interest (Sarantakos, 2006). Simple random sampling was used to select customers comprising both wholesalers and retailers at random to complete questionnaire.

Data Collection Instruments

According to Creswell (2002), the choice of research technique must be determined by the research questions. Bearing in mind the nature of research design as well as objectives or research question to be examined, data for this study will be collected by means of one main instrument that is, self-administered questionnaire. A self-administered questionnaire was used in quantitative data collection to get the unbiased opinion of respondents. The questionnaire-covered issues that focused on the socio-demographic and economic characteristics, kinds of distribution network/channels, effective sales strategies, and distribution challenges. This collection instrument made it very convenient for the respondents to provide the data needed for the analysis.

The data collection instrument was self-administered questionnaire which had both close- and open-ended questions. The close-ended questionnaire is employed to provide greater uniformity of responses to ensure the validity and the reliability of the research.

Data Collection Procedures

Quantitative data was collected from managers, staff and Customers of Unilever Ghana Limited for a period of 21 days by the research with the assistant from trained field data collectors. This happened after a formal permission and consent is sought from the senior management of the organisation. The respondents were interviewed one after the other considering their busy working schedules. Again, to avoid interviewing the same respondent more than once, serial numbers were given to the respondents which were also attached to their respective questionnaire.

Data Processing and Analysis

The answered questionnaires were reviewed to ensure that all the questionnaires are correctly and appropriately answered to minimise potential errors. The quantitative data collected was entered into analytical software called Statistical Package for Social Sciences (SPSS) version 20.0. The study used frequency distribution tables and statistical diagrams like bar charts and pie charts. The quantitative data was presented by some of these statistical tools and discussed. The presentation of the data on these statistical tools made the analysis very convenient and easy. The statistical tools were used to convey the meaning of the figures captured and as such made the analysis straight forward. Inferential statistics was used to assess the impact of policies on the successful implementation of performance appraisal systems. Bivariate analysis (Chi-square test) will be used to establish an association between the variables of interest.

Validity and Reliability

The reliability of the instrument was determined using Cronbach's alpha coefficient to measure the internal consistency of the variables. Hence a pre-test of the questionnaire was performed to validate the research instrument within the targeted context since its validity may not have been persistent across different technologies and user groups (Straub, Boudreau & Gefen, 2004).

Ethical consideration

The researcher first and foremost officially requested permission from the ethical clearance committee of the University of Cape Coast. Again, participants that will be involved in the completion of questionnaires will be allowed to freely withdraw from the research without any obligation. The respondents will also be assured of confidentiality and anonymity by the researcher. This is to ensure that completed questionnaires and data files was only be used by the researcher for academic purposes. The respondents were not subjected to any mental or physical stress. Moreover, demeaning questions were not asked in the research. The questionnaires did not take respondents names or other personal information that will be not necessary to the research.

RESULTS AND DISCUSSION

Introduction

As discussed previously, this study purposed to examine the effective use of distribution channels and networks by FMCGs, by Unilever Ghana Limited in operating in the Upper East region of Ghana. For this objective to be achieved, the study used quantitative methodology and descriptive as well as inferential analytical techniques. The focus of this segment is on data analysis and discussion of the study results that will allow the

researcher to draw logical conclusions. The study used sample size of 110 respondents who answered questionnaires.

Socio-Demographic Characteristics of Respondents

This study involved a total of 110 respondents. The respondents were divided into three groups; the first group comprised of 10 Unilever staff, the second group comprised of 40 wholesalers of Unilever products and the third group consist of 60 retailers of Unilever products. As depicted in Table 1, most of the Unilever staff in this study were male (60%) while the remainder were females (40%). Also, the wholesalers in this study were dominated by males with a proportion of 62.5% while a proportion of 37.5% were females. With regards to retailers of Unilever products, 7 out of 10 were females compared to 21.7% who were males.

The findings from Unilever staff category showed that 50% had a bachelor's degree, 30% had a bachelor's degree while 20% had diploma. However, in the wholesaler's category, the findings revealed that 50% had attained secondary education, this is closely followed by those with primary education, 17.5% had attained diploma education with the least (12.5%) with no educational level. The respondents (retailers) in this study were asked to disclose their level of education, 35% had attained primary education, 25% had no formal education, and 21.7 % had a secondary education, 15% had diploma while 3.3 % had a bachelor's degree certificate. This result shows that the respondents in the Unilever staff category were more educated and professionally qualified compared to respondents in the wholesale and retail categories.

The descriptive analysis of the distribution of respondents by age showed that 40% of the respondents in Unilever staff category were between 25 and 35 years old, 30% of the respondents were above 55 years, 20% of the respondents were between 36 and 55 years while 10% were between 18 and 24 years. On the other hand, most of the wholesalers (30%) and retailers (50%) of Unilever products were aged between 36 to 55 years (35%) while the least were above age 55 years. Majority of the respondents were adults with the capability to make effective strategic decisions.

In terms of ethnic background, most (60 %) of the Unilever staff belong to the Akan ethnic group; this was followed by Unilever staff who belong to Mole-Dagbani ethnic group with a proportion of 40%. On the other hand, majority of the wholesalers (55%) and retailers (55%) belong to the Mole-Dagbani ethnic group, while wholesalers and retailers who belong to the Ga/Dangme ethnic constitute the least proportion of 7.5% and 8.3 % respectively.

With regard to religion, Christianity is the most practised religion among Unilever staff which constitutes 70% of the respondents. The rest 20% and 10% belong to the Islamic and traditional religion respectively. Regarding Unilever wholesalers (45%) and retailers (58.4%), higher proportion belong to the Islamic religion compared to the other categories.

Further, the findings from the distribution of respondents in the Unilever staff category showed that 40% (highest proportion) had been working in the company between 6 to 10 years, this was closely followed by 30 % had been in the working company be-tween 1 to 5 years, 20% had been in the company less than a year while 10% had been in the company for more than 10 years. On the other hand, the findings in the wholesaling and retailing category showed that 40% and 36.7% had been selling of more than 10 years respectively, 25% of wholesalers and 28.3% of retailers have been selling Unilever products between 1 to 5 years. The result also shows that 15% of wholesalers and 20 % had work experience between 6 to 10 years while 20% of wholesalers and 15% had work experience of less than 12 months.

Table 1: Background characteristics of Respondents

Factors	Unilever Staff (N=10)		Wholesalers (N=40)		Retailers (N=60)	
Sex	n	%	n	%	n	%
Male	6	60.0	25	62.5	13	21.7
Female	4	40.0	15	37.5	47	78.3
			Educational Level			
No Education			5	12.5	15	25.0
Primary			8	20.0	21	35.0
Secondary			20	50.0	13	21.7
Diploma	2	20.0	7	17.5	9	15.0
Bachelor's Degree	5	50.0			2	3.3
Master's Degree	3	30.0				
			Age			
18-24 years	1	10.0	11	27.5	14	23.3
25-35 years	4	40.0	9	22.5	10	16.7
36-55 years	2	20.0	12	30.0	30	50.0
Above 55 years	3	30.0	8	20.0	6	10.0
			Ethnicity			
Akan	6	60.0	9	22.5	14	23.3
Ewe	1	10.0	6	15.0	8	13.4
Ga/Dangme	1	10.0	3	7.5	5	8.3
Mole-Dagbani	4	40.0	22	55.0	33	55.0
			Religion			
No religion	1	10.0	5	12.5	3	5.0
Christian	7	70.0	11	27.5	20	33.3
Muslim	2	20.0	18	45.0	35	58.4
Traditionalist	1	10.0	6	15.0	2	3.3
			Years of working experience			
Less than 12 months	2	20.0	8	20.0	9	15.0
1-5 years	3	30.0	10	25.0	17	28.3
6-10 years	4	40.0	6	15.0	12	20.0
11 years and above	1	10.0	16	40.0	22	36.7

Source: Fieldwork, 2021

Distribution strategies for the effective sales of products and service that meet customer satisfaction

This section discusses the distribution strategies employed by Unilever Ghana Limited that ensures effective sales of products and services that meets customer satisfaction. The respondents (Unilever staff) were asked to state whether they 'Strongly Disagree', 'Disagree', 'Neither Agree nor Disagree' (Neutral), 'Agree' and 'Strongly Agree' to some statement describing the various distribution strategies adopted. From Table 2, results show that 35% of respondent neither agree nor disagree (neutral) with the statement that "The existence of fewer intermediaries in one-level distribution channel incurs lower operational costs thus making it cheaper". However, 8% and 21% strongly disagreed and strongly agreed with the statement respectively. This indicates that most intermediaries in the channels of distribution results in lower and cheaper cost of operation.

Also, 48% of Unilever staff strongly agreed with the statement that one-level distribution channel enables faster movement of goods from the factory floor to the consumers. Again, 46% of Unilever staff strongly agreed with the statement that "Shorter distribution channels have fewer operational processes incurring few bureaucratic phases thus making it simpler and easier". Also 29% were neutral in their response to the statement. Another important statement that had 52 % of Unilever staff strongly agreeing to was that minimal inspection during movement of good guarantees good quality products. When it comes to existence of more intermediaries in two-level distribution channels, 38% agreed that, that channel increases likelihood of value addition for the products at each level due to desire for more margins amongst the intermediaries. Interestingly, 36% strongly disagreed to the statement that "Two level distribution channels require higher operational spread to enable faster movement of goods/products from the factory to consumers".

Further, 65% agreed that the two-level distribution channel undertakes bulk-breaking at different levels which increases convenience for retailers and consumers in purchasing goods/products in small portions. However, 55% disagreed that this two-level channel of distribution attracts price differentiation among the intermediaries which results in boosting business competitiveness and diversity for retailers and consumers.

Regarding their responses to statements on three- level channels of distribution, 70% of Unilever staff strongly agreed to the statement that "Intermediaries in a three-level distribution channel means more options for retailer which gives retailers more power in selecting better quality products from a variety of intermediaries". Similarly, 65% agreed that three level channels of distribution are often commonly used to cover larger market that has retailers and consumers spread across.

The general observation from the table indicates that relatively higher proportion of Unilever staff either "strongly agree" or "agree" with most statement relating to distribution strategies used by Unilever Ghana Limited in ensuring effective sales of its products and services to meet customer satisfaction.

Table 2: Distribution strategies for effective sales of Unilever products and services

Statements	SA	A	N	D	SD
	(%)	(%)	(%)	(%)	(%)
The existence of fewer intermediaries in one-level distribution channel incurs lower operational costs thus making it cheaper	21.0	19.0	35.0	17.0	8.0
One-level distribution channel enables faster movement of goods from the factory floor to the consumers	48.0	31.0	10.0	9.0	2.0
Shorter distribution channels have fewer operational processes incurring few bureaucratic phases thus making it simpler and easier	15.0	46.0	29.0	7.0	3.0
Minimal inspection during movement of goods guarantees good quality products	52.0	29.0	11.0	6.0	2.0
Existence of more intermediaries in two-level distribution channel increases likelihood of value addition for the products at each level due to desire for more margins amongst the intermediaries	16.0	31.0	41.0	11.0	1.0
Two level distribution channels require higher operational spread to enable faster movement of goods/products from the factory to consumers	4.0	38.0	16.0	21.0	21.0
Two-level distribution channel undertakes bulk-breaking at different levels which increases convenience for retailers and consumers in purchasing goods/products in small portions	2.0	16.0	19.0	27.0	36
Two-level distribution channel attracts price differentiation among the intermediaries which results in boosting business competitiveness and diversity for retailers and consumers.	3.0	5.0	13.0	55.0	24.0
Intermediaries in a three-level distribution channel means more options for retailer which gives retailers more power in selecting better quality products from a variety of intermediaries.	70.0	20.0	5.0	4.0	1.0
Three level distribution channels is commonly used to cover larger market that has retailers and consumers spread across.	20.0	65.0	7.0	6.0	2.0

Factors promoting effective distribution channels of products and services in the retail industry

This section discusses the factors promoting effective distribution channels of products and services in retail industry. These factors are divided into three categories namely product related factors, consumer/market related factors and producer related factors.

Product-related factors

Respondents gave their responses towards some statements that measures the products-related factors promoting effective distribution channels of Unilever products and services. Further details are provided in Table

3. From the table, the results show that 62 % of Unilever staff strongly agreed with the statement that "price of products" is a strong determining factor in promoting distribution of Unilever products. Similar responses were also given to factors such perishability of products (71%) and size and weight of products (64%) as very strong determining product related factors promoting distribution of products and services in the retail industry. However, most respondents strongly disagreed to "technical nature of products" (55%) and "after sales service" (67%) as product related factors promoting the distribution of products and services in the retail industry. In sum, product-related factors such as price of products, perishability of products, size and weight of products were identified as strong factors promoting the distribution of Unilever products and services in the retail industry in Ghana.

Table 3: Factors promoting effective distribution channels of products and services in the retail industry

Factors	SA	A	N	D	SD
Product Related Factors	%	%	%	%	%
Price of products	62.0	25.0	4.0	6.0	3.0
Perishability of products	71.0	19.0	2.0	4.0	4.0
Size and weight of products	64.0	20.0	6.0	7.0	3.0
Technical nature of products	5.0	8.0	15.0	17.0	55.0
After sales service	8.0	6.0	4.0	15.0	67.0
Consumer/Market Related Factors					
Number of customers	66.0	11.0	9.0	7.0	7.0
Expansion of consumers	73.0	14.0	2.0	5.0	6.0
Size of order	50.0	27.0	12.0	7.0	4.0
Objective of purchase	47.0	20.0	15.0	10.0	8.0
Producer Related Factors					
Level of production	77.0	10.0	2.0	8.0	3.0
Financial resources	83.0	10.0	1.0	4.0	2.0
Managerial competence and experience	73.0	8.0	9.0	6.0	4.0

Consumer/Market-Related Factors

Respondents gave some responses to factors that measures consumer/market-related determining factors that promote distribution of Unilever products and services in the retail industry. Majority of the

respondents strongly agreed that factors such as "number of customers" (66%) and "expansion of consumers" (73%) as very strong factors promoting effective distribution channels of products and services. On the other hand, most of the respondents disagreed to factors such as size of order (50%) and objective of purchase (47%) as consumer/market-related factors promoting effective distribution channels. Thus, from the perspective of Unilever staff, the study identified number of customers and expansion of consumers as the two important market related factors promoting effective distribution channels for Unilever products and services in the Ghanaian retail industry.

Producer-Related Factors

In this section, majority of the Unilever staff strongly agreed that level of production (77%), financial resources (83%) and managerial competence and experience (73%) were the producer-related factors that promote effective distribution of Unilever products and services in the retail industry.

Challenges associated with effective distribution and sale of fast-moving consumer goods in the retail industry.

This section discusses the challenges associated with effective distribution and sale of fast-moving consumer goods in the retail industry. Results from Table 4 show that 68% of Unilever staff strongly agreed that lack of support from management as a major challenge associated with the effective distribution and sale of fast-moving consumer goods. Also, 47% of the respondents disagreed with "high implementation cost" as a challenging fact negatively affecting effective distribution of goods and services. Other challenges that were strongly agreed with by Unilever staff were lack of adequate funds (82%), lack of proper communication channels (74%), complexity of consumer needs (65%), poor road networks (80%) and existence of counterfeits goods in the retail market (69%).

Table 4: Challenges negatively affecting effective sales and distribution of FMCG.

Challenges	SA	A	N	D	SD
	%	%	%	%	%
Lack of management support	68.0	25.0	1.0	4.0	2.0
High implementation cost	6.0	15.0	12.0	47.0	20.0
Lack of adequate funds	82.0	8.0	2.0	4.0	4.0
Lack of skilled employees to implement the strategy	2.0	4.0	2.0	20.0	72.0
Lack of proper communication channels	74.0	18.0	1.0	3.0	4.0
Complexity of customer needs	65.0	21.0	10.0	2.0	2.0
Lack of policies, processes and procedure to support implementation of strategy	3.0	3.0	8.0	54.0	23.0
Poor road networks	80.0	14.0	1.0	2.0	3.0
Presence of counterfeits goods in the retail market	69.0	12.0	9.0	4.0	5.0
Limited Branding visibility	8.0	7.0	15.0	24.0	46.0

Factors influencing customer choice of Fast-Moving Consumer Goods in the retail industry

This section examines the factors influencing customer choice of Fast-Moving Consumer Goods in the retail of Unilever products and services. Result from Table 5 show the coefficients of factors that are likely to influence customer choice of FMCG in the retail industry. The factors examine were incentives, recognition programs, feedback appraisal and communication.

The coefficients of incentives and feedback appraisal were significant at 5% level. This shows the strong effect of incentives such as awards, certificates, cash and special quotas to retailers and wholesalers of Unilever on their choice of FMCG. Again, receiving feedback on knowledge of what is expected of a distributor, performance based on sales and encouragements from the manufacturers to achieve sales objectives were significant in predicting customer choice of FMCG in the retail industry.

Table 5: Regression model for factors influencing customer choice of FMCG

Model	Unstandardized Coefficient		Std. Coefficient	Sig.
	B	Std. Error	Beta	
(Constant)	0.376	0.142		
Incentives	1.836	0.615	6. 271	0.003
Recognition programs	0.662	0.436	1.938	0.824
Feedback Appraisal	1.761	0.607	5.816	0.004
Communication	0.409	0.397	1.506	0.303
R Square	Adjusted R Square	Std. Error of the Estimate		Durbin Watson
0.296	0.170	952.468		0.658

Source: Field data, 2021

CONCLUSION AND RECOMMENDATIONS

The main objective of this study is to examine the effective use of distribution channels and networks by FMCGs in the Upper East region of Ghana. In all, a total of 110 responses were analysed. For the purposes of clarity of presentation, the findings are summarised under the study objectives.

Distribution strategies for the effective sales of products and services

The result indicate that Unilever staff identified with the following as best distribution strategies for the effective sales of products and services. These strategies are one-level distribution channel, shorter distribution channels, two-level distribution channel and three-level distribution channels. The advantages of one level distribution channel enables faster movement of goods from the factory floor to the consumer. It also has fewer operational processes incurring few bureaucratic phases thus making it simpler and easier. One level distribution

further leads to minimum inspection during movement of goods which guarantees good quality products. One of the merits of two-level distribution channels is that it undertakes bulk-breaking at different level which increases convenience for retailers and consumers in purchasing goods/products in small portion. Again, three level distribution channels are often commonly used to cover large market and it also involves more options for retailer which gives retailers more power on selecting better quality products from a variety of intermediaries.

Factors promoting effective distribution channels of products and services.

This objective was to identify the factors that promote effective distribution channels of products and services in the retail industry. The findings clearly reveal that products related factors such as price of products, perishability of products, size and weight of products promotes the effective distribution of Unilever goods and services. Consumer/market related factors such as number of customers and increase consumer base were factors identified as promoting effective distribution channels. Further, the level of production, financial resources and managerial competence and experiences.

Challenges associated with effective distribution and sale of fast-moving consumer goods.

The results revealed the following challenges associated with the effective distribution and sale of fast-moving goods in the retail industry. These are lack of support from management, inadequate funds, lack of proper channels of communication, complexity of consumer goods, poor road networks and existence of counterfeit goods.

Factors influencing customer choice of Fast-Moving Consumer Goods

The study found that customer choice of Fast-Moving Consumer Goods was positively influenced by incentives such as awards, certificate, cash and special quotas to retailers and wholesalers of Unilever products. Again, receiving feedback on knowledge of what is expected of a distributor and performance based on sales and encouragement from the manufacturers to achieve sales objectives.

Conclusion

The study clearly illustrates the best distribution strategies that promote effective sales of products and services in the retail industry. The study vividly shows that products-related factors, consumer/market-related, and production-related factors promote the effective distribution of Unilever goods and services. The study, however, identified some challenges associated with the effective distribution and sale of fast-moving consumer goods and services. The study also established a positive influence of factors, such as incentives, receiving feedback on

knowledge of what is expected of a distributor and performance based on sales based on customer choice of fast-moving consumer goods (FMCG) and services.

Recommendations

The results show a positive impact of incentives such as awards schemes, certificates, cash and special quotas to retailers and wholesalers of Unilever on the choice of FMCG. Managers and produces of FMCGs should implement more reward and incentive programmes and policies to boost the sale and distribution of FMCG and services in the retail industry in Ghana.

Furthermore, managers, producers and distributors of FMCG and service should endeavour to develop mechanism that will create the avenue to receive feedback from customers (retailers and wholesalers) and final consumers of their products and services. This feedback mechanism will help improve manufacturing, processing, distribution and sale of fast-moving consumer goods and services. This is essential because the result vividly show that feedback mechanism has positive influence on consumer choice of FMCG. Again, managers and producers of FMCGs should pay much attention to the price of their products, their perishability, size and weight of products because it influences their effective distribution. This is important because these factors were identified as critical in ensuring effective distribution channels of FMCGs.

Future studies should include qualitative methodology such as focus group discussions, in-depth interviews among various stakeholders in the manufacturing and retail industry. This methodological approach will give details of the issues and challenges that confront effective distribution of consumer goods and services.

References

Abbas N. (2013). Customer preference and brand exposure: A study on the rural market of West Uttar Pradesh region. The International Journal's Research Journal of Economics and Business Studies, 2(4),8-15.

Adesoga, A. D., & James, A. A. (2019). Channel strategy and marketing performance of selected consumer goods firms in Lagos State, Nigeria. Academy of Marketing Studies Journal, 23(1), 1-18.

Affran, S., & Asare, R. K. (2019). Emergence of new marketing distribution strategies: A call for a paradigm shift. European Journal of Business and Management Research, 4(6).

Al Badi, K. S. (2018). The impact of marketing-mix on the competitive advantage of the SME sector in the Al Buraimi Governorate in Oman. SAGE Open, 8(3), 2158244018800838.

Ali, M. A., Thumiki, V. R. R., & Khan, N. A. (2012). Factors influencing purchase of FMCG by rural consumers in South India: an empirical study. International Journal of Business Research and Development, 1(1).

Anderson, E., Day, G. S., & Rangan, V. K. (1997). Strategic channel design. MIT Sloan Management Review, 38(4), 59.

Anđelković, A., Barac, N., & Radosavljević, M. (2017). Analysis of distribution channels' successfulness–The case of the retail chains in the Republic of Serbia. Economic Themes, 55(4), 505-507.

Anisimova, T. A. (2007). The effects of corporate brand attributes on attitudinal and behavioural consumer loyalty. Journal of consumer marketing.

Babbie, E. (2001). The practice of social research. Belmont, CA: Wadsworth/Thomson Learning. York: Wiley.

Bahal, S., & Sahay, A. (2015). Promoting oral health in rural India: The case of Pepsodent. Global Business Review, 16(3), 524-536.

Banytė, J., Gudonavičienė, R., & Grubys, D. (2011). Changes in marketing channels formation. Inžinerinė ekonomika, 319-329.

Berry, L. L. (2000). Cultivating service brand equity. Journal of the Academy of marketing Science, 28(1), 128-137.

Bressoud, E. (2013). Testing FMCG innovations: Experimental real store versus virtual. Journal of Product & Brand Management.

Brown, J. R., & Dant, R. P. (2014). The role of e-commerce in multi-channel marketing strategy. In Handbook of strategic e-business management (pp. 467-487). Springer, Berlin, Heidelberg.

Cao, L., & Li, L. (2015). The impact of cross-channel integration on retailers' sales growth. Journal of Retailing, 91(2), 198-216.

Chovanová, H. H., Korshunov, A. I., & Babčanová, D. (2015). Impact of brand on consumer behavior. Procedia Economics and Finance, 34, 615-621.

Cohen, W. M., Nelson, R. R., & Walsh, J. P. (2003). Protecting their intellectual assets: Appropriability conditions and why US manufacturing firms patent (or not) (No. 618897000000000624). David K. Levine.

Creswell, J. W. (2002). Educational research: Planning, conducting, and evaluating quantitative (pp. 146-166). Upper Saddle River, NJ: Prentice Hall.

Domschke, H., & Schield, O. (2010). A Marketing Rationale for the Distribution of Automobiles. 2 Studies in Automobile Franchising.

Gabrielsson, M., Kirpalani, V. M., & Luostarinen, R. (2002). Multiple channel strategies in the European personal computer industry. Journal of international marketing, 10(3), 73-95.

Hesse-biber, S. N. (2010). Mixed Method Research: Merging Theory with Practice, London, The Guilford Press.

Hopkins, W. G. (2000). Quantitative Research Design. Sportscience 4(1).

Hundal, B. S. (2008). Perceptions of Consumers Towards Promotional Schemes for Durables: A Study in Punjab. ICFAI Journal of Consumer Behavior, 3(2).

Kabadayi, S., Eyuboglu, N., & Thomas, G. P. (2007). The performance implications of designing multiple channels to fit with strategy and environment. Journal of Marketing, 71(4), 195-211.

Karanja, S. C., Muathe, S. M. A., & Thuo, J. K. (2014). The effect of marketing capabilities and distribution strategy on performance of MSP intermediary organisations' in Nairobi County, Kenya. Business Management and Strategy, 5(1), 197.

Karmoker, K., & Haque, M. E. (2016) Factors Influencing the purchase decision of fast-moving consumer goods in the Rural Areas of Bangladesh: Evidence from Khulna District. A Journal of Business Administration Discipline, Khulna University, Volume: 11, Number: 1&2, pp. 58-66 (ISSN 1811-3788)

Khare, P., & Ali, S. H. (2015). The scenario of marketing innovation in FMCG Sector. HCTL Open International Journal of Technology Innovations and Research, 14.

Khare, P. (2018). Brand awareness and customer preference among customers of fast-moving consumer goods with reference to kaval towns. International Journal of Latest Engineering and Management Research (IJLEMR) ISSN: 2455-4847

Kotler, P., & Armstrong, G. (1997). Principles of marketing. Translated by Forouzandeh, B.(1389).

Kumar, S. A., & Malini, M. (2015). Importance of brand awareness in purchase decision of FMCG products for consumers: A comparison between Urban. Semi Urban and Rural Markets International Journal of in Multidisciplinary and Academic Research, 4(3).

Laforet, S., & Saunders, J. (2005). Managing brand portfolios: how strategies have changed. Journal of Advertising Research, 45(3), 314-327.

Laforet, S. (2011). Brand names on packaging and their impact on purchase preference. Journal of Consumer Behaviour, 10(1), 18-30.

Leroy, K. D. J. (2017). Sales and distribution networks of Fast-Moving Consumer Goods (FMCGS) companies in Ghana. A case study of selected companies in the Kumasi Metropolis (Doctoral dissertation).

Liwali, K. (2013). Analysis of marketing channels for effective distribution of consumer products by small scale manufacturing enterprises in Zamfara state. Virtual Library, University of Nsuka.

Mann, B. J. S., & Kaur, M. (2013). Exploring branding strategies of FMCG, services and durables brands: evidence from India. Journal of Product & Brand Management.

Mathew, B. (2015). A Study on Brand Awareness and Preference of Rural Consumers towards FMCG Goods in Rural Markets with Reference to Chickaballapur District. International Journal of Business and Administration Research Review, 1(9), 51-59

McDonald, M. H., De Chernatony, L., & Harris, F. (2001). Corporate marketing and service brands-Moving beyond the fast-moving consumer goods model. European Journal of Marketing.

Meera, M. R., Mahalakshmi, R., & Padmaja, R. (2017). Consumer behaviour towards FMCG products: A study with special reference to Rajapalayam. Research Journal of Humanities and Social sciences, 8(1), 69-80.

Moss, G., & Schuiling, I. (2004). A brand logic for pharma? A possible strategy based on FMCG experience. Journal of Medical Marketing, 4(1), 55-62.

Muijs, D. (2004). Doing Quantitative research in education. London: Sage Publications Limited.

Mulky, A. G. (2013). Distribution challenges and workable solutions. IIMB Management Review, 25(3), 179-195.

Nyaga, J. (2014). Factors affecting distribution of fast-moving consumer goods in Kenya: A case of Eveready East Africa. International Journal of Social Sciences and Entrepreneurship, 1(12), 290-302.

Ojwang, J. (2014). Influence of promotion strategies on performance of fast-moving consumer good industry in Nairobi County, Kenya (Doctoral dissertation).

Otieno, S. A. (2018). Selective Distribution Strategy and Competitive Advantage of Fast-Moving Consumer Goods Companies In Kisumu County (Doctoral dissertation, University of Nairobi).

Painoli, A. K. (2017). Factors Influencing the purchase of FMCG by rural consumers: an empirical study with reference to detergent powder and cake in the Uttarakhand State (India. Elk Asia Pacific Journal of Marketing and Retail Management, 11-18.

Porter, M. E. (2008). The five competitive forces that shape strategy. Harvard business review, 86(1), 78.

Porter, M. E. (2011). Competitive advantage of nations: creating and sustaining superior performance. London: Simon and Schuster.

Rahman, K., & Areni, C. S. (2009). Service brand relationship matrix: brand strategy for services.

Rambocas, M., Meneses, R., Monteiro, C., & Brito, P. Q. (2015). Direct or indirect channel structures. Evaluating the impact of channel governance structure on export performance. International Business Review, 24(1), 124-132.

Sarantakos, T. H. (2006). Real-time fault detection in bolted assemblies using torque-angle signatures.

Sarkis, J. (2003). A strategic decision framework for green supply chain management. Journal of cleaner production, 11(4), 397-409.

Sathyanarayana, S. (2011). Trends in the marketing of fast-moving consumer goods (FMCGS) in Karnataka State. DHARANA-Bhavan's International Journal of Business, 5(1), 61-73.

Saunders, J., & Guoqun, F. (1996). Dual branding: how corporate names add value. Marketing Intelligence & Planning.

Saxena, R. P. (2011). Dubai mall: a multipurpose destination in the Middle East. Emerald Emerging Markets Case Studies.

Segetlija, Z., Mesarić, J., & Dujak, D. (2011). Importance of distribution channels-marketing channels-for national economy. In 22nd CROMAR Congress (pp. 785-809).

Shih FJ (1998) Triangulation in nursing research: issues of conceptual clarity and purpose. Journal of Advanced Nursing. 28, 3, 631-641.

Somashekar, C., & Kaboor, A. (2016). Marketing strategies of FMCG companies-a study on factors influencing buying food, health and beverages in Mysore. International Journal of Engineering and Management Research (IJEMR), 6(5), 393-397.

Stern, L. W., & Sturdivant, F. D. (2006). Customer-driven distribution systems. Boston: Harvard Business Review.

Stojković, D., Lovreta, S., & Bogetić, Z. (2016). Multichannel strategy-the dominant approach in modern retailing. Economic Annals, 61(209), 105-127.

Straub, D., Boudreau, M. C., & Gefen, D. (2004). Validation guidelines for IS positivist research. Communications of the Association for Information systems, 13(1), 24.

Sule, J. G., Ogbadu, E. E., & Achimugu, C. L. (2013). Channel Management for Household Products Companies in Nigeria. Kuwait Chapter of the Arabian Journal of Business and Management Review, 2(5), 190.

Sulekha, D., & Mor, K. (2013). An investigation of consumer buying behavior for FMCG: an empirical study of rural Haryana. Global Journal of Management and Business Research.

Swanson, R. A., & Holton, E. F. (2005). Research in organizations: Foundations and methods in inquiry. Berrett-Koehler Publishers.

Tih, S. H., Ahmad, A., & Jani, M. F. M. (2008). Distribution channel of tropical fruits in the Netherlands market. Journal of Agribusiness Marketing, Vol. 1, December 2008, p. 63-84.

Van Baal, S. (2014). Should retailers harmonize marketing variables across their distribution channels? An investigation of cross-channel effects in multi-channel retailing. Journal of Retailing and Consumer Services, 21(6), 1038-1046.

Weinberg, B. D., Parise, S., & Guinan, P. J. (2007). Multichannel marketing: Mindset and program development. Business Horizons, 50(5), 385-394.

Yeboah, A., Owusu, A., Boakye, S., & Owusu-Mensah, S. (2013). Effective distribution management, a pre-requisite for retail operations: A case of Poku Trading. European Journal of Business and Innovation Research, 1(3), 28-44.

Top 10 Business Model Ideas for Productive Use in Sub-Saharan Africa

Elmar Steurer, Inken Hoeck & Franziska Keßler
Neu-Ulm University of Applied Sciences
Germany
email: Franziska.Maria.Kessler@gmail.com
email: Elmar.Steurer@hnu.de
email: Inken.Hoeck@hs-neu-ulm.de

Abstract

While 14 % of the world's working-age population currently lives in sub-Saharan Africa (SSA), this figure will predictably be higher than the rest of the world combined by 2036. If this demographic group finds meaningful employment, Africa experiences an economic and social upswing. To tap this potential, the paper intends to answer the research question, "What are the prerequisites and how are they defined for the successful implementation of sustainable business model ideas in SSA?", by developing a top ten ranking consisting of previously identified sustainable business model ideas best suited for productive use. This achieves a novel approach to implementing future-oriented business models and contributes to current research on sustainable models. Since the geographical scope of SSA is pervasive, this paper focuses on Namibia, Rwanda, Senegal, and Uganda. An extensive literature review on these countries was conducted to gain a broader understanding of the situation in SSA. Additionally, research was carried out on the agricultural, energy, and information and communications technology (ICT) sectors to identify the most promising ideas. To contribute to current knowledge, experts were interviewed, and panel discussions were analyzed. Furthermore, the Business Model Canvas (BMC) was combined with the circular economy concept, which served as a framework for the business model ideas. Experts evaluated these ideas, which were subsequently ranked using fuzzy logic with artificial intelligence, based on the system for exploring country risks (CRISK-Explorer). The paper shows that skipping individual development processes opens up promising opportunities, such as the ICT-based business model e-crowd logistics or the renewable energy-based model e-Boda-Boda. Seven prerequisites for the successful implementation of these ideas were identified and defined: value delivery, promising customers, sufficient capital, presence of key resources, possibility to perform the key activities, sustainability, and profitability. The paper concludes by identifying limitations and suggesting avenues for future research.

https://doi.org/10.18418/978-3-96043-104-6_70

Keywords: Sub-Saharan Africa; Sustainable Business Model Canvas; Leapfrogging; Sustainable Agriculture; Renewable Energy; ICT; Fuzzy Logic

Introduction

Over the past two decades, sub-Saharan Africa (SSA) has witnessed relatively strong economic growth (Shimeles et al., 2018). In the process, Africa is leapfrogging – the absence of retail chains could, for instance, lead to a surge in e-commerce (Bogner & Hertzberg, 2021). Nevertheless, this hitherto economic growth has predominantly been jobless and characterized by inequality and poverty. More than half of the population in SSA is still engaged in the low-productivity agricultural sector. Although women constitute about half of the agricultural labor force (47 %), there is great inequality. It has been found that if women had access to the same resources as men, agricultural yields would increase by up to 30 %, and at the same time, the number of hungry people would decrease by 100 to 150 million worldwide (Shimeles et al., 2018).

The extreme speed at which the continent is catching up decades and developing is related to other significant increases. In addition to substantial population growth and urbanization, there is a notable surge in energy demand. Between 2000 and 2012, energy demand in SSA grew by about 45 %, with a continuing upward trend (Shimeles et al., 2018). West Africa alone is forecast to see a 100 % rise in regional electricity consumption by 2030. Though, this would be accompanied by an estimated 102 % increase in carbon emissions (The World Bank Group, 2021d). Moreover, the young and working-age populations are forecast to expand (The World Bank Group, 2022). While currently, 14 % of the world's working-age population lives in SSA, this figure will predictably be higher than the rest of the world combined by 2036 (Bogner & Hertzberg, 2021). Hence, African challenges must be addressed, and the untapped potential and opportunities in SSA exploited to increase economic growth for the benefit of the population. One way to do this is by developing and implementing sustainable business model ideas. Therefore, the paper addresses the question of the prerequisites and how they are defined for the successful implementation of sustainable business model ideas in SSA by creating and discussing a top ten ranking of sustainable business model ideas best suited for productive use. Since SSA is geographically vast, this paper focuses on the countries Namibia, Rwanda, Senegal, and Uganda.

The paper is organized as follows. Section 2 presents the concept of this paper and the methodological choices. Section 3 shows a conceptualization of an extended framework for sustainable business models – the Business Model Canvas (BMC) with an integrated aspect of the circular economy. This section is followed by a review of recent literature on current challenges in SSA and promising business ideas best suited for productive use (section

4 and 5). Section 6 presents the results in the context of a top ten ranking, followed by a discussion of the results (section 7). Section 8 provides the conclusion, including limitations and suggestions for further research.

Methodology

An extensive literature review was conducted on the countries Namibia, Rwanda, Senegal, and Uganda, as well as on the agricultural, energy, and ICT sectors to identify the most promising business ideas best suited for productive use. By combining the underlying Business Model Canvas (BMC) with circular economy aspects, a framework for the ideas was designed. Moreover, professionals with various backgrounds were interviewed during webinars, as well as panel discussions analyzed, supplemented by subsequent exchanges, to obtain further information on the business model ideas. Including grey literature was essential to the topic, allowing practical examples to be demonstrated.

Experts eventually evaluated the business model ideas based on thirteen criteria[1]. The ranking of the ideas was performed using fuzzy logic (see "Fuzzy-Logik: Einführung in die algebraischen und logischen Grundlagen" (Böhme, 1993)) with artificial intelligence, based on the system for exploring country risks (CRISK-Explorer) for larger and smaller emerging market countries proposed by Steurer (2000) in "Quantitative Country Risk Assessment".

Framework

The development of sustainable business models is becoming increasingly essential to improve resource efficiency and efforts to counteract climate change (Münger, 2021). Sustainable business models potentially lead to new green jobs, stable GDP growth, a reduction of resource extractions, and environmental impacts (Colombo et al., 2021). Therefore, the within this paper identified sustainable business model ideas based on the BMC by Osterwalder & Pigneur (2009), integrate a circular economy aspect, as proposed by Münger (2021). **Figure 1** represents the extended framework of these business model ideas. The questions in italics are from the traditional BMC, while the remaining questions relate to the circular economy.

[1] 1) Access (difficulty and limitations) to required resources, 2) Amount of capital required, 3) Benefit for economy, 4) Benefit for end consumers, 5) Benefit for environment, 6) Benefit for society, 7) Complexity of technology, 8) Coverage of circular economy aspects, 9) External restrictions (e.g. legal), 10) Necessity of the business idea for the market, 11) Need for know-how, 12) Profitability, 13) Use of energy from renewable resources.

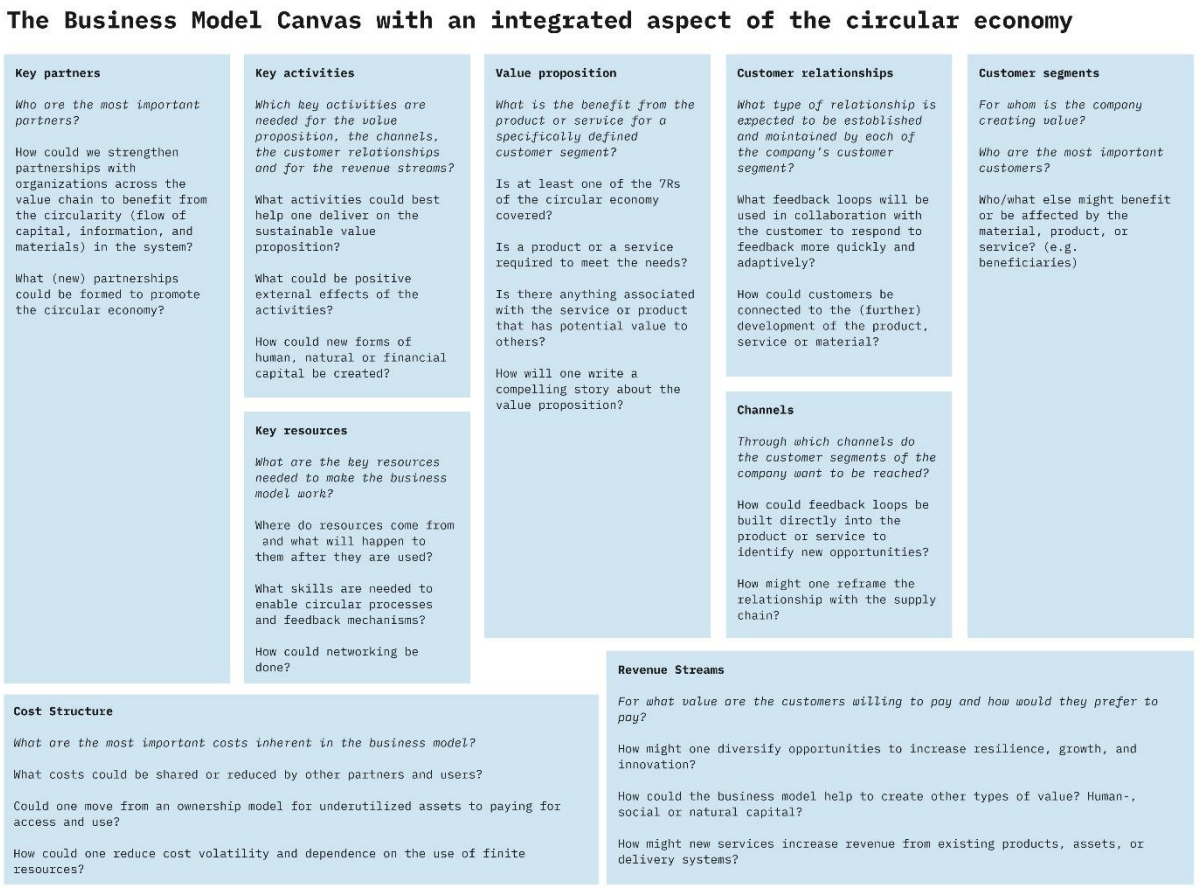


Figure 1 Circular Business Model Canvas (own illustration, based on Osterwalder & Pigneur (2009) and Münger (2021))

(PHL). In SSA, PHL accounts for 30 % to 50 % of production and thus strongly influences productivity. Often, a lack of refrigeration on the way from farmer to market is to blame for crops spoiling (World Economic Forum, 2021). In recent years, warming in Namibia has been higher than the global average (The World Bank Group, 2021a). High temperatures with an increasing trend pose a major threat to perishable foods and other items in need of refrigeration.

In fact, the volume of food losses over ten years exceeded the value of total food aid received (World Economic Forum, 2021). Lastly, farmers in SSA are mostly not integrated into regional and global value chains (Shimeles et al., 2018), hence receive only a little economic return. Around 70 % of the world's harvested coffee is exported to industrialized countries for further processing, as coffee-producing countries such as Rwanda and Uganda often lack processing and logistics facilities (Majeed et al., 2022).

Energy

Access to electricity is a common problem in SSA. Over 80 % of the population relies on plant/animal residues or wood to meet their energy needs (World Economic Forum, 2021). Namibia's existing resources do not achieve one-third of its energy needs. More than 50 % of its electricity is imported from neighboring countries and the Southern African Power Pool. Yet, only slightly more than half of its population had access to electricity in 2019, with the rural population estimated to account for less than 10 %. However, Namibia has great potential to generate its own electricity from solar energy (Hoeck et al., 2021; The World Bank Group, 2021a). One of the lowest electricity consumption rates per capita in the central-east African region is found in Rwanda. Only 37.8 % of the population had access to electricity in 2019 (The World Bank Group, 2021b). Senegal also struggles with a lack of energy. Almost 60 % of the rural population still has no access to the national power grid. However, similar to Namibia, Senegal has a high potential for solar power (KfW, n.d.). Ultimately, the AVSI Foundation's Productive Use of Electricity program in Uganda found that for 77 % of micro, small and medium enterprises, access to electricity is the most frequently cited barrier to business growth (AVSI, 2019).

E-waste

The amount of electronic waste (e-waste) is growing – both by imports of used electronics from the Global North and by domestically produced electronics used by the growing African population (World Economic Forum, 2021; Maes & Preston-Whyte, 2022). As increasing access to energy has enabled wider acceptance of essential electrical products (including solar energy products), the life cycle of these products is becoming shorter as producers use less durable and valuable components in order to make the products more affordable (Leacock, 2021). In Uganda, an estimated 17,000 tons of e-waste was produced in 2018 (Bodawerk, n.d.).

Transport infrastructure

Nowhere is the transport of goods as expensive as in Africa. Transport costs account for 6 % to 7 % of the price of goods in Europe and the USA, compared with up to 70 % in Africa, caused by poor infrastructure, closed borders, congestion, lack of credit, poor organization, corruption, theft, and the climate (Bogner & Hertzberg, 2022b). The continent has the world's worst road network (Bogner & Hertzberg, 2021). Such inefficient African logistics make the goods produced more expensive, so they cannot compete globally (Bogner & Hertzberg, 2022b). Delivery is, however, the core success factor of online retailing (Heinemann, 2022). As e-commerce grows, so does the demand for delivery services. However, these services are often executed by small vehicles such as motorcycles that transport less (Boateng et al., 2022). Furthermore, errors often occur in the last mile (Heinemann, 2022) due to incomplete addresses of still unnamed rural roads. This challenge leads to delays, inefficiencies, increased communication costs, and reverse logistics in urban and rural areas (Alharbi et al., 2022).

In Rwanda, motorcycles make up more than half of all vehicles on the roads, while in East Africa alone, they carry about 100 million people daily. However, in addition to the emissions they cause, they are not cheap to buy, and the fuel they require is expensive (Ampersand, n.d.b). The transport sector is the main contributor to urban air pollution in Rwanda and is insufficient to meet peak demand (SSATP, 2018). Senegal is also struggling with such problems, as many businesspeople commute daily to Dakar. Due to outdated public transportation and poor road conditions, travel time to work is often unnecessarily long (The World Bank Group, 2016), and the delivery of goods is hindered by heavy traffic congestion. According to estimates, the prevailing poor infrastructure costs Senegal about 4.6 % of its annual GDP (International Finance Corporation, n.d.). Lastly, people in SSA who must travel more than two hours to use emergency public medical facilities account for 29 % of the population, with 28 % being women of childbearing age (Boisson et al., 2022). In medical transportation, cold chains must not be interrupted, but distances in SSA are often long and lack electricity access (Buitendach et al., 2019).

Health

Chronic viral hepatitis B (HBV) affects over 60 million people in SSA. An infant has a 70 % to 90 % chance of developing chronic HBV if infected at birth. Around 20 % of sub-Saharan countries (including Namibia and Senegal) have included the birth dose of HBV vaccine in their immunization schedule, with an increasing trend. The birth dose is the most effective (95 %) prevention measure against mother-to-child transmission when administered within one day after birth. However, reaching infants born outside health facilities is an everyday challenge. Ensuring the continuity of the cold chain is another major obstacle, as stated above (Boisson et al., 2022). Although mass immunization has been carried out in SSA for over five decades, the cold chain is still poorly developed and highly vulnerable to unforeseen disruptions (Buitendach et al., 2019). Furthermore, the vaccine documentation is suboptimal across Africa, while, contrary to many assumptions, the vaccine cost is not an issue (Boisson et al., 2022). In addition to chronic HBV, the continent also struggles with other diseases. In Namibia, HIV/AIDS, malaria, tuberculosis, diarrhea, and pneumonia are the top five causes of inpatient deaths for all age groups. Moreover, the continents (rural) population is increasingly threatened by vector-borne and waterborne diseases such as lymphatic filariasis, cholera, and yellow and dengue fever due to climate change (The World Bank Group, 2021a).

Promising business ideas for overcoming mentioned challenges.

1.1 Solar-powered walk-in cooling stations

The PHL challenge (see chapter 4.1) can be significantly reduced by using solar-powered cold storage. Such a room provided by the Nigerian company ColdHubs contains 120-mm-thick insulating panels. It needs an inverter and high-power batteries to keep energy from the roof-mounted solar cells (ColdHubs, n.d.). As the cost of solar

technology has declined recently, the potential of reaching economic viability for such solutions in poor, primarily rural areas rise (Takeshima et al., 2021) and brings social benefits. Introducing solar-powered appliances in off-grid areas significantly reduces the disparity between urban and rural areas (Global Ice Tec AG, n.d.). ColdHubs offers stationary solar refrigeration of perishable food, and with it allows shelf life to be extended from two to 21 days, resulting in an 80 % reduction in PHL. Additionally, farmers can increase their annual income by 25 % by being able to sell more of their harvest. To use the hub, they pay a flat daily fee for each crate stored based on a pay-as-you-store subscription model (ColdHubs, n.d.). However, the lack of experience of insurance companies with these business models can be seen as a hurdle, as it is challenging to obtain insurance coverage (World Economic Forum, 2021).

Aquaponics

Aquaponics, an integrated closed loop system that combines hydroponics with aquaculture, is one of the most efficient ways to address challenges in SSA sustainably (Obirikorang et al., 2021; Tyson et al., 2011). Accordingly, both plants (specifically leafy vegetables (Goddek et al., 2019)) and fish are produced from one water source (Tyson et al., 2011) through the usage of fish waste as a fertilizer. Solely fish feed and supplements are added to the system (Goddek et al., 2019). Solar energy can additionally be used to pump water into the system and for temperature control (World Economic Forum, 2021).

Aquaponic systems are vital in SSA, not least because of vegetables but also because fish is critical to improving malnutrition and, eventually, the export business (Obirikorang et al., 2021). In fact, Namibia is one of the world's most productive fishing areas (The World Bank Group, 2021a), and in Senegal, fishing is the second largest source of income and employer (The World Bank Group, 2011). Uganda's fish farming represents the second largest export earner (The World Bank Group, 2021c). The demand for fish continues to increase, making aquaculture the fastest-growing global food production sector (Goddek et al., 2019).

However, fishing is increasingly threatened by climate change and burdened by increasing fishing efforts, which puts severe pressure on capture fisheries, leading to fish shortages and destructive fishing techniques (The World Bank Group, 2021c).

Although aquaponics systems have high startup costs, their potential to become economically viable when operated with local materials is high. After deducting operating expenses, profits are about 30 times higher than in traditional agriculture due to more efficient land use, fish income, and year-round cultivation. Furthermore, a Kenyan market study found that African customers are willing to pay more for aquaponics products because they are healthier, fresher, and pesticide-free (Obirikorang et al., 2021). Being a soil-less system, aquaponics is moreover independent of location and soil availability, thus can be used in urban areas or on unused or

underutilized land. From a sustainable perspective, the water footprint of aquaponics systems is significantly better than traditional agricultures. Regions suffering from water scarcity will particularly benefit from aquaponics technology being operated in a commercial setting (Goddek et al., 2019).

E-Boda-Boda

Motorcycles, called Boda-Bodas in East Africa (W.L Ntshinga et al., 2012), can serve as a sustainable solution to the existing traffic problem described in chapter 4.4. Ampersand is already a leading company offering an energy solution for electric Boda-Bodas (e-Boda-Bodas) and transportation (Ampersand, n.d.a). Its business model provides both a service and a product since customers can buy or lease an e-Boda-Boda, with both options managed via the pay-as-you-drive method. According to this method, payment is made for the energy consumed (Ampersand, n.d.c).

The usage of e-Boda-Bodas is indeed relatively sustainable as they emit 75 % fewer greenhouse emissions during their lifecycle than petrol motorcycles using grid power. Using renewable energy to recharge batteries makes transportation even more sustainable. If all Boda-Bodas in Kigali (about 300,000) were electrified, one could save 157,000 tons of CO_2 emissions per year. Furthermore, e-Boda-Bodas are economically beneficial for the driver since being less expensive to purchase, maintain and operate than a fuel vehicle. An Ampersand driver spends 3.51 USD on energy per day, whereas a petrol driver spends 4.68 USD on fuel per day. This, in turn, leads to higher revenue for the e-Boda-Boda driver at the end of the day (Ampersand, n.d.b). Ultimately, the ultra-high lifecycle lithium batteries have a range of 60 km to 90 km and must be replaced less frequently than drivers typically refuel (Ampersand, n.d.c).

E-waste energy storage

91 % of micro, small and medium enterprise respondents to the Productive Use of Electricity program in Uganda already use solar energy and own the panels (AVSI, 2019), showing that photovoltaic (PV) is becoming increasingly important for energy supply in rural SSA (Charles et al., 2019). Battery-powered energy storage systems based on lithium-ion technology can be used to enable households and enterprises that already have solar systems to use the power they generate, further improving access to electricity.

For these systems, the cost of batteries accounts for 81 % to 93 % of the total storage system costs (Charles et al., 2019). Therefore, the effect of cost-efficient e-waste battery cells becomes advantageous. On average, the overnight energy usage of a sub-Saharan household in a remote area is about 1.42 kWh (Charles et al., 2019). A suitable battery pack for this household should offer a capacity of about 2,000 Wh.

A commonly found lithium-ion cell is the Panasonic NCR18650B-3, which has a measured capacity of 11.33 Wh (Muenzel et al., 2015). Assuming a degradation of 20 % of its capacity through prior use results in a remaining

capacity of 9.064 $\frac{Wh}{cell}$. Using this type of battery, the needed number of e-waste cells are $\frac{2{,}000\ Wh}{9.064\ Wh/cell} = 220.65\ cells \rightarrow 221\ cells$, resulting in assumed costs of $221\ cells * 1.50 \frac{EUR}{cell} = 331.50\ EUR$.

Considering additional given costs of 127.84 EUR for a charge controller and assumed costs of 100 EUR for the housing, cables, production and packaging, the total production costs could be as low as 559.34 EUR (Charles et al., 2019).

Hemp

The African hemp industry is growing faster than any other industry. Ten times more legal cannabis was exported in 2021 than 2020 (over 15 tons), mainly from South Africa, Uganda, and Lesotho (Schlindwein, 2022b). It is estimated that at least 38,000 tons of African cannabis are produced annually (Prohibition Partners, 2019). The increase may be because cannabis is relatively easy to cultivate in some African countries, for example, in mountainous regions with rich, fertile soil with harvesting seasons every three to four months (Prohibition Partners, 2019). The advantage of growing on the equator is that less energy is needed, leading to fewer costs, which makes the end product cheaper (Schlindwein, 2022c). Moreover, hemp is generally more lucrative than traditional crops (e.g., sugar cane, corn). In Congo, for example, 100 kilograms of cannabis can sell for between 96 USD and 128 USD, while the exact weight of corn fetches only 54 USD (Prohibition Partners, 2019). However, import regulations to Europe are costly (Schlindwein, 2022a). In Uganda, an export license costs 5 million USD (Schlindwein, 2022c). From a sustainable perspective, hemp farming is advantageous. One hectare of hemp can absorb more carbon dioxide from the atmosphere than regular greenery (Deutschlandfunk, 2022). And one kilogram of hemp grown indoors consumes up to five tons of CO_2 (Schlindwein, 2022b).

The market for hemp fiber is relatively large as it can be used for 22,000 industrial purposes (Deutschlandfunk, 2022). Due to its high wet strength, it serves as a raw material for ropes, cordage, and textiles. Hemp can also be used for paper production, building material (insulating fleece or fiber cement), stable bedding, seeds as food (muesli ingredient), fish bait, bird feed, fuel, whole plants for heat energy production, as well as for oil production (Diepenbrock et al., 2012). Thus, attention would have to be paid to keep the value chain in Africa (Schlindwein, 2022b).

RE-Commerce

To exploit the potential of e-commerce in Africa, business ideas are needed. As e-commerce is prevalent among Generation Z (Heinemann, 2022), such business models would indeed benefit from Africa's young, digitalized generation. E-commerce could account for 10 % of total retail sales in Africa's largest economies by 2025, equivalent to 75 USD billion in online sales per year (Odonkor, 2020). Since 2014, the number of African online shoppers has been increasing by 6 % more than the average growth rate globally (United Nations, 2018). From

a social perspective, e-commerce could reduce inequalities by providing rural customers with the variety, convenience, and low prices that urban residents already enjoy (The World Bank Group, 2019). In many countries, such as Rwanda, e-commerce is not yet commonly used, providing a competitive advantage for companies who could potentially benefit from a forecasted Rwandan market volume of 728 million USD in 2025 (Bogner & Hertzberg, 2022c).

To further strengthen the sustainable aspect of the business model idea of e-commerce, one could consider establishing a second-hand platform for SSA. A business model under the umbrella term of RE-commerce (short for re-use), which is attested to be promising by experts. This would enable price advantages for a more extensive customer base and halt further resource extraction (Heinemann, 2022). In fact, considering second-hand fashion, Africa is already at the forefront of establishing a circular fashion industry (World Economic Forum, 2021).

E-waste solar power banks and flashlights

African countries are pioneering efforts to reduce e-waste by adopting policies, regulations, and laws (including extended producer responsibility) (Lebbie et al., 2021). In addition to preventing damage to health through proper recycling, the recovery of expensive and scarce materials from e-waste through collection and recycling represents a promising economic opportunity. The value of raw materials in Africa's e-waste is about 3.2 billion USD (World Economic Forum, 2021). Bodawerk International Ltd. (Uganda) already manages African waste. The company uses old lithium-ion cells from broken power tools, laptops, and other devices to produce and sell flashlights and power banks with an integrated flashlight (Bodawerk, n.d.). In addition to the sales model, the social enterprise WeTu (Kenya) offers a leasing model, which leases solar lights to fishers in the shore areas of Lake Victoria (Global LEAP Awards, 2021). The production costs of an e-waste solar power bank with an integrated flashlight with a capacity of 20,000 mAh can be calculated using the widespread 18650 battery format used worldwide in laptop batteries and power tools (Muenzel et al., 2015). Using the same Panasonic NCR18650B-3 as in chapter 5.4, the remaining capacity of the cell after a 20 % degradation through prior use is 9.064 $\frac{Wh}{cell}$. The amount of energy stored in a 20,000 mAh power bank is $20\ Ah * 3.6\ V = 72\ Wh$. Therefore, the number of cells needed for one power bank are $\frac{72\ Wh}{9.064\ Wh/cell} = 7.94\ cells \rightarrow 8\ cells$. Assuming the price for one e-waste cell after testing and sorting is 1.50 EUR/cell, the total cost for battery cells for one power bank is $8\ cells * 1.50 \frac{EUR}{cell} = 12\ EUR$ (not including housing, charging electronics, LED, production, and packaging). This business idea not only addresses the problem of e-waste, but also provides affordable access to power and light.

E-crowd logistics

In addition to existing e-logistics platforms in SSA, crowd-logistics services for last-mile deliveries and city distribution are a promising concept (Buldeo Rai et al., 2017) with a huge market potential (Agyemang, 2022).

Crowd logistics allows commuters who use public transportation to transport packages on their way (Buldeo Rai et al., 2017) or to give a lift to other people (Alharbi et al., 2022). Whether transporting passengers or packages, this service brings social, economic, and environmental benefits. The reduction of traffic, emissions, and resources count for ecological benefits. In contrast, the linkage of rural communities to a broader range of products and overall logistic efficiency, including the reduction of last-mile errors, are social and economic advantages (Buldeo Rai et al., 2017). In terms of enterprises, benefits include a large area, a flexible workforce, and no investment in employees or a vehicle fleet (Buldeo Rai et al., 2017). Conversely, the crowd is motivated by supplementary earning opportunities that are adaptable and individualized to their lifestyle (Buldeo Rai et al., 2017). A study in Ghana found that people are indeed willing to accept the concept of crowd logistics and participate in its implementation (Zalia et al., 2021), and the population density in cities secures the availability of a critical mass required for crowd logistics platforms (City Logistics, 2018). Despite the supporting factors, the concept also encounters barriers in the form of theft, loss, damage, and privacy concerns. To counteract this, feedback and secure online payment systems need to be included (Buldeo Rai et al., 2017). Moreover, an African logistics entrepreneur came up with the idea to solely run his company by women after discovering that it is mainly men who steal products (Bogner & Hertzberg, 2022a). To implement the concept, a technological infrastructure in the form of an accessible platform is needed to coordinate logistics services' supply and demand (Buldeo Rai et al., 2017). Fortunately, Africa's ICT infrastructure is steadily growing, with a current Internet penetration of 32.4 % (Agyemang, 2022). Senegal is increasingly positioning itself as a leading provider of ICT and teleservices in SSA (Ndiaye, 2020). Also, Rwanda is a pioneer of digitalization (Bogner & Hertzberg, 2021), and Namibia's telecommunications service was ranked as the best in Africa (Namibian Government Portal, n.d.).

Solar coffee roasting

African coffee-producing countries lack processing facilities to generate value within the country. A relatively cheap (concerning production costs) and sustainable solution is using a solar-based oven to process harvested beans. Apart from coffee beans, a group of reflectors, a roasting drum, and a control unit are required for such a system. No external energy is needed, as the mirror is autonomous and powered directly by sunlight, leading to high system reliability (PuroSole, 2021a).

The Italian startup PuroSole has already recognized and seized this opportunity. It produces up to 300 kilos of roasted coffee on a sunny day without emissions and conventional energy consumption. Mirrors focus the sun's rays on reaching temperatures of 200 °C to 300 °C. This process is beneficial as the beans are not burned as much by the shorter roasting and can retain their ingredients better (PuroSole, 2021b). For every 1,000 kg of coffee roasted with the sun compared to the processes using gas, the production, and release of over 400 kg

CO_2 into the atmosphere is avoided (PuroSole, 2021b). Furthermore, using solar energy can enable an annual saving of about 60,000 kWh for producing 30,000 kg of coffee (PuroSole, 2021a).

However, the roasting process requires constant illumination, limiting the process to days with clear skies. Each coffee bean must be directly illuminated cyclically and simultaneously from a different angle (PuroSole, 2021b). Advantageously, the potential of solar thermal energy is vast in SSA. The roasting of coffee beans and other agricultural products is promising since the daily average direct normal irradiance ranges from 5.5 to 7.5 kWh/m^2 with annual sunshine of more than 300 days (Majeed et al., 2022). In comparison, in Germany, it is between about 2.3 and 3.2 kWh/m^2 (Solargis, n.d.).

Last-mile agile cold-chain transportation service platform for vaccinations using portable cool boxes.

The global market for cold transportation solutions is increasing, with managing transportation alone is worth over 13 billion USD in 2017, while growing 5 % to 6 % p.a. (Ogwengo, 2020). In that regard, Boisson et al. (2022) suggests focusing on community-level interventions, especially in rural areas to eventually overcome vaccination transportation issues. Buitendach et al. (2019) present a suitable PV-based cooling box for vaccine cooling and storage. The box holds ten liters and can store up to 250 vials of vaccines at a temperature of 2 °C to 8 °C. As the cooler is sturdy and user-friendly, maintenance costs are minimal (Buitendach et al., 2019). Moreover, the Kenyan company Twiga Foods offers a business-to-business (B2B) e-commerce food supply platform (World Economic Forum, 2021), which could also be put in use to the vaccination problem. This business model idea could be applied to the vaccination problem and offer a last-mile agile cold-chain transportation service platform that brings together health facilities on the one hand and those in need as well as health community workers and vetted individuals on the other. Health community workers and vetted individuals serve as intermediaries to deliver the medical goods or vaccines using solar-powered portable cool boxes. In addition to platform maintenance and customer support, such platform operators communicate the importance of vaccinations and educate people accordingly.

Results

Table 1 summarizes the business model ideas to address the challenges named above. The ranking was performed using fuzzy logic with artificial intelligence, based on the system for exploring country risks proposed by Steurer (2000). Ranked first was the solar-powered walk-in cooling stations, followed by Aquaponics (rank 2), e-Boda-Boda (rank 3), e-waste energy storage (rank 4), hemp (rank 5), RE-Commerce (rank 6), e-waste solar power banks and flashlights (rank 7), e-crowd logistics (rank 8) and solar coffee roasting (rank 9). The last ranked business model idea was the last-mile agile cold-chain transportation service platform (rank 10). These ten business model ideas can be categorized into three overarching areas: sustainable agriculture, renewable energy, and ICT. The

results demonstrate that the easier (i.e., the higher the value; highlighted in green) the access to required resources, the better the business model idea was perceived. This also applies to the evaluation criteria amount of capital required: the lower the capital requirement, the higher ranked was the idea (high value; highlighted green). Additionally, a major benefit (for the economy, end consumers, environment, and society) and high degree of circularity (high value; highlighted green) earned a better rank. Moreover, ideas based on the usage of renewable energy performed better. It is also noted that the business model ideas that are generally more in demand for the African market were better valued. The low complexity of the technology required to implement the business model idea corresponded to a high value (highlighted green) and thus a better rank. The same applied to the evaluation criteria external restrictions and need for know-how. Since this paper was based on a qualitative literature review, the criterion profitability was evaluated just on a qualitatively basis. The more profitable an idea was evaluated, the better it ranked.

--- Table 1 ---

Discussion

Based on the results, the defined research question can be answered. Since experts evaluated ideas more positively if they greatly benefit the economy, end consumers, the environment, and society, the first prerequisite for successful implementation of the business model ideas is ***value delivery***. Accordingly, a major advantage implies an excellent value delivery. The second prerequisite is ***promising customers***, which is defined by the degree of necessity of the business model idea for the African market. The more the product/service is needed, the more promising the customers. This suggests that business models addressing health issues such as chronic HBV tend to have more customers. The third prerequisite is ***sufficient capital***, defined by the amount of required capital. Since economic growth in SSA has been mostly jobless and characterized by poverty over the past two decades, business model ideas with low capital requirements are more beneficial and promising. The fourth prerequisite is the ***presence of key resources***, defined by the access (difficulty and limitation) to the resources required. Ease of access represents a more secure presence of critical resources, thus a more promising and suitable business model idea for productive use. For instance, solar energy, as a crucial resource, can be associated with unlimited access. As evidenced by the literature review, energy access is an important issue, and demand is increasing while the potential for solar energy in SSA countries such as Senegal and Namibia is high. Additionally, the ***possibility of performing the key activities*** can be derived from the results as a further (fifth) prerequisite. This dimension can be defined on the one hand by the degree of complexity of the technology and, on the other

hand, by the required know-how, and the external restrictions that can influence the implementation of a sustainable business model idea in SSA. A low degree of technological complexity, fewer external restrictions (e.g., legal), and less required knowledge represent an easy way to carry out key activities. Since this paper focuses on implementing sustainable business model ideas, s***ustainability*** is the sixth prerequisite defined by the degree of circularity and the usage of renewable energy. The more the concept of circular economy and energy from renewable sources is used, the more sustainable the business model ideas become. ***Profitability***, defined by qualitative reasoning, can be identified as the seventh prerequisite.

Moreover, the canvas building blocks key partners, customer segments and relationships, channels, cost structure, or revenue streams influence the identified prerequisites. For instance, key partners committed to the environment can positively affect fulfilling sustainability.

However, not all prerequisites and business model ideas are equally easy to fulfill and equally promising for productive use in SSA. For example, the business model of solar coffee roasting is better suited for coffee-producing countries such as Rwanda and Uganda. These businesses would require non-coffee producing countries to source coffee beans from abroad, negatively impacting the sustainability prerequisite and the presence of key resources prerequisite due to logistical challenges.

The analysis also identified business model ideas for which the prerequisites are equally easy to fulfill and equally promising in all countries, which, for example, includes aquaponics. As reflected in the literature review, more than half of the population in SSA is employed in the agricultural sector. Therefore, promoting ideas for the primary industry and increasing its productivity is essential. Due to the overall population increase in SSA, demand and thus the customer base for agricultural products is steadily growing. However, climate change more and more stresses the work of farmers. Here, aquaponics can offer excellent benefit as a sustainable solution for the agricultural sector, as outlined in chapter 5.2. The concept also reduces logistics costs, as food can be cultivated directly in urban areas rather than being confined to rural areas. Thus, this factor positively impacts the precondition of sufficient capital, profitability, and sustainability. Since aquaponics can be operated independently of location, the prerequisite possibility to perform key activities is equally easy to fulfill in SSA.

Finally, it bears noting that women in Africa, as described at the outset, play a critical role in boosting the economy, reducing poverty, and improving living standards. Therefore, the role of women must be firmly taken into account when realizing described business ideas.

Conclusion and limitations

The overall purpose of this paper was to identify and define prerequisites for the successful implementation of sustainable business model ideas in SSA by developing ten ranked business model ideas that are best suited for

productive use in SSA, thereby increasing economic growth and reducing poverty and inequality. Five current challenges in SSA were considered: agriculture, energy, e-waste, transport infrastructure and health. Agriculture, renewable energy, and ICT were found to be the most promising sectors for the ten sustainable business model ideas. Moreover, seven prerequisites for the successful implementation of these ideas were identified and defined: value delivery, promising customers, sufficient capital, presence of key resources, possibility to perform the key activities, sustainability, and profitability. It has also become apparent that not for all business model ideas the prerequisites are equally easy to fulfill in all countries and the ideas are not equally promising in SSA. However, this should not be seen as an obstacle given that the potential of SSA, with its natural resources and large working-age population, is vast and should be tapped. After all, if this demographic group finds meaningful employment, Africa could experience an upswing; if not, they will most likely migrate out of the continent.

This paper was based on a comprehensive literature review that implies two major limitations. First, the categorization of the information is necessarily affected by researcher bias. The second limitation relates to the lack of on-site interviews. Thus, an individual assessment by those who face challenges in SSA daily is lacking. Therefore, as a continuation of the present study, future research could empirically assess the applicability of the proposed business model ideas and the prerequisites derived from them by focusing on local surveys.

References

Agyemang, K. O. (2022). A Bayesian Inference Model for Sustainable Crowd Source Logistics for Small and Medium Scale Enterprises (SME) in Africa. American Journal of Industrial and Business Management, 12(04), 750–773.

Alharbi, A., Cantarelli, C., & Brint, A. (2022). Crowd Models for Last Mile Delivery in an Emerging Economy. Sustainability, 14(3), 1401.

Ampersand (n.d.a). About | Ampersand. https://www.ampersand.solar/about. Accessed 08.06.2022.

Ampersand (n.d.b). Impact | Ampersand. https://www.ampersand.solar/impact. Accessed 08.06.2022.

Ampersand (n.d.c). Technology | Ampersand. https://www.ampersand.solar/technology. Accessed 08.06.2022.

AVSI (2019). Productive Use of Electricity: Baseline Report | August 2019. Mailand: AVSI.

Boateng, R., Boateng, S. L., Anning-Dorson, T., & Olumide Babatope, L. (2022). Digital innovations, business and society in Africa: New frontiers and a shared strategic vision. Advances in theory and practice of emerging markets. Cham: Springer International Publishing AG.

Bodawerk (n.d.). Recycling – Bodawerk. https://bodawerk.com/recycling/. Accessed 09.06.2022.

Bogner, S., & Hertzberg, P. (2021). Folge 01: Der afrikanische Traum. brand eins (12), 18–28.

Bogner, S., & Hertzberg, P. (2022a). Folge 03: Jeder Liter zählt. brand eins (2), 98–105.

Bogner, S., & Hertzberg, P. (2022b). Folge 04: Problemlösung made in Kenia. brand eins (3), 18–24.

Bogner, S., & Hertzberg, P. (2022c). Folge 06: Wirtschaftswunder Woman. brand eins (5), 106–112.

Böhme, G. (1993). Fuzzy-Logik: Einführung in die algebraischen und logischen Grundlagen. Springer eBook Collection. Berlin, Heidelberg: Springer.

Boisson, A., Goel, V., Yotebieng, M., Parr, J. B., Fried, B., & Thompson, P. (2022). Implementation Approaches for Introducing and Overcoming Barriers to Hepatitis B Birth-Dose Vaccine in sub-Saharan Africa. Global Health: Science and Practice, 10(1).

Buitendach, H., Jiya, I. N., & Gouws, R. (2019). Solar powered peltier cooling storage for vaccines in rural areas. 2502-4752.

Buldeo Rai, H., Verlinde, S., Merckx, J., & Macharis, C. (2017). Crowd logistics: an opportunity for more sustainable urban freight transport? European Transport Research Review, 9(3).

Charles, R. G., Davies, M. L., Douglas, P., Hallin, I. L., & Mabbett, I. (2019). Sustainable energy storage for solar home systems in rural Sub-Saharan Africa – A comparative examination of lifecycle aspects of battery technologies for circular economy, with emphasis on the South African context. Energy, 166, 1207–1215.

CIAT, & BFS/USAID (2017). Climate-Smart Agriculture in Uganda: CSA Country Profiles for Africa Series.

City Logistics (2018). Crowd logistics: transforming the face of last mile delivery – CityLogistics. http://www.citylogistics.info/business/crowd-logistics-transforming-the-face-of-last-mile-delivery/. Accessed 27.05.2022.

ColdHubs (n.d.). Solar-powered cold storage for developing countries. https://www.coldhubs.com/. Accessed 29.06.2022.

Colombo, B., Gaiardelli, P., Dotti, S., & Boffelli, A. (2021). Business Models in Circular Economy: A Systematic Literature Review. In (pp. 386–393): Springer, Cham.

Deutschlandfunk (2022). Hanfprodukte - Cannabis: Jobmotor im Südlichen Afrika. https://www.deutschlandfunk.de/hanfprodukte-cannabis-jobmotor-im-suedlichen-afrika-100.html. Accessed 26.05.2022.

Diepenbrock, W., Ellmer, F., & Léon, J. (2012). Ackerbau, Pflanzenbau und Pflanzenzüchtung: 102 Tabellen. (3., völlig neu bearb. und erw. Aufl.). Grundwissen Bachelor, 2629. Stuttgart: Ulmer.

Global Ice Tec AG (n.d.). Global Ice Tec – The new Art of Cooling. http://www.global-ice-tec.com/. Accessed 01.07.2022.

Global LEAP Awards (2021). Innovations and lessons in solar e-waste management: Global LEAP solar e-waste challenge. https://www.clasp.ngo/wp-content/uploads/2021/05/Clasp_EforA-SolarEWaste_5-May.pdf. Accessed 28.06.2022.

Goddek, S., Joyce, A., Kotzen, B., & Burnell, G. M. (2019). Aquaponics food production systems: Combined aquaculture and hydroponic production technologies for the future. Life sciences. Cham: Springer Open.

Heinemann, G. (2022). Der neue Online-Handel: Geschäftsmodelle, Geschäftssysteme und Benchmarks im E-Commerce. (13., überarbeitete Auflage). Springer eBook Collection. Wiesbaden: Springer Gabler.

Hoeck, I., Steurer, E., Dolunay, Ö., & Ileka, H. (2021). Challenges for off-grid electrification in rural areas. Assessment of the situation in Namibia using the examples of Gam and Tsumkwe. Energy, Ecology and Environment, 1–15.

International Finance Corporation (n.d.). Senegal's Road to Better Transport. https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/senegal_toll_road. Accessed 07.06.2022.

KfW (n.d.). Senegal | KfW Entwicklungsbank. https://www.kfw-entwicklungsbank.de/Internationale-Finanzierung/KfW-Entwicklungsbank/Weltweite-Pr%C3%A4senz/Subsahara-Afrika/Senegal/. Accessed 07.06.2022.

Leacock, C. (2021). From Problem to Profit: Rewiring the E-Waste Value Chain in Africa. William Davidson Institute, 10.11.2021. https://nextbillion.net/rewiring-ewaste-value-chain-africa/. Accessed 28.06.2022.

Lebbie, T. S., Moyebi, O. D., Asante, K. A., Fobil, J., Brune-Drisse, M. N., Suk, W. A., Sly, P. D., Gorman, J., & Carpenter, D. O. (2021). E-Waste in Africa: A Serious Threat to the Health of Children. International journal of environmental research and public health, 18(16).

Maes, T., & Preston-Whyte, F. (2022). E-waste it wisely: lessons from Africa, 4(3), 72.

Majeed, F., Raza, A., Munir, A., & Hensel, O. (2022). Development and Experiments on a Batch-Type Solar Roaster—An Innovative Decentralized System for Coffee Roasting. Sustainability, 14(4), 2217.

Muenzel, V., Hollenkamp, A. F., Bhatt, A. I., Hoog, J. de, Brazil, M., Thomas, D. A., & Mareels, I. (2015). A Comparative Testing Study of Commercial 18650-Format Lithium-Ion Battery Cells. Journal of The Electrochemical Society, 162(8), A1592-A1600.

Münger, A. (2021). Kreislaufwirtschaft als Strategie der Zukunft: Nachhaltige Geschäftsmodelle entwickeln und umsetzen. (1. Auflage 2021). Freiburg: Haufe-Lexware GmbH & Co. KG.

Namibian Government Portal (n.d.). Infrastructure. https://www.embnamibia.at/infrastructure/. Accessed 06.06.2022.

Ndiaye, A. (2020). Senegal Business environment update. http://www.unido.or.jp/files/Senegal-Business-environment-update_16June2020.pdf. Accessed 07.06.2022.

Obirikorang, K. A., Sekey, W., Gyampoh, B. A., Ashiagbor, G., & Asante, W. (2021). Aquaponics for Improved Food Security in Africa: A Review. Frontiers in Sustainable Food Systems, 5, 1–10.

Odonkor, A. A. (2020). E-commerce in Africa: Constraints and Opportunities. https://www.brusselstimes.com/141359/e-commerce-in-africa-constraints-and-opportunities. Accessed 07.06.2022.

Ogwengo, K. O. (2020). Strategic Preparedness of the COVID-19 Vaccine Cold Supply Chain: A Perspective of Sub-Sahara Africa. International Journal of Advanced Research in Management and Social Sciences, 9(12), 42–62.

Osterwalder, A., & Pigneur, Y. (2009). Business model generation: A handbook for visionaries, game changers, and challengers. Amsterdam: Modderman Druckwerk.

Prohibition Partners (2019). The African Cannabis Report™. https://24914560.fs1.hubspotusercontent-eu1.net/hubfs/24914560/PP%20Reports%20for%20Report%20Automations/Prohibition%20Partners%20-%20The%20African%20Cannabis%20Report%E2%84%A2.pdf?utm_medium=email&_hsmi=58538082&_hsenc=p2ANqtz--VC-kdUh83MPPDxlZCqwzwcPmAzDWkFgXbG_EuKZ9r7g588kfiJGAnkOLJbnHYslhn8XB9ybhtlctFBhJL29N3sta8iqO7gHbcSf9pZ3inDDVdslE&utm_content=58538082&utm_source=hs_automation. Accessed 27.05.2022.

PuroSole (2021a). Solutions - PuroSole.it. https://purosole.it/en/solutions/. Accessed 24.05.2022.

PuroSole (2021b). Technology - PuroSole.it. https://purosole.it/en/technology/. Accessed 24.05.2022.

Schlindwein, S. (2022a). Afrika bereitet sich auf den legalen Cannabis-Ansturm vor. https://p.dw.com/p/47QBQ. Accessed 26.05.2022.

Schlindwein, S. (2022b). Cannabis aus Uganda - Wirtschaftsboom nach Legalisierung? https://www.deutschlandfunkkultur.de/uganda-cannabis-hanf-anbau-100.html. Accessed 26.05.2022.

Schlindwein, S. (2022c). Cannabis-Anbau in Uganda: Aus Gottes Garten. https://taz.de/Cannabis-Anbau-in-Uganda/!5831885/. Accessed 26.05.2022.

Shimeles, A., Verdier-Chouchane, A., & Boly, A. (2018). Building a Resilient and Sustainable Agriculture in Sub-Saharan Africa. Cham: Springer International Publishing.

Solargis (n.d.). Global Solar Atlas. https://globalsolaratlas.info/download/germany. Accessed 01.07.2022.

SSATP (2018). Policies for Sustainable Accessibility and Mobility in Cities for Rwanda. https://www.ssatp.org/sites/ssatp/files/publication/SSATP_UTM_FinalReport_RWANDA.pdf. Accessed 06.06.2022.

Steurer, E. (2000). Quantitative Country Risk Assessment. In Datamining und Computational Finance (pp. 243–257): Physica, Heidelberg.

Takeshima, H., Yamauchi, F., Bawa, D., Kamaldeen, S. O., Edeh, H. O., & Hernandez, M. A. (2021). Solar-powered cold-storages and sustainable food system transformation: Evidence from horticulture markets interventions in northeast Nigeria: Intl Food Policy Res Inst.

The World Bank Group (2011). Climate Risk and Adaptation Country Profile April 2011: Vulnerability, Risk Reduction, and Adaptation to Climate Change. https://climateknowledgeportal.worldbank.org/sites/default/files/2018-10/wb_gfdrr_climate_change_country_profile_for_SEN.pdf. Accessed 07.06.2022.

The World Bank Group (2016). Improving Urban Transport: 5 Lessons from Senegal. https://ieg.worldbankgroup.org/news/improving-urban-transport-5-lessons-senegal. Accessed 07.06.2022.

The World Bank Group (2019). E-Commerce Can Boost Job Creation and Inclusive Growth in Developing Countries. World Bank Group, 03.12.2019. https://www.worldbank.org/en/news/press-release/2019/11/23/e-commerce-can-boost-job-creation-and-inclusive-growth-in-developing-countries. Accessed 07.06.2022.

The World Bank Group (2021a). Climate Risk Profile: Namibia: World Bank.

The World Bank Group (2021b). Climate Risk Profile: Rwanda: World Bank.

The World Bank Group (2021c). Climate Risk Profile: Uganda: World Bank.

The World Bank Group (2021d). Leveraging the Power of Energy to Light Up Africa. World Bank Group, 27.07.2021. https://www.worldbank.org/en/news/feature/2021/07/22/leveraging-the-power-of-energy-to-light-up-africa. Accessed 20.02.2022.

The World Bank Group (2022). The demographic boom: An explainer on Uganda's population trends. https://blogs.worldbank.org/africacan/demographic-boom-explainer-ugandas-population-trends. Accessed 20.02.2022.

Tyson, R. V., Treadwell, D. D., & Simonne, E. H. (2011). Opportunities and Challenges to Sustainability in Aquaponic Systems. HortTechnology, 21(1), 6–13.

United Nations (2018). UNCTAD B2C E-commerce Index 2018 - Focus on Africa. https://unctad.org/system/files/official-document/tn_unctad_ict4d12_en.pdf. Accessed 07.06.2022.

W.L Ntshinga, J. Eloff, C. Hillebrand, D. Burger, & T. van Eerden (2012). A mobile solution to self-regulate the Boda-Boda industry in emerging economies. https://www.researchgate.net/publication/236330652_A_mobile_solution_to_self-regulate_the_Boda-Boda_industry_in_emerging_economies. Accessed 29.07.2022

World Economic Forum (2021). WEF_Five_Big_Bets_for_the_Circular_Economy_in_Africa_2021. https://www3.weforum.org/docs/WEF_Five_Big_Bets_for_the_Circular_Economy_in_Africa_2021.pdf. Accessed 24.06.2022.

Zalia, A.-H., Zhang, Y., Aishatu, A., Akosua, A. S., & Fathia, B. V. (2021). Crowd Logistics' Impact on Environmental Sustainability in a Developing Economy: An Analysis in Ghana. American Journal of Industrial and Business Management, 11(05), 416–436.

Evaluation criteria \ Business Models	Aquaponics	E-Boda-Boda	E-crowd logistics	E-waste energy storage	E-waste solar power banks & flashlights	Hemp	Last-mile agile cold-chain transportation service platform	RE-Commerce	Solar coffee roasting	Solar-powered walk-in cooling stations
Access (difficulty & limitation) to required resources	60,5	50,0	78,8	50,0	39,5	74,9	60,5	81,6	60,5	68,3
Amount of capital required (less/a lot)	39,5	35,6	64,4	39,5	50,0	50,0	50,0	71,1	35,6	50,0
Benefit for economy	78,8	78,8	78,8	89,4	89,4	89,4	60,5	85,5	71,1	93,2
Benefit for end consumers	89,4	89,4	93,2	78,8	89,4	64,4	93,2	78,8	78,8	89,4
Benefit for environment	93,2	93,2	89,4	89,4	89,4	78,8	81,6	74,9	89,4	93,2
Benefit for society	93,2	93,2	89,4	89,4	78,8	78,8	78,8	68,3	71,1	89,4
Complexity of technology	46,1	39,5	50,0	28,9	39,5	85,5	28,9	60,5	25,1	71,1
Coverage of circular economy aspects	93,2	71,1	74,9	93,2	93,2	60,5	50,0	85,5	60,5	78,8
External restrictions (e.g. legal)	85,5	64,4	53,9	74,9	74,9	14,5	28,9	39,5	85,5	93,2
Necessity of the business idea for the market	89,4	89,4	60,5	89,4	71,1	60,5	64,4	71,1	60,5	89,4
Need for know-how	46,1	43,3	39,5	39,5	39,5	81,6	28,9	50,0	39,5	78,8
Profitability (qualitative reasoning)	89,4	74,9	53,9	74,9	50,0	89,4	71,1	71,1	71,1	89,4
Use of energy from renewable sources	74,9	93,2	46,1	78,8	74,9	74,9	89,4	50,0	93,2	93,2
Total	**75,3**	**70,5**	**67,1**	**70,5**	**67,7**	**69,5**	**60,5**	**68,3**	**64,8**	**82,9**
Rank	**2**	**3**	**8**	**4**	**7**	**5**	**10**	**6**	**9**	**1**

Table 1 Ranked business model ideas (own illustration)

Electricity Expansion: Rwandan Catalyst for Skills Acquisition and Graduates Inclusiveness

Kosisochukwu Pal Nnoli
Jacobs University Bremen
Kampala, Uganda
email: k.nnoli@jacobs-university.de

Abstract

As a developing economy, Rwanda has been exploring transitioning to being a technologically driven and sustainable economy. Moreover, research on economic growth have focused on the need to improve human capacity potential within increasing demands of climate change activists but there remains a theoretic and practical lacuna in including renewable energy resources in economic growth and expansion of electricity access. Therefore, it is necessary to study the impact of competent skill acquisition and graduate employment market on the interaction mix between economic growth and the expansion of energy access in Rwanda, particularly finding out the problems advancing the non-inclusiveness of engineering graduates, which result to high rate of unemployment and diversions, especially for the graduates specializing in energy fields. As a result, the following open questions were raised with variations 1; how did employees penetrate energy-sector labour market opportunity in Rwanda? 2; what influenced employee's decision in pursuing a career in Rwanda's labour market, 3; what were the specific employee competent skills that enabled smooth transition in energy-sector employment after graduation and the ones required to maintain their current positions? 4; what specific competent skills are required for inclusivity of today's engineering graduates in energy sector employment market? The study is qualitative and it uses the exploratory research design. It is based on the growth pole theory employing snowball/chain purposeful sampling technique, whereby key informants in Rwanda energy sector were located. Data was specifically collected from these primary sources through semi-structured interviews and documentary method. Interview data and text from documents were inductively analysed. The study generally recommended institution or program for connecting learning institutions, industry and employment market in the distributed and renewable energy resources to promote competent skills acquisition,

https://doi.org/10.18418/978-3-96043-104-6_91

competition and improve graduates' inclusiveness in the expansion of electricity access, thereby leading to economic growth in Rwanda.

Introduction

Background to the Study

The trends in the integration of distributed energy resources (DERs) and other forms of renewable energy resources (RER) into future electrical power grids have received almost a worldwide implementation in response to the campaign against climate change. Meanwhile, the large integration of these schemes as well as the reduction of the non-hydro conventional energy resources negatively affect the frequency dynamics and electromechanical stability of electricity grids (Nnoli and Kettemann 2021), inclusively Rwanda electricity grid which requires investment and labour attention. At the same time, climate change has placed demands for adaptive labour and market of African economies (Edeh, Leo-Nnoli and Eme 2014). In response to this, the Rwandan national employment program through its five-year lifespan focused on three objectives which were creating enough jobs which are better, sustainable and with standard remuneration; equipping the labour force with needed attitude and skills for productivity through the private sector, and; developing a national coordinating framework for employment initiatives and activities. All these were programmed for faster-growth economic results and are internally supposed to improve skills that will transform the Rwandan economy in energy, transport, logistics, and manufacturing (Program for Results Information Document 2016).

Rwanda is a landlocked country and located in Eastern Africa. Joining the East African Community in 2007, it increased its' access to the regional market, social political and economic potentials. Rwanda is also a signatory to different agreements such as the common market protocol (CMP) signed in November 2009, which started operations in 2010. With this, cooperation among partner states increased, specifically in the area of free movement of goods, persons, and labour with the establishment of resident rights for movement of services and capital. Furthermore, "Article 10 of the CMP" with its free movement clause guaranteed citizens of member states right to employment and contracts within respective national laws of member states. It is on this note that Friedrich Ebert Stiftung initiated studies for effective implementation of the employment policy within the labour market of member states, by commissioning professionals from East African countries' member states. In the same light, Workforce Development Authority, (WDA) was established on 27th March 2009 to promote, develop and upgrade skills and

competencies of labour force on ground, in order to improve their competitiveness and reduce unemployment through technical and vocational education and training (TVET) system (Usengumukiza and Barihuta, September 2012). Meanwhile, corroborating the above, research in Kenya showed a statistically significant impact of educational facilities on training and skill acquisition for students in engineering courses in the Lake Victoria region. By way of influencing national development, technical institutions with the availability of teaching equipment and material resources could help in sustaining and consolidating industrial performance to bring out skill-oriented and comprehensive modules needed for the labour market as studied for Kenya. These may be relatable to Rwanda as an Eastern African country. Scholars argue that there is urgent need to update relevant skills for the labour market in engineering skill sets to close employment gap and bring up economic development in developing economies (Ojera, Simatwa and Ndolo 2021).

Again, between the years 2002 and 2009, labour growth in formal sectors of Rwandan economy were in areas of agriculture, hunting, forestry and fishing; banking and insurance, real estate, financial services, construction and public works; industrial manufacturing; extracting industries; wholesale and retail trade, restaurants and hotels; transport, storage and communication; electricity, gas and water. Meanwhile, following the speech made by the minister of finance and economic planning in Rwanda, the government of Rwanda have focused on specific areas of investment for the years 2010 and 2011, which included the energy sector among others. (See Ministry of Public Service and Labour 2019) However, the statement was without specific attention on investments in labour of energy and renewable energy resources, which is fundamental for sustainable growth of Rwandan economy. It is crucial to look at the economic (i.e., market and industry) potentials when our attention is fully focused on energy expansion possibilities in Rwanda.

Statement of the Problem

As has been hinted so far, skill acquisition and graduate inclusiveness in Rwanda have connections with economic and climate adaptive challenges due to lack of inclusiveness of energy expansion to economic growth (Edeh, Leo-Nnoli and Eme 2014; Program for Results Information Document 2016; Nnoli and Kettemann 2021). Still, all over the world, there is inadequacy of inclusiveness of first graduates in different degrees in their expected employment positions. Although Rwanda is comparatively not the worst case with reference to several other developing economies in Africa, there is need to harness and diversify investment through opportunities found in the marketability of the renewable energy resources sector, optimization of employment opportunities and diversification

of government economy from agricultural to a multisectoral economy, using local content and being amenable to new power projects, which is a need for many African countries (See Nnoli, Bolu and Obazenu 2016).

Integration of new sectors and diversification of the labour market are very possible. Although many other intricate challenges come up inside the skill acquisition industry and graduate labour force, aside from the historical and political factors. The labour market in Rwanda was reformed in the 2010s following conventions from the international labour organisation (ILO). Rwanda has been achieving great strides through business regulations and labour laws since 2018, which has expanded labour rights in the market especially regarding employer and employees' rights. Notwithstanding the growth of informal economy which has created gap in the labour regulations, often due to lack of information, program or incentives, many workers in the Rwandan labour market have been moved to statutory remunerations in order to get a baseline and organisation for the labour market through policies and regulations. Also, there has been shift from one sector to another in the employment and labour markets and this is partly due to growth in productivity of certain economic sectors, such as agriculture and manufacturing. With this, micro small and medium enterprises (MSMEs) constitute about 98% of total businesses, while the same constitute 41% of private-sector employment. The challenge of micro small and medium enterprises in Rwanda still, were inadequate entrepreneurial training and limited innovation, poor competition and inadequate technical and administrative skills. There is also the challenge of assessing and using different pricing systems at local, regional and international levels, poor market information and insufficient knowledge about the labour market. The products of labour internationally, nationally or regionally also constitute challenge to the labour market profile of Rwanda (Danish Trade Union Development Agency, DTDA 2021).

At the moment, extenuating the current unemployment in Rwanda has been explained as either minutely as skills mismatch or broadly as gap between industry and market, concerning the distributed energy resources, manufacturing, industry trade and commerce, agricultural industry and market. Thus, it becomes necessary to understand the nexus between economic growth through investment in skills and knowledge acquisition and graduate inclusiveness in Rwanda. The following questions would guide this study: 1; how did employees penetrate energy sector labour market opportunity in Rwanda? 2; what influenced employees' decision in pursuing a career in energy sector in Rwanda's labour market, 3; What were the specific employee competent skills that enabled smooth transition in energy sector employment after graduation? 4; what specific competent skills are required for inclusivity of today's engineering graduates in energy sector employment market?

Justification of the Study

This research finds its relevance in qualitatively investigating the root cause of non-inclusiveness and diversion of engineering graduates from energy sector in Rwandan economy, especially with recent extensive global and local business opportunities and investments in the deployment and integration of RER into the existing power grids as well as its off-grid applications. By energy sector, we mean the economic sector responsible for electricity generation, transmission and distribution in Rwanda. From this research, we observe that the stakeholders of this sector may include experts from various fields of learning and may require certain varying skills depending on their specialization field of entry to energy sector. Presently, this qualitative study tends to provide a strategy for unavoidable future expansions along with the sustainability agenda (i.e., graduates' inclusiveness), especially in this era of energy transition in accordance to the world global warming resolutions at COP26 conference 2021 (United Nations 2021). The purpose of establishing these new strategies on the existing infrastructure is to continuously guarantee energy expansion and transitioning, thereby providing investment opportunities, sustaining competent skill transfer, providing informed direction and all serving as a catalyst for graduate inclusiveness and skill acquisition in Rwanda energy economy (with specific attention to the labour market and industry). The Rwanda electricity grid modelling as a later contribution will provide basis for the practical expansion strategies and improve knowledge of the Rwanda grid while pointing to possible future instability areas of the network. The rest of this paper is structured in sections as follows; literature review, theoretical background, methodology, discussions on findings and summary.

Literature Review

Skill acquisition goes a long way to facilitate industrial processes while graduate inclusiveness brings out the importance of formal education in the labour market where investments are made for economic growth. In skill acquisition, vocational educational training is used to update informal trainees through recognition of prior learning as done in Pakistan, where various skills existing in the market were standardized through certifications and accreditation with definite costs marked for outlined specialized programs (Janjua and Naveed 2009).

Even within vocational educational training system for workforce development, it has been noted that skill sets were variegated. Skillsets between industrial training was quite different from skill sets developed by specific training organisations. Both required specific certifications and qualifications followed by regulation through licenses or prescriptions. These highlights the importance of stakeholders within the system to redefine the skill sets in Rwanda.

Poor individual definition by people in the industry as well as organisations and training institutions should not be overlooked but accommodated for sustainable economic growth and labour market in the renewable energy resources inclusiveness (Mills, Bowman, Crean and Ranshaw 2012).

On the same note, competency-based approach is very crucial for technical training and vocational education in Africa due to its impact. The implementation process of this competency-based approach have been able to link government and the private sector using curricular data available in the private sector as efficient instruments in the labour market. This could go a long way to improve the employability requirements at the levels. In the same way, micro small and medium enterprises, which have been excluded, would be integrated for the growth of the economy following the renewable energy resources program. (Institut de la Francophone pour l'education... 2020).

Comparatively, in India, higher education skill development requires the introduction of skill development programme with collaborations and partnerships as well as incentives (Brar 2015). Shifting from built-on to built-in curriculum for students in the electricity and RER, and ensuring sustainable and economic development, Rwanda also shifted from theory-based curriculum to competency-based curriculum in 2015. Since then, there has been needed to improve on the teaching clarity, mastery, participation, motivation, innovation, learning materials, and laboratory equipment in the educational institutions by involving stakeholders in the industry. This has proved that a competency-based curriculum is expected to bring in a dynamic learning structure to accommodate future energy and employment needs of Rwanda as part of the global political economy (Nsengimana 2021).

In the same vein, technical and vocational education and training (TVET) rally opportunities for the collaboration between industries and universities that lead to skills in the labour market. Sustainability through renewable energy resources courses built within the existing vocational education and training and university curricula would also present a competency-based training and employability status of Rwanda graduates for economic expansion. In this manner, problem-solving skills required by TVET could also be possessed by youth graduates, thereby improving their employability status, entrepreneurial knowledge, business development skills and growth of enterprises. A qualitative study of TVET in graduate employability in Rwanda Ngororero district, with about 250 respondents, showed that those training in vocational education and training schools that used competency-based training programs had high level of technical training opportunities following a unique experience based on industries occupation standards. The students who underwent the competent based trainings performed better at workplace than students who did not (Dukuzumuremyi and Dushimimana 2021).

Given the existing competitiveness, 70% of leading businesspeople in a survey agreed that higher education should engage in one area of TVET or the other with business organisations. This could exist in form of collaboration and competition between the universities and business providers whereby universities and other higher education providers improve commercially, especially in areas of marketing and sales organisation. When such happens, the market improves especially for first job readiness of young graduates and apprenticeships. (Puckett, Pagano, Heny, Krause, Hilal, Trainito and Frost 2020).

In the same way, market demand in the area of business, collaboration between industry and higher education collaboration was looked into to ascertain solutions through a professional work ready graduate scheme. It was noted that there is need in preparing qualified graduates with employable skills to meet with the market demand of expanding labour, as platform for encouraging competitiveness and economic growth internationally. One of the notable challenges facing the duality of industry and education is in the area of creating balance between demand and supply of graduates' skills. (Umar, Bakar and Rashid 2015)

Ascertaining employment prospects in skill acquisition through apprenticeship by focusing on training workers in Germany, it was argued that when apprenticeship is based on voluntary participation by firms, it improves specific skills. Such apprenticeship system could also serve as an opportunity whereby marketable skills are improved upon. There are possibilities of coexistence of mixed qualities in the apprenticeship system while high and low-quality come together as well as young mix with older workers in the labour market. It also accommodates diverse nature of prospective employees and provide a well-balanced labour market with employment security. It also accommodates impute of national planning for organisational motivation and deployment where such are needed. The German apprenticeship system suggests that firm-specific apprenticeship help young graduates of diverse kinds to acquire soft skills with a retention of about 30% of these graduates after 5 years (Winklemann 1996).

In India skill development initiative has taken the route of public-private partnership to increase the employment space. It highlighted the importance of government intervention to encourage short-term, long-term and vocational courses. They showed that problem of skill mismatch and employment gap require a multi-sectoral approach to improve the economy. The arguement emphasize the need for modification of office assistant courses as well as employability attributes in a centrally organised and incentivized or nationally orchestrated scheme or programme (Gupta and Agarwal 2018). Likewise, skills employability and entrepreneurship program are needed in the Rwandan

labour market to reduce skills mismatch between demand and supply of labour and bring up innovation in the labour market (African Development Fund, March 2013).

Knowledge in the modern world is very crucial for economic growth through the building of human capital. Its' techniques, sharing and usage could directly influence market through the management of knowledge maps (K-maps). This set of knowledge system helps organisational knowledge to be felt by employees. It also helps to bring professional help to beginners and encourage communication for professionals to access crucial knowledge related to problem solving for their clients. These are needed mostly in academic institutions management. It also improves university and other training institutions' marketability of theoretical and practical knowledge for the needed skills in the labour market. Of course, this portends good benefits for the growth and expansion of Rwandan economy through the inherent knowledge in the renewable energy resources skill sets (Mohajan 2016).

Compared to the case study on economic transformation in Rwanda, there is a relationship between knowledge gained through information and communications technology and business outsourcing. This research acknowledge that the government had interest in attracting investors in information and communication technology (ICT) because ICT development had more opportunities for business development in different sectors, particularly in business development services. This supports entrepreneurship information exchange and opportunities created with potential market and products. This report showed that majority of growth was achieved not through new products but through expansion of international market. The problem with this was that the export market in Rwanda was monocultural. To overcome this barrier to market, Rwanda needs to improve its competitiveness (Malunda and Musana 2012).

Undergraduate students' entry level needs transformative system of educational development, which would integrate them into market needs and opportunities. In doing this, issues such as relevance, satisfaction, enjoyment, as well as content or information would help to bridge skill gaps in education. These are very important for undergraduate education and also need to be incorporated into graduates and postgraduate educational system, and technical and vocational education system to promote soft skill sets designs (Raina 2013). Although, this study is focused on graduates and/or youth employability, the importance of satisfaction and fulfilment, which are crucial for innovation and transformation in today's skill acquisitions, cannot be overemphasized.

Theoretical Background

Elaboration on the Theoretic Context of the Study

This study is based on the growth pole theory proposed by a French economist, Francois Perroux in 1955. The theory posits that concentration of innovative and technically advanced industries has to be linked with businesses and industries in order to engender economic growth or development. Certain characteristics are needed for growth pole. These characteristics include that the market should be large, accommodate innovation, have fast growing sector that prioritizes intense and have quantitative interrelations with other sectors. In its industry, the growth pole has the aim of a sustainable economy through high level of technology and managerial enterprise, high-income demand for its products, interdisciplinary linkage, and ability to get local multiplier effect (Gavrila-Paven and Bele 2017).

Justification of the Gap

The justification for this theory is that it relates to peculiarities of skill acquisition, innovation and graduate employment in Rwanda. In search for a meeting point between the renewable energy resources industry and the existing theory and practices on distributed energy resources in Rwanda for labour market expansion, there is need for provision of ICT and industry focused program, multi-sectoral, incentive-sparked, specialized, certified, export oriented, market and competitive driven program. In this case, the renewable energy resource knowledge and training infrastructure (which can be infrastructural or institutional) is noted to have the capacity to accommodate immediate utility and futuristic inputs, with the use of incentives, peer-to-peer recommended, specialized, collaborations, and 'build-in' innovations in industry and market demands. The growth pole theory supports the character found in the interactions of these variables in the expansion of energy access through investment, skill acquisition and graduate inclusiveness in Rwanda (See Figure 1 below).

Methodology

Research design and sample

The research design used for the study is the exploratory research method. It equips the researcher with the baseline information to understand the subject matter. It works well with purposeful sampling and the combination of instruments of qualitative data collection and analysis. It is often employed in studies as a first step in a multipart or extensive research project, that helps the researcher to gain greater understanding and to identify variables

and how related they are. This explains why it is sometimes seen as pilot study method (Biereenu-Nnabugwu 2018 p.9).

Sampling and Data Collection

The sampling method used was the chain purposeful sampling technique, where information-rich key stakeholders of Rwanda's energy sector were located. The chain of these recommended interviewees typically diverged initially but converged as key patterns became repeated over and over (Peters and Waterman 1982; Patton 2002). Data was collected from the primary and secondary sources. The primary source was specifically in form of interviews, which were personal communications with six interviewees. The sampling involved six information-rich key energy/electricity experts from Rwanda energy groups and other independent/private power producers and contractors. The background fields of the interviewees ranged from Electrical engineering, Mechanical engineering, Energy Economics, Finance, Business Management, Architecture, Biology and Chemistry. Here, presupposition lead-in questions enabled interviewees the freedom to give deep responses. To be able to reach these information-rick key interviewees, the researchers applied directly for interview appointments and observed research ethics in gathering data. The researchers also informed the participants of the expected use of the interview results, and they granted informed consent for the purpose of this research. The question form was a semi-structured interview ranging from opening questions; introductory questions, transition questions, key questions and closing remarks (See Patton 2002 p.367). The secondary sources were mainly documents from online sources comprising texts, journals, official documents, conference papers and dissertation on the study's subject matter.

Analytic approach

In the analysis of data, analytic induction of interview responses with reference to textual analysis of documents through open coding, under specific concepts to support or build general ideas or themes, as derived from the primary and secondary sources of data.

Discussion on Findings

Q.1. How did employees penetrate the energy-sector labour market in Rwanda?

> …I had internships at companies from my second year at university, joined NGO for climate environment initiative, received UNDP funding for environment, developed pipelines for geothermal…I rechanneled my study focus to geothermal energy development and won prizes in competitions abroad…I am the director

> of the main Rwanda power company… I had eight months of private company consultancy and then joined energy group as an energy planner. I coordinated regional products in energy, also designed programs for electrification, energy access, power generation for transmission negotiation, handled financing contracts…doing product management and policy formulation... I would move on to global impact projects. (T, Personal communication, 2021).

Responding to the question, 'what skills and/ education enabled you to get your first job?' The third interviewee as above, answered that his industry/impact focused study and experience specifically helped in bringing him into his first and current employment. For this question, this study generally found that background information of respondents showed that, there were people with a background on university programmes that target energy sector employment but feel that the university studies did not actually help them in getting their first jobs and others who accessed energy sector employment without an educational background related to the energy sector.

> I spoke English and French at the same time, communication skills… good interaction with friends and investors… I am the chief executive officer (CEO) of two energy companies… character driven development, here in Rwanda, people do business with people and not with institutions beliefs… you need to show confidence and trustworthy exhibition, understanding that European business is different from African business in context and practice… and that the universities are too academic (G, Personal communication, 2021).

> …project design and management, GIZ and EPD (Energy private developers) Association trainings on feasibility studies, solar photovoltaic (PV) and hydropower generation… I am the CEO and manager of my company…I took more training in feasibility studies and mini grid project management, trainings on asset management and its application to hydro power, training in business and finance management…trainings in decentralized renewable energy (E, Personal communication, 2021).

From the second interviewee's position, we argue that skills-set mismatch was the challenge at entry level, particularly for employees in the engineering and energy sector. The opportunities were either peer-to-peer recommended or based on the industrial readiness or competitiveness of the workers to meet industrial demand and not on institutional certification and practice of employees. Breaking this down, the study noted that some interviewees did

not have engineering backgrounds; some disclosed that their entry into the energy sector was due to recommendations and for some others; their skill met the industrial demands. Thus, it was not due to their energy related certifications or education. The fourth and fifth respondents also admitted that their present position in the job was not connected to their previous training. It was the job demands that brought them their specific roles in their present jobs. These show that there is little opportunity for innovation in the energy sector with reduced growth speed and less quantitative interrelations with other sectors. (See Gavrila-Paven and Bele 2017; Gupta and Agarwal 2018). These also deepen the skill set mismatch and gap within the energy industry and market in Rwanda. The respondents also answered as follows;

> …computer skills like in Accounting like QuickBooks and Sage software, MS Access, and SPSS for statistics. Communication skills, driving and language skills (I speak[s] English, French and Swahili) … I am the Business development manager in this company, electricity is the business… I prepare[s] winning bids, tenders for big projects, maintain contacts with our production factories in Europe and China… I now give engineering advice to engineers, develop projects from scratch to commissioning… I have more on job experience in electricity, water and medical equipment businesses. (C, Personal communication, 2021).

> …ability to handle the business financial outsource and project management. We did some financial modules in the university, which helped me… ability to coordinate projects, with management skills. Operation and management using SCADA systems, use of MS excel and management tools… I had a good industrial attachment experience. Theories from my university studies helped to understand the basics but no understanding of the real world practice from the university days….I am the project manager in this company but I worked as a banker for two years before joining the energy sector…I went to conferences and seminars, home and abroad. I had a lot of interactions during events… due diligence, internships and success in project investments helped me… (A, Personal communication, 2021).

> …. I am presently the Chief Technical Engineer of one of the first [private] Rwanda power companies… I had technical know-how from internships, some skills in financial negotiations… reporting skills, operations and maintenance of power plants and transmission systems… every breakdown in power system gives new knowledge- mindset growth, efficient communication with manufacturers, mini grid designs and development… (P, Personal communications, 2021).

There may be implications to these assertions. On one hand, it implies that the learning institutions focusing on the electricity and energy markets may not have observed this undirected inflow of energy-untrained professionals in the energy market, most probably because of lack of definition of their requirements or standards for inclusiveness. Secondly, this inflow of initially untrained professionals into the energy market may continuously redefine competent skills and presumably reduce the chances of employment for the already trained graduates. More so, it may lead some energy graduates' redirecting their career to other areas of the economy due to excessive competition and unprotected career field. These responses above emphasize the need to redefine skill sets in Rwanda, supporting that nationally defined skill sets were limited in form of a 'building on' package. In defining skill set, peer-to-peer recommendation as entry for those with specific skills is crucial for using existing structure. Skill sets need to be particularized and broken down to every needed role in the labour market in Rwanda while accommodating sustainability in the area of graduates' inclusiveness (Mills, Bowman, Grean and Ranshaw 2012). This also supports the view that skill set mismatch could be tackled by the competent commercialization of technical and vocational education and training in partnership with certifying institutions for standardization of the Rwandan Labour. From this, one can see the importance of peers and colleagues in providing opportunities for fresh graduates to get job in the renewable energy sector (Puckett, Pagano, Heny, Krause, Hilal, Trainito and Frost 2020). It also highlights the essentiality of amendment of courses as well as employability aspects, which are organised, and incentivized (Gupta and Agarwal 2018). The African development fund programme projected that both entrepreneurial programme and skills that guarantee employment are requisite in the Rwandan labour market to lessen skills mismatch in the demand and supply of labour (African Development Fund, March 2013).

Q2. In your present job position, what are the specific skills and/ education that are required to perform well in it?

> … ability to perform feasibility studies in solar and hydro mini grid projects, preparing fundable climate finance proposals and asset management application to hydropower generation (E, Personal communication, 2021).
>
> …use of financial software like QuickBooks (accounts), knowledge of project management, analysis…due diligence, exposure to technical knowhow in hydropower generation… communication skills to deal with stakeholders (RURA, REG, banks, Finance, Ministries) … ability to give reports to Rwanda development board

(RDB), RDB is a government institution that is responsible for investment. Then I need to give reports to ministry of infrastructure. Ability to write reports to stakeholders (C, Personal communication, 2021).

…leadership skills, which include project management, human (Engineers) resource management for smooth operations… project development skills, public presentation skills, handling meetings with stakeholders (A, Personal communication, 2021).

…technical knowhow like design of power plant, civil construction, installation, operation and maintenance of electrical equipment, ordering maintenance parts (good contact with manufacturers) (T, Personal communication, 2021).

Responding to the question, 'If you have changed working companies, careers, job positions or sustained one job after your education, what skills or education was required at this stage for this transition(s)? The study found that competitive based collaboration and marketable education systems or programs-challenges informed and helped the decisions of the workers in pursuing a career in energy sector. The first respondent gave certain skills in the energy sector as relevant area of consideration. This was collaborated by the fourth, fifth and sixth respondents as above.

Meanwhile the second respondent pointed out the issue of management and collaboration as driving skills in the sector, but more particularly, is that the second respondent affirmed that management and collaboration were important aspects of the sector, saying the following: '…Management. Get yourself the right management in form of employees, business colleagues and creative personnel' (G, Personal communication, 2021). The third respondent emphasized that creativity found in the sector kept his desire more afloat for the chosen career path. The possibilities within the sector go along with specific soft skills and ethics found within the sector. He was noted to say the following:

…soft skills, basic knowledge in engineering, internships, commitment to work, focused mindset and being a principled person… timely delivery, innovative, honesty and hardworking… have a positive mindset that things will work, able to make presentations in financial and technical aspects of projects… (T, Personal communication, 2021).

Puckett, Pagano, Heny, Krause, Hilal, Trainito and Frost, 2020 also highlighted that collaboration and networking, apart from helping to land a job entry position, could also help employees to finish specific task in the engineering

industry, and such is shown in the renewable energy sector mix within Rwanda. This of course extrapolated to collaboration with other certifying institutions. One of the respondents clarified this stating as follows:

> …ability to establish trustworthy contacts and create relationships between stakeholders- customers, clients, financial institutions, factories… communication and useful information acquisition, ability to run-around clients and investors creating connections and doing business for the company (C, Personal communication, 2021).

The need to shift from one sector to another also aid and drives career path and as well the labour market. It also increases innovation and transfer of ethics and knowledge as has been substantiated by the labour market profile of Rwanda (Danish Trade Union Development Agency, DTDA 2021). Sustainability and expansion of the economy through energy resource market needs to be integrated with collaboration with the universities as has been done in Chile. Mainstreaming RER market in the Rwandan energy market will grow the employment sector through collaboration and in-built process in technical, vocational education and training industry (See Dukuzumuremyi and Dushimimana 2021; Umar, Bakar and Rashid 2015).

Q3. Based on your vast industrial experience, are there specific and essential skills and education that your company or labour market at large require from graduates of (electrical) engineering for easier transition and faster inclusiveness?

> …useful skills in design and software… skills in power operation and maintenance… I use Homer Pro for the solar systems, I also use PV manager software, AutoCAD and ArchiCAD…. open and business mindedness, graduates cannot be too specialized, they must be able to multitask and try new tasks… take up challenges in other domains…(E, Personal communication, 2021).

> …constant research and learning, commitment to learning… hard skills in plant operation and maintenance, knowledge of plant dynamics for repair, knowledge of basic engineering Instruments, construction of transmission lines, application of safety and health requirements… soft skills in system simulations, impact finding using test benches, ETAP simulations for impact studies, communication skills like proposal writing and presentation with adequate technical and financial implication knowledge... (T, Personal communication, 2021).

> …communication skills, software skills used in energy sector and for project management, more practice-oriented training… (C, Personal communication, 2021).
>
> …commitment to work, proof of technical knowhow, good project and time management, improvise (i.e., innovative) … commitment to constant leaning, smartness… some soft skills like use of MS office, power system software tools, use of internet to find solutions, communication skills, understanding of some basic technical terminologies… (A, Personal communication, 2021).

Responding to the question, 'what were the specific employee competent skills that enabled smooth transition in energy sector employment after graduation? It was discovered that software and industry specific programs averred the workers with specific competent skills, which enabled their transitioning to the energy sector, as well as needing multi-sectoral export-oriented skills after graduation. Affirming Mohajan (2016), when it stated that knowledge is the intersection loop between appropriate information (i.e., raw data), experience and skilled insight. ICT presents this loop, as an integrating link to practical work. Here, the employees narrated how their work is made easy by certain ICT products or programmes in the energy sector of the Rwandan economy. ICT gives a solid background for integrating future and new experiences and skills not minding their specificity. The ICT go along with other soft skills for the employees, alongside skills that may be needed in social protection and governance, investment, and transport which are crucial areas of the Rwandan economy (Ministry of Public Service and Labour 2019). See Table 1 for some interviewees' excerpts on competent skills.

Table 1: Some inductive competent skills mentioned by respondents

Technical know-how	**Soft skills**	**Others**	**Interpersonal skills**
Plant maintenance	ETAP Software	Project management	Commitment to work
Plant automation	GIS Software	Public speaking	Open-mindedness
Feasibility studies	PowerFactory Software	Public presentation	Ability to multitask

Basics of electrical engineering and Network analysis	Homer Pro Software	Bid/proposal writing	Innovativeness
Transmission line construction	QuickBook Account Software	Stakeholder reporting	Internship and constant practice
Network planning	ArchiCAD Software	Financial analysis	Due diligence
Civil works in Plants	SCADA Software	Language and Communication	Futuristic

The above also suggests that there is a connection between ICT and other sectors, which may require help from outside the local market, leading to business outsourcing. The majority of growth in economy has been achieved through expansion of international market due to business outsourcing. They could help to improve the transition from the agriculturally based or mono-sectoral nature to multi-sectoral based market economy with competitive export-labour integration in Rwanda (Malunda and Musana 2012). The respondent confirmed this stating that: 'Graduates lack needed skills like project management skills, no knowledge of plant and site feasibility studies. Foreigners still do this job until now… no skills in machine and equipment installation, environmental and social impact assessment'… (C, Personal communication, 2021).

Q4. What other recommendations or advice do you have for electrical engineering graduates to ease their market transition?

> …need of innovative graduates with different kind of thinking, universities are too theoretical… constant innovative mindset due to competitions… (G, Personal communication, 2021).
>
> …need to go for internships… good connection between universities and business companies, I recommend partly studying and partly working at the industries from the start to enhance problem solving mindset and employability… (P, Personal communication, 2021).

Developing and upgrading skills and proficiencies of labour force in place, could reduce unemployment through introduction of multisectoral technical and vocational education and training (TVET) system (Usengumukiza and

Barihuta September 2012) employing the methodology used in Chile and Ngororero district to improve competence and future integration in a built-in process (See Dukuzumuremyi and Dushimimana 2021). Thus, there is need to have open mindset.

Responding to the question, 'what specific competent skills are required for inclusivity of today's engineering graduates in energy sector employment market? The information-rich interviewees proposed vocational education training which is relevant and futuristic for engineering students' inclusiveness into Rwandan labour market in general and in particular, energy market**.** In closing the gap between theory and practice, equip young people with the skill and also get the graduates included in the economic growth, specific but practical engineering skill sets should be incorporated to the electricity and renewable energy programmes in the universities (Ojera, Simatwa and Ndolo 2021). The sixth, first and fifth respondents noted as follows:

> …go for practical knowledge first, volunteer for internship, take advantage of academia-industry partnerships to undergo trainings… I recommend 2 years of study of theories and 2 years of industrial experience-a suggestion to the curriculum… government should invest in academia to enable internships and knowledge acquisition… (P, Personal communication, 2021).
>
> …practice more, training the students to widen their skill sets on the use of technology and software… (E, Personal communication, 2021).
>
> …there should be MOU between universities and REG Companies for training purpose, graduates need knowledge in Turbine installations, line construction, grid assessment… I recommend more visits to sites than studying only in the class… commitment to internship… (A, Personal communication, 2021)

The second and fourth interviewees affirmed that insufficient knowledge about the labour market needs to be met through international, national or regional profiling of labour and skill set market in Rwanda (See Danish Trade Union Development Agency, DTDA, 2021). The third respondent spoke to the mind-set of the individual, to be daring and bold to handle new challenges in the labour market, with the punchline 'see yourself as a product', he remarked as follows:

> …see yourself as a product, differentiate yourself from others, [and] get knowledge in network planning and software for impact analysis and network simulation and control like PSSE/DigSILENT/GIS. Get

knowledge in power plant automation, load balancing, distance protection, and understand impact of system dynamics… (T, Personal communication, 2021).

Moreover, further inclusive inductions from the qualitative interviews conducted were coded. Figure 1 below illustrates the realization of the growth-pole theory in Rwanda. Contributions to unemployment and non-inclusiveness of engineering graduates in energy sector and labour market include their lack of or very limited knowledge in the influential and key point factors shown in Figure 1. An institutionalised approach focusing on compensating for these lacks would successfully transit Rwanda into skilful, intentional and electricity-sufficient and exporting economy in the near future as at when implementation takes place, especially in this era of massive energy transition.

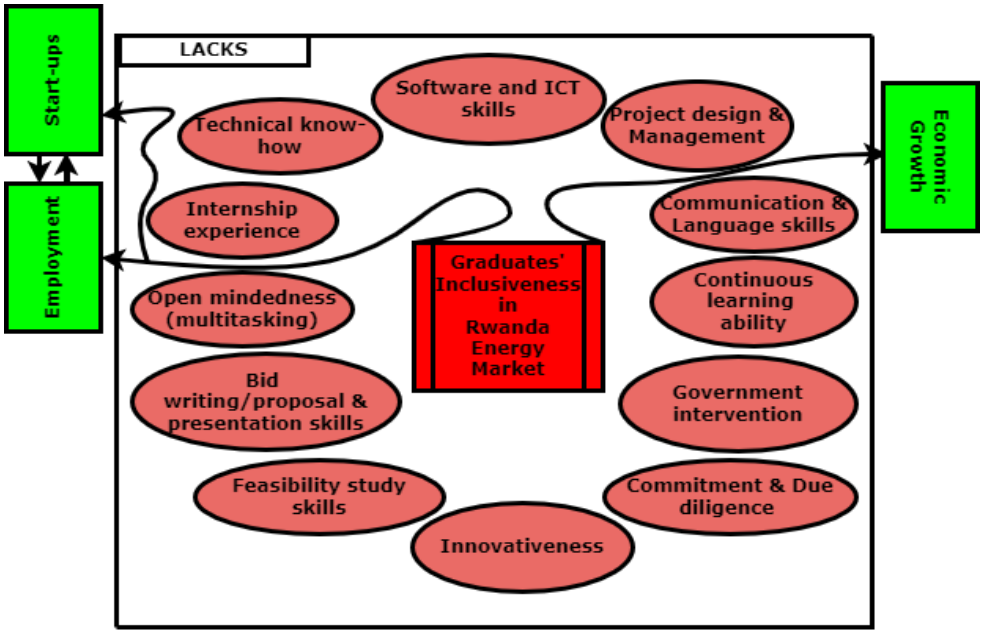


Figure 1: **Inclusivity inductions of the growth-pole block from Rwanda Energy Stakeholders (Source: Researcher's Fieldwork, December 2021)**.

Summary

We conclude based on the findings that the government has some sort of pre-designed templates for sectoral employment and their individualistic skills set development approach for employment opportunities, which still need to be intentionally redefined in the areas of specialization, especially in the energy sector for renewable energy

inclusion following built-in processes. The general recommendation is made for a collaborative institute for integration of renewable energy resources and distributed energy in Rwanda, which should be incentivized for engineering students, accommodating industry and labour market. The following specific recommendations follow suit:

1. The growth pole Rwanda acknowledged the gap in competent skill sets needed in the electricity or energy sector even in the face of large integration of renewable energy resources. Rwanda should act to sustain practical knowledge for effective and sustainable energy transition with its economic and employment benefits to Rwanda.

2. The competent skill sets should be broken down to modules, which are marketable, attractive, competitive, collaborative and incentivized for the market and industry in both the existing energy infrastructure and renewable energy subsector.

3. The skill-set market should be able to support ICT products focusing on electricity, renewable energy and other specific soft skills ranging from learning programme design in project management, feasibility study assessment and cost benefit analysis to implementation of renewable energy resources projects along the existing energy infrastructure. The modules of the program for renewable energy resources should be based on existing energy projects with great relevance to immediate utility and future innovations.

4. The program station should be a multi-sectoral living room for exploring the vast areas of economic growth in the competence market. It should be born out of university education, technical and vocational training with strong industrial experience mix. Its potential of providing arrangements for electricity and renewable energy resources practical knowledge should be positioned for the international market. It should also accommodate the integration and transition from agricultural economy to a sustainable energy economy deliberate on exportation of Rwandan competent-skill labour market with impact on the local, regional, national and international economics.

References

African Development Fund (March 2013). Skills, employability and entrepreneurship programme (SEEP) Appraisal Report: The Republic of Rwanda, pp.1-38.

Biereenu-Nnabugwu, M. (2018). Thoughts and perspectives on research designing in political inquiry. Socialscientia Journal of the Social Sciences and Humanities, 3(2), pp.1-13

Brar, K. and A. (2015). Skill development in higher education: trends and issue. International Journal of Emerging Research in Management and Technology, 4(4), pp. 126-130.

Danish Trade Union Development Agency (DTDA) (2021). Labour-market profile Rwanda – 2021/2022. Danish Trade Union Development Agency: Denmark.

Dukuzumuremyi, J-L., and Dushimimana, J-D. (2021). Competence-based training and employability: Effect of competency-based training on employability of technical and vocational youth graduates Voice of Research 10(2), pp.53-62.

Edeh, H. C., Leo-Nnoli, T. C., and Eme, I. O. (2014). The political economy of climate change in Africa: Nigeria in Perspective. Nigerian Chapter of Arabian Journal of Business and Management Review, 2(7), pp.18-29.

Gavrila-Paven, I., and Bele, I. (2017). Developing growth pole: Theory and reality In Management, Organisations and Society, pp.209-215

Gupta, D., and Agarwal, S. (2018). Skill development initiative-literature review. Inspira-Journal of Modern Management & Entrepreneurship (JMME) 8(2), pp.319-322.

Institut de la Francophonie pour l'education et la formation (IFEF) (2020). Competency-based approach to technical and vocational education and training in Africa, Country Report: Rwanda, IIEP-UNESCO: Dakar.

Janjua, S., and Naveed, A. (2009). Skill acquisition and the significance of informal training system in Pakistan-same policy implications. (RECOUP Policy Brief, 7) Cambridge: University of Cambridge. Faculty of Education, Research Consortium on Educational Outcomes and Poverty (RECOUP). Retrieved from https://nbn-resolving.org/urn:nbn:de:0168-ssoar-69214.

Malunda, D. and Musana, S. (2012). Rwanda case study on economic transformation. Institute of Policy Analysis and Research: Kigali.

Mills, J., Bowaman, K., Grean, D., and Ranshaw, D. (2012). Workforce skills development and engagement in training through skill sets; literature review occasional paper National Vocational Education and Training Program National Centre for Vocational Research (NCVER) Adelaide; Australia.

Ministry of Public Service and Labour (2019). Revised national employment policy 2019: Ministry of public service and labours: Republic of Rwanda.

Mohajan, H.K. (2016). Knowledge is an essential element at present world. International Journal of Publication and Social Studies. 1(1), pp.31-53. Retrieved from https://mpra.ub.uni_muenchen.de/83041/

Ndihokubwayo, K., Habiyaremye, H.T., and Rukundo J-C. (2019). Rwandan new competence base: Curriculum implementation and issues, sector-based trainers. LWATI: A Journal of Contemporary Research, 16(1), pp.24-41.

Nsengimana, V. (2021). Implementation of competence-based curriculum in Rwanda: Opportunities and challenges Rwanda Journal of Education 5(1), pp.129-138.

Nnoli, K.P., Bolu, J. I., and Obazenu, J.O. (2016). Deregulation of electric power in a developing economy, International Research Journal of Engineering and Technology, 63(11), pp.1235-1241

Nnoli, K.P., and Kettemann, S. (2021). Spreading of disturbances in realistic models of transmission grids in dependence on topology, inertia and heterogeneity. Scientific Reports 11, 23742.

Ojera, D. A., Simatwa, E.M.W., and Ndolo, M.N. (2021). Impact of workshop utilization on trainee's skill acquisition in engineering courses in TVET institutes-Lake Victoria Region, Kenya. IOSR Journal of Humanities and Social Science (IOSR-JHSS), 26(7): 1-6 Retrieved from https://www.iosrjournals.org.

Patton, M. Q. (2002). Qualitative research and evaluation methods 3rd (ed). USA: Sage Publication Inc.

Peters, J. and Waterman, R, H., (1982). In search of excellence: Lessons from America's best-run companies. New York: Harper & Row

Program for Results Information Document (PID) (2016). Concept stage report No: PIDC0086623, September 13, pp.1-19.

Puckett, J., Pagano, E., Heny, T., Krause, T., Hilal, P., Trainito, A., and Frost, A., (2020) Call for a new era of higher ed-employer collaboration, Boston Consulting Group.

Raina, N. (2013). Skilling initiative for undergraduate students at the entry level: A Case study. Journal of Commerce & Management Thought, 4(4), pp.843-853.

Rwanda Development Board (nd.). National skill development and employment promotion strategy 2019-2024: Republic of Rwanda.

Rwanda Labour Market Information System Labour Market Information System (August 2010). Available and needed kills in Rwanda (Discussion Paper Rwanda Development Board: Republic of Rwanda.

Umar, A., Bakar, A-R., and Rashid, A. (2015). Business, industry and higher education collaboration: A panacea in developing professional work-ready graduates, Mediterranean Journal of Social Sciences, MCSER, 6(6), pp.512-518 DOI:10.5901/mjss. 2015.v6n6p512.

United Nations. (2021). United Nations climate change conference. Retrieved from https://ukcop26.org/

Usengumukiza, F., and Barihuta, P. (2012). The role of the state in economic development, employment challenges and policies, A case of Rwanda: A country paper presented to Friedrich-Ebert-Stiftuing (Nairobi, Kenya).

Winkelmann, R., (1996). Employment prospects skill acquisition of apprenticeship-trained workers in Germany. ILR Review 49(4): 658-672. Retrieved from https://www.jstor.org/stable/2524515.

To what extent can ecotourism projects help to promote the Rwanda as a high-end tourist destination on the German market?

Milan Erlebach
IU Internationale Hochschule
Germany
email: erlebach.milan@gmail.com

Prof. Dr. David Rempel
IU Internationale Hochschule
Germany
email: david.rempel@iu.org

Abstract

Tourism in Rwanda is challenging. Since the country is small and hilly, it is difficult to tap the potential. As the country is blessed with diverse nature, the Rwandan government decided to combine ecotourism with high-end tourism, to exploit the full potential. This study aims to assess the extent to which these two types of tourism fit together, as well as if sustainability is a decisive argument in this upscale segment. In this context, ecotourism is characterized by its 3 core criteria: education, nature and sustainability.

To evaluate the main question: to what extent can ecotourism projects help to promote the perception of Rwanda as a high-end tourist destination on the German market? As well as if sustainability is a decisive argument, interviews with stakeholder from the Rwandan tourism industry as well as German tour operators were conducted, to gain an understanding of both sites and then evaluate them according to the 3 ecotourism core criteria and the demands of high-end tourists. The results showed that there is a difference in the perception of the needs of high-end tourists. While the 3 core criteria seem to be too relevant while they are in booking decision with the tour operator. The high-end lodges in Rwanda state an interest in these three criteria.

It is evident from the results that there is a limited active demand for sustainable tourist products, while nature and education are more relevant, but not yet fully exploited. However, all interviewees indicated that ecotourism, and in particular sustainability, is experiencing an increase in demand and will continue to grow in importance in the future. Accordingly, the results suggest the driving markets approach is relevant to further drive demand in that segment.

https://doi.org/10.18418/978-3-96043-104-6_114

1 Introduction

Rwanda, does not have a long history in terms of travel, yet it appears on lots of travel bucket lists as a top destination (Elliott, 2020). Luxury lodges run by global brands such as Singita, One&Only and Wilderness Safaris can be found around Rwanda's national parks and offer unique and nature-near experiences, with overnight rates exceeding USD 15,000. These high-end lodges provide this expensive and lavish experience in conjunction with sustainability consciousness and philanthropic behavior. The objective of this study is to examine how ecotourism contributes to the high-end experience.

1.1 Problem Definition

Tourism in Rwanda is a challenge: The country is small and densely populated; this means capacities are limited. In order to become dependent on the tourism industry, the country must preserve the resources it has, so it can make use of them in the future. Conventional tourism or mass tourism concepts are therefore not suitable for the destination Rwanda, since these kinds of tourism often have negative impacts on the environment and local communities, as they are easily overburdened. Moreover, normal tourism often has the issue that local revenues do not stay local, and therefore, nothing remains except for the negative effects.

Paul Kagame, the current president of Rwanda wants Rwanda to become the Singapore of central Africa (Africa's Singapore?, n.d.). Although tourism was initially not a major part of Rwanda's strategy, the tourism industry has rapidly become one of the most important sources of foreign exchange income (Kabera, 2017, p. 20). The Rwandan government seems to understand the negative impact of conventional tourism, since they see the opportunity in the tourism industry to monetize and protect natural resources such as national parks, gorillas and other endangered animals. In the capital, the focus is on Meetings, Incentives, Conferences and Exhibitions (MICE) tourism, which is accountable for 42% of all tourist arrivals (RDB, 2021, p. 27). In the countryside, around the national parks, the country embarked on the way of high-end ecotourism, which can be subsumed below leisure traveling, which is just responsible for 7% of tourists' arrivals (RDB, 2021, p. 27).

When upscale tourists travel, they often spend a lot of money and want to demonstrate social status (Costa et al., 2019). High-end tourism is often related to abundance, waste and materialistic things and seems to contradict the ecotourism idea, which is connected with values like sustainability, nature and education (Beaumont, 2011, p. 138 et seq). It appears that these two ways of traveling are at odds with each other. In spite of this, lodges in Rwanda comprise both values. On the one side they position themselves as very luxurious.

1.2 Objectives and research questions

Due to the contrasts of ecotourism and high-end tourism, the author wants to elaborate how these two types of traveling fit together and to what extent ecotourism projects help to promote the perception of Rwanda as a high-end destination on the German market. In order to answer these questions, we must first determine whether Rwanda is considered a global high-end destination and if the country meets the necessary requirements for that upscale

segment. The goal is to compare the needs of the typical high-end tourist with the supply in Rwanda on-site and to focus on the German segment and aims to find possible areas for improvement to attract more high-end travelers from the German source market. Additionally, the importance of sustainability as a decisive factor for a booking decisions will be examined to understand the relevance of sustainability in that high-end segment.

In order to get an impression of the situation of tourism in Rwanda and, at the same time, to speak to locals and conduct interviews as well as visit the Singita Kwitonda Lodge.

1.3 Structure

This research is based on qualitative interviews with stakeholders in the tourism industry. To understand both sides better, the demand and supply, interviews were conducted with touristic players in Rwanda, like Singita, Wilderness Safaris and the Sabyinyo Community Livelihood Association (SACOLA) and Governors' Camp cooperative and tour operators from Germany. Furthermore the author compared the demand of German high-end tourists with the actual supply by the Rwandan destination to evaluate the thesis based on the interview results.

3 Methodology

As part of this study, the author conducted semi-structured interviews in order to collect qualitative data and answer the main question: To what extent can eco-tourism projects help to promote the perception of Rwanda as a high-end tourist destination on the German market? as well as the sub question: Is the sustainability factor a decisive argument for a booing decision?

Several stakeholders from both sides were interviewed better to understand the supply in Rwanda on site as well as the demand on the German market. Rwanda's stakeholders were represented by a group of tourism providers from the high-end ecotourism segment, such as Singita, Bisate Lodge, and Governors Camp. They are the ones who maintain close contact with their customers, interact with them on a personal level, and determine their offers. As part of an effort to understand the government perspective, the RDB was interviewed, since they are the ones supporting the tourism industry and creating good conditions for tourists and investors. The interviews were conducted in October and November 2021. A few of them were done in person in Rwanda, others in writing or in calls via Microsoft Teams. The interviews consist of 9 main questions to understand the following topics.

To understand the German target group better, both sides had to define the German high-end ecotourist. To evaluate the environmental motivation and commitment of travelers, the second question aimed to conceive the role of sustainability within the booking decision for tourists as well for hotels. The third topic was to compare the emitted and perceived image of Rwanda. Another one aimed to understand the high travel expenses and compare Rwanda with their competitor Uganda in the north, which offers similar touristic products but is much cheaper. Next to the demand for tourism in Rwanda, which was discussed with all interviewees, the future development of their project and Rwanda as a high-end ecotourism destination was a topic, too. As well as the tourism strategy in general and how the hotels fit into it. To better understand the role of the government in the tourism strategy, the work of the RDB was thematized.

Due to the inductive approach, the author divided the coding into the following categories after the interviews based on the simplified transcripts.

4 Results

4.1 The Tourists' Perspective

4.1.1 The Typical High-End Tourists

All three interviewees had difficulties defined that specific target group, as they all experienced that even within the high-end segment, the guests have individual preferences. For example, some guests prefer staying in camps, others like to explore cities and nightlife, to ascertain where and how locals are living, while others prefer to enjoy the nature (Appendix 6, p. X). High-end tourism is related to luxury, but there exists a wide range of understandings, because every individual has his/her own definition and requirements to call something luxury. (Appendix 5, p. X). Privacy and exclusivity, as well as unique or authentic experiences were described by almost all interviewees as something high-end tourists sought after. All three tour operators mentioned that a tourist who travels to Rwanda is mainly experienced in traveling to other countries in Africa or at least wildlife traveling and knows what animal experiences are about and wants to bring it to another level. Brunecker has described the high-end tourist it in more detail like this:

So, the typical client is a couple, let's say starting 40, up to any age, well educated, well-travelled. In most case, it's very few clients going directly, without any previous travel or knowledge to Africa. And from that point on its totally individual. (Appendix 6, p. X)

The last sentence of the quote underlines the statement about the individual understanding of luxury.

Infrastructure is another important component for that kind of traveler (Appendix 7, p. X). Especially in Africa where proper streets are rare, guests of that segment are used to flying and tour operators generally recommend that rather than taking the bus or car. Many distances can be covered by air, whether by public plane or private helicopter, to avoid long distances on bad roads and maintain high standards (Appendix 6, p. X; Appendix 5, p. X). This is consistent with Hartmann's description of Africa tourists, whom she sees as sophisticated especially since they are a bit spoiled in terms of good infrastructure and high-quality lodges and she experienced demanding requirements in travel consulting (Appendix 7, p. X). However, Brunecker remarked that some tourists try to avoid the high helicopter fares and underestimate the importance of helicopter flights in the small country Rwanda. (Appendix 6, p. X).

Pokorny contends that especially these high-end travelers tend to struggle with leaving their comfort zones. In some cases, this is caused by unforeseen, new situations or strenuous experiences that make the person feel uncomfortable. Some guests are looking for adventure excursions where they can learn from new experiences, but generally anything that makes them leave their comfort zone and sacrifice their luxury is usually not in their interest because they are used to their own standards (Appendix 5, p. X).

Another important consideration for high-end tourists is the safety of a destination. The implementation of safety precautions often aggravates the conditions of travel. It is not surprising that Pokorny's answer to the question

regarding what the most important thing for high-end tourists is was swift and straight to the point: Safety and unique experiences (Appendix 5, p. X).

According to all of the interviews, high costs do not pose a significant problem for these kinds of travelers. There are some tourists who are already aware of the special tourism in Rwanda, and they appreciate the reason for the high price strategy in regards to wildlife activities. While Pokorny described that their clientele has no problems with high costs for travelling between 30,000 to 100,000 USD (Appendix 5, p. X), Brunecker mentioned that there is still a percentage of 20% who are shocked and thereupon refuse the trip (Appendix 6, p. X).

In the interviews the Rwandan tourist suppliers were asked what they thought about the high-end tourists from Germany, but they had even more difficulty answering this question than the German tour operators. They perceive European tourists as a whole and do not see any differences between them, but they said that they receive Germans on a regular basis.

4.1.2 Purpose

During the course of speaking with the interviewees about the behavior of high-end tourists, it is apparent that there is a shift in mentality within the high-end sector, and that classical materialistic values are growing less relevant. This type of change is characterized by Pokorny as the increasing importance of meaningfulness. The tourists are questioning the luxury to gain a better understanding of what really takes place on-site, which, according to Pokorny, is particularly prevalent among Germans (Appendix 5, p. X). In the booking process and while travel consulting, the tour operators felt that customers appreciated information about the projects of these lodges, and on site, they showed themselves interested in the practices and went backstage to learn more about the solar power and water purification plant or asked to visit schools and kindergartens, which are supported by the lodges. But it also goes beyond curiosity. Their questions reach further than asking about the projects; they want to know what they can do to assist and contribute. They enjoy being involved, in order better to understand the place where they are staying, as well as asking for philanthropic elements or giving back and are interested in seeing their positive contributions to local communities and the environment. This point is summed up by Nzayo as follows:

Guests are choosing longer stays at one destination […] because they have a desire to immerse themselves in the place – learning about local culture, landscape and animals, and to become more involved, making travel more meaningful. (Appendix 2, p. X)

In response to a question concerning the importance of sustainability for high-end tourists, it became apparent that there are still discrepancies. Baas and Brunecker saw an increasing awareness of sustainability, which mainly started within the last few years, which can be recognized by more offers and acceptance of carbon offsetting, which goes hand in hand with a greater awareness of the issue of climate change (Appendix 1, p. X; Appendix 6, p. X). Today, guests are increasingly concerned about their footprint and their impact on the environment, and they want to get informed about it (Appendix 5, p. X) and don't mind paying more said Brunecker (Appendix 6, p. X). The opinions from Baas and Nzayo are confirming his statement, as they see those high-end travelers value conservation efforts of lodges as well if these luxury lodges keep it authentic and adapt the lodges to the surrounding environment

(Appendix 2, p. X; Appendix 1, p. X). Pokorny, however, described it as an awareness of preserving the earth for future generations and mentioned that this is not related to sustainability. Ecological and sustainable conscious behavior are out of place in his opinion, because if a person is traveling by airplane to Rwanda, they are everything, but not sustainable. According to Pokorny, high-end tourists' behavior is influenced more by their desire for meaningful experiences (Appendix 5, p. X), which can be attributed to their purpose for traveling.

Even though the awareness of conservation and sustainable projects is described by almost all interviewees as an important part for high-end tourists, the customers do not have any special requirements in terms of sustainability, which they set as a condition, claimed Hartmann, while she shows herself surprised. This topic is, in her opinion, still irrelevant for the vast majority of customers (Appendix 7, p. X). Yet, said Pokorny. Pokorny stated that he could envision this happening in the future. From Pokorny's point of view, there is an awareness of the issue, but it does not appear to be top of minds of the majority of people. As a result, it is the responsibility of tour operators to communicate the sustainable efforts of lodges when they provide travel consultation (Appendix 7, p. X; Appendix 5, p. X). This is in line with Brunecker's assessment that acceptance of sustainability factors, which are associated with higher costs, is determined by the communication and explanation provided by travel consultants in the booking process.

Hartmann urged tour operators to place a higher priority on sustainability, in particular given the fact that travel, as already noted by Pokorny, is anything but sustainable. This makes it even more important to improve the image of travel. But at the same time, Hartmann admits that they have to impose this on their customers, since the initial desire does not come from themselves, which she explained with an example of a flat-rate carbon offsetting payment, which is automatically added to each travel offer.

The Rwandan tourism stakeholders came up with similar answers and perceive a rising interest in sustainability on-site. Nzayo pointed out that "travelers are increasingly expecting responsible, ethical and sustainable destinations that do not compromise on luxury" (Appendix 2, p. X).

4.1.3 The Experience

Apart from the trend toward a more meaningful travel experience, it was evident that they all agreed that the most important part for high-end visitors is the experience. The quality of the experience played a central role in all interviews, regardless of the perspective of tour operators or on-site stakeholders of the Rwandan tourism industry. Baas said, "it's all about your experience and the purpose of the travel and maybe less about how luxury the linen is that is on your bed" (Appendix 1, p. X) and Nzayo claims "luxury is not a unique selling proposition" (Appendix 2, p. X) in the high-end segment and the tourist experience comes first. Brunecker pointed out that for German travelers particularly, the experience is much more important than the accommodation (Appendix 6, p. X).

What emerges from the interviews is that the experiences must be something special, but also refer entirely to the different expectations and images in the travelers' minds (Appendix 6, p. X). Again, the on-site touristic providers were more concrete, using adjectives such as authentic and exclusive, which corresponds to their longing for privacy

(Appendix 1, p. X). Nzayo went even further, noting that: "The new luxury will be pristine nature, a light footprint, and holidays that make a difference, clean air, open spaces, and simplicity of design" (Appendix 2, p. X).

As a summary, the following table (Table 3) comprises the most important areas of expectations for high-end tourists and briefly describes them.

4.2 Rwanda's Perspective

4.2.1 Rwanda's Image

This emphasize on conservation is the result of Rwanda attaching importance to wildlife and seeing it as its duty to protect it, according to Baas (Appendix 1, p. X). Singita, as a global brand known for conservation, was even invited to Rwanda by Rwanda's president, Paul Kagame, further to drive conservation efforts and enhance Rwanda's tourism strategy by increasing high-end ecotourism offerings. In general, the targeted tourism strategy is to attract high-end tourists and prevent mass tourism or, as Nzayo described it, as "high-volume low-impact ecotourism" (Appendix 2, p. X). Taking this approach is vital to the conservation mission, since a large number of people would transform the gorilla experience into a zoo (Appendix 1, p. X; Appendix 5, p. X). This would disturb the wildlife and could result in the displacement of endangered mountain gorillas.

When asked about the image of Rwanda as a destination, a point which was found in X of X interviews, was the safety aspect, which is compared to other African countries surprisingly well. The government is "raising the profile of destination Rwanda, into one of the safest, most sought-after bucket-list trips in Africa" (Appendix 3, p. X). They perceive Rwanda as a safe and well-organized country, with the aim of promoting tourism and attracting investors, which the government needs in order to achieve its ambitious development goals. It was evident from all interviews that Rwandans were satisfied with the government in general.

Compared to Uganda, with whom they share the VNP and thus also the number one attraction, the mountain gorillas, Rwanda is also safer and further developed, which led Baas to say that tourists will have to come to Ruanda, if they are looking for "a very seamless experience" (2021, p. X). Especially when it comes to the high-end experience, the Rwandan industry is much more evolved in terms of luxury, stated Brunecker (Appendix 6, p. X). Even though all interviewees admitted that Uganda is a beautiful country, tourists face problems like corruption and stealing, noted Nkubana (Appendix 4, p. X).

In regard to Rwanda's reputation as a country still associated with the genocide, the interviewees slightly differed in their opinions on the issue. Some noted that the tourists are preoccupied with concerns like safety issues. Nevertheless, they are agreeing that the situation is changing, and the image of Rwanda has improved. They all agree as well that the experience tourists have in Rwanda is completely different and does not confirm their preoccupation, which may have previously existed.

4.2.2 Transportation

Infrastructure is key for pleasant transport, but due to the hilly landscape and roads as the only way for transportation on the ground, trips in Rwanda usually take a lot of time. This forces tourists, who want to avoid that situation to

take helicopters for travelling longer distances in Rwanda (Appendix 6, p. X), since Rwanda is too small for domestic flights, and the few existing ones are often delayed or cancelled (Appendix 7, p. X). Those lodges offer the possibility to arrive by helicopter, and tour operators are taking this into account while planning the tour.

4.2.3 The Lodges

Nzayo observed that guests are craving open spaces and simplicity in design. During their vacation high-end tourists do not want to renounce luxury, when they travel to Rwanda and stay close to nature. These guests are looking for clean air and spending more time close to nature, the lodges are in close proximity to the National Park and designed in a nature way. The materials used for the construction are usually local and made of wood or volcanic stone, but at the same time, they match these criteria with high luxury standards and keep the focus on traditional interior and décor. To address the longing for open spaces, the lodges are often very spacious, and large glass fronts are used to let the guests feel they stay directly in nature.

In Singita, there are 8 suites and one villa (Appendix 2.2, p. X) and Bisate only has 6 lodges for their guests (Appendix 1, p. X). The bar and restaurant belonging to the premises are closed for external people, whether its locals or guests from other hotels. Nobody except the own guests is allowed to enter the properties and security people are at the entrance. Everything is behind a big wall of volcanoes stones, which limits the view from outside on the property, and the land is so wide that you do not feel cramped. That's what the author experienced while visiting Singita.

Hartmann outlined that the lodges in Rwanda invest a lot of money into sustainability projects and conservation, like reforestation. When asked about sustainability at Singita, Lydia gave a very detailed answer. Singita promotes themselves as a leader in conservation and luxury ecotourism, with a 100-year purpose to protect and preserve African wilderness for coming generations (Appendix 2, p. X). They focus on the combination of luxury aspects with conservation, which they consider in an "interdependent relationship between biodiversity, sustainability and community partnerships" and have the commitment to reduce their own and their customers' ecological footprint (Appendix 2, p. X).

Similar was the answer of Baas; she mentioned Wilderness Safaris sees itself not only as a hospitality organization, but also as a conservation organization, with a strong vision and mission. Wilderness Safaris already started in 1983 with a focus on conservation and represents a pioneer in this area, which is known and respected by tourists, according to Baas (Appendix 1, p. X). The focus on luxury is there. "Everything should be 100%, very good and good quality, delicious foods, perfect service and all of that" (Appendix 1, p. X). The ecological part at Bisate is dominated by their reforestation program to expand the VNP like at Singita, with success to sighting more wildlife near the lodge, like gorillas, jackals, servals and golden monkeys. They remove invasive species like Eucalyptus to replace it with indigenous trees. But their contribution to the community and social aspects are also considered. Bisate has environmental clubs in primary schools around their lodges in Rwanda, where they teach pupils about conservation, nature and sustainability, to demonstrate benefits and to ensure more acceptance among the communities.

4.2.4 Pricing

The addressed people for this kind of travelling are very affluent and, as Lydia said, high-profile people (Appendix 2, p. X), so pricing is mainly negligible. Rwanda is using the price as a method of limiting the number of tourists and at the same time maximizing the tourism revenues. Uwingeli mentioned the case that Rwanda increased the gorilla permit from 750 USD to 1500 USD and this didn't lead to a decreasing number of visits, which makes him confident with the pricing strategy and decision they made (Appendix 3, p. X). Everyone agrees that Rwanda is forced to go this way, due to the limited space the country has and to be able to meet the needed standards in conservation. Other positive side effects highlighted by Baas are that it makes the experience even more exclusive and something special for guests (Appendix 1, p. X).

When the tour operators were asked for feedback regarding the value of money the tourist experienced on-site, they all unanimously responded that the tourists they talked to after their Rwanda trip were overwhelmed and satisfied, to which especially the unique experiences like gorilla trekking contributed (Appendix 5, p.X).

Prosper also mentioned the tourism revenue sharing program, which lead to increasing income for local communities, when the tourist revenues increase. The program comprises a kind of tax of 10% of the tourism revenues in order to support community development projects (Appendix 3, p. X).

4.2.5 Activities

The high-end lodges make an effort to provide an unforgettable experience for their guests, however some activities are not provided by high-end lodges, such as gorilla trekking. In this case, the lodges are expected to work closely with the RDB, who are responsible for the gorilla trekking and the experience the guests receive. Both parties, for example Lydia from Singita, and Uwingeli from RDB, praised their cooperation, and the RDB does take into account to maintain the service level, these high-end tourists get at the lodges and that these guests and also expect this from RDB (Appendix 3, p. X).

The gorilla trekking experience is based on exclusivity too. The limitation to the maximum of 96 visitors per day (Appendix 2.1, p. X), makes the tour more private and exclusive for guests, as these close encounters are not comparable to any zoo. And it also makes you feel like you are not disturbing, interrupting or harassing these animals. (Appendix 1, p. X)

As can be seen from this explanation of Baas, these smaller groups enhance the experience and make the situation even more remarkable. Besides being detrimental to wildlife conservation, this also undermines the high-end experience and special impressions during wildlife interactions.

In the same manner, Hartmann pointed out that in the Akagera National Park there are relatively few lodges, and the park is not as commercialized as other wildlife national parks in Africa, so there are fewer visitors, and the park is less crowded. Hartmann noted that this further enhances the experience of the guests (Appendix 7, p. X).

All the high-end lodges implemented nature-related activities into their tourist experience. At Singita, as well as in Bisate guests are invited to plant indigenous trees, to help with the expansion of VNP, the habitat of mountain gorillas (Appendix 1, p. X; Appendix 2, p. X).

At Singita, Lydia said, they "emphasize slowing down the entire experience creating the opportunity for guests to walk, learn, connect with nature, to sit quietly and meditate" (Appendix 2, p. X) and "awaken their senses" (p. X).

The lodges give tourists an opportunity to engage themselves, like already mentioned with the contribution to the reforestation project. Baas described all these small projects as appreciated by guests: "they feel like their contribution is not just their visit to Rwanda, that it is a bit further reach into conservation, community and development" (Appendix 1, p. X). As well the involvement in local communities and getting to know the culture is part of the experience at these lodges. Baas said that guests are "welcomed into the lives of the people that live around Bisate Lodge" (p. X). Since the staff is mainly from the region (Appendix 1, p. X; Appendix 2, p. X), the guests have the possibility to talk to them and get involved (Appendix 1, p. X). Nkubana confirms this behavior with his experiences at Sabyinyo Lodge. Around the lodges are living mainly poor farmers, which the guests perceive and makes them help those people (Appendix 4, p. X).

Nkubana provides an example of this behavior. The SACOLA organization offers tourists at the Sabyinyo Lodge the opportunity to donate a cow to a family in need in order to support local communities (Appendix 4, p. X). Pokorny knows of many customers who are committed to helping beyond their travel time and stay engaged (Appendix 5, p. X).

In Table 4 the tourists' requirements, as presented above, were categorized and compared with the existing offer of destination Rwanda.

5 Discussion

According to all interviewees, the typical German high-end tourist was difficult to describe, and this shows that there is no such thing as the typical German high-end tourist. In general, upscale tourists are seeking out destinations that provide a safe environment and a good infrastructure to facilitate their travels. Since most of the tourists in this group are affluent, money is not the primary determinant in the decision-making process, but the value for money shouldn't be underestimated, as they expect something in return for the amount of money they spend on vacation. Apparently, this is going hand in hand with their requirement for high levels of quality. It has been described that they are people who are deeply rooted within their comfort zone and do not seem to be interested in stepping out of it. The high-end tourist market has acquired an understanding of luxury that is more purpose-driven than materialistic and there is a growing preference for experiences. The travelers want their traveling to have a meaning and have a growing concern for sustainability. For travelers of this kind, uniqueness, authenticity and exclusivity are of great importance to them while on a trip and they attach great importance to the experience during their trip.

From the Rwandan perspective, high-end lodges in Rwanda already take this into consideration very well. In order to limit capacity and foster exclusivity, the properties tend to be large and have fewer rooms. Furthermore, sustainability is an important component, not just for Rwanda as a country, but also for the lodges. Numerous projects are undertaken to promote conservation and education of the local population. Gorilla trekking is a unique experience Rwanda can offer to tourists, and as a destination the country is safe, but has some infrastructure concerns.

Additionally, the study showed that Rwanda can be considered as an ecotourism destination according to Jones's established criteria (2020, p. 14). All four of these national parks are known for their diverse biodiversity and are habitats for many endangered species. Based on the results of the study, Rwanda can also be considered to be a safe country, particularly in comparison with its neighbors, such as Uganda, which has a similar tourist offer but is far less developed and less secure, according to the interviewees. Furthermore, the government is very ambitious in providing stability and enhancing the economic environment for businesses and so, for private investors, with organs like the RDB and programs like the tourism revenue sharing in order to support communities, meet their needs and increase acceptance.

Firstly, the author will discuss the sub question, whether sustainability plays a role in the high-end segment before discussing the overall contribution of ecotourism to the high-end experience on the basis of the identified factors: the experience, accommodation, purpose, pricing and destination in order to answer the main thesis of this research.

5.1 Is the Sustainability Factor a Decisive Argument for a Booking Decision?

When it comes to the comparison between the interviews of tour operators and lodges on-site, the results show, that both sides observed sustainability becoming more important for travelers. But there is a discrepancy noticeable, too. Tour operators said that guests don't actively ask for sustainability efforts of lodges in the booking process. The tour operators are the ones who are pushing this topic into the traveler's mind and bringing attention to it. While Hartmann perceived the high-end tourists as not too committed to sustainability, Brunecker and Pokorny noticed some interest, after the travel consultants had to explain the advantages and reasons for extra costs and awaken their sensibility for sustainable efforts. Their assessments show that sustainability is not top of mind among high-end tourists and lead to the assumption, that sustainability is a nice feature of a location which was presented to them, but it's not too important to influence the final decision. This could be confirmed by the statement of Pokorny, regarding the hypocrisy when sustainably oriented tourists fly, since taking the plane is anything but sustainable in his opinion.

In the conversation with Brunecker, he pointed out that after travel consultation and an explanation of all sustainability advantages, the majority preferred the option which was more environmentally friendly. Even if this is not an indication of a strong conviction for the topic of sustainability, an awareness of this subject is evident. In addition, Pokorny's perception of the desire to preserve nature for future generations may be interpreted as an understanding of sustainability, even if he did not explicitly mention it.

From the lodge's perspective in Rwanda, one can speak of agreement that high-end tourists care about sustainability. They report interested behaviour for their projects and efforts, as they actively ask about them and are willing to get taught about them. The high-end tourists are inclined to visit the projects, like kindergartens, schools and other community projects, which would not be necessary if sustainable values wouldn't be important for them. Since they already booked a stay at a sustainable destination and their guilty conscience would have been calmed, there wouldn't be any need to show any further interest in deep diving into the lodge's projects. This shows that the awareness of a need for more sustainability exists, and people are concerned.

Additionally, sustainability is becoming more and more awareness, since topics like climate change and the related bad news are taking up more airtime in the media, which can be a driver for hightened concern.

However, the research has shown as well that there is an unequal perception between tour operators and the tourism industry on the ground in Rwanda. The author sees three different reasons which could be responsible for that result. These lead to the following hypotheses: assuming that German high-end tourists care for sustainability, but they don't tell the tour operator while travel consulting, it could be assumed that (1) the interest in sustainability awakens only on-site and is actively demanded by tourists, (2) the tourists really don't care much about sustainability and the hotels are giving more relevance to sustainability as needed, to pursue the driving markets approach or (3) the German tourists are the ones who do not care much about sustainability, whereas tourists from other source markets indeed care about ecological and social aspects while travelling. These three hypotheses provide opportunities for further research in this area.

The results show that sustainability is not top of mind by high-end tourists, but there is definitely a trend towards more relevance that is noticeable, and tourists start to care more, even if it is not directly considered initially by tourists and at the present time not yet very pronounced. Right now, it is up to the tour operators' communication and outlining of the sustainability advantages and the lodges who must provide sustainable experiences, to further drive this demand.

5.2 Is Ecotourism Contributing to the High-End Experience?

To evaluate in which way ecotourism is contributing to the high-end experience on site, the definition of ecotourism, which relies on the core-criteria nature, education and sustainability, will be compared with the needs of typical high-end tourists and offerings of the lodges on site.

The results from the tour operators and the high-end lodges in Rwanda do not completely coincide under the consideration of nature as an important factor for traveling. From the interviews with the tour operators, it appears that nature is not a determining factor for the trip itself. But they are interested in nature conservation and preservation for the future, which can be interpreted as a certain interest in nature. In addition, it must be assumed that when choosing a destination such as Rwanda in conjunction with wildlife experiences, there should be some connection to nature. The high-end lodges in Rwanda embody nature in themselves. The lodges are not just built within nature, they are mainly constructed with natural resources and adapt well to the environment, to ensure a close to nature experience and totally address people with a longing for close to nature experience and clean air, as Nzayo described.

The second core-criteria education shows way more overlaps between the tourist's behaviour and the destinations' offering. All interviewees described their perception of a growing interest in what camps are doing and their contribution to the environment, wildlife and communities which is not just a topic in the booking process, when the travel specialist is describing the lodge. The guests continue to show their curiosity and interest as well on-site, when it comes to specific projects of the lodges. This shows that high-end tourists have a willingness to learn. On the Rwandan side, the high-end lodges address this demand, with short trips to communities, where travelers can

experience and apprehend the culture and local people. This demonstrates that this ecotourism core-criteria fits well in high-end tourism, as well as it is being perceived and integrated into the tourism experience in Rwanda by the high-end lodges. As well the RDB, who is responsible for the gorilla trekking in the VNP includes the learning component into the experience. Singita, for example, also contributes to the full gorillas' experience, when they give their comprehensive gorilla briefing in the conservation room. Which additionally makes the experience even more unique.

The third core-criteria comprises sustainability. As the answer to the first sub-questions showed, sustainability is not that relevant in the booking decision for high-end tourists at the moment, but it is becoming more awareness. Therefore, the author will just compare that demand to the offerings and ambitions of the destination Rwanda itself. As mentioned in the theoretical foundation, Rwanda itself attaches great importance to sustainable development. The lodges have high conservation standards and integrate sustainability into their high-end concepts. The results demonstrate that the lodges are delivering on their sustainability promise, as evidenced through successful projects such as the reforestation programs that are expanding wildlife habitats through an expansion of the national park.

The findings on core criteria suggest that there are certain parallels between high-end tourism and ecotourism. Especially the education criteria seem to align the most of these three, while sustainability is getting more into focus for the high-end travellers, the full potential is not yet achieved.

The efforts in the core criteria nature and sustainability seem to exceed the needs of high-end travellers. Especially with regard to sustainability, the results show that the demand from the tourists' point of view would not exist without the explanation and the pointing out of the travel experts and still the efforts in sustainable projects of the high-end ecolodges are definitely far more elaborated than initially demanded by the German target group.

The results of the two questions, whether ecotourism is contributing to the high-end experience and the factor of sustainability within the booking decision is where Beaumont's driving markets approach can be considered (Beaumont, 2011, p. 138). High-end ecolodges need to drive sustainability education and implement sustainability into their communication and marketing. The integration into tourism activities can raise awareness for greater sustainability among these high-end travellers. In fact, they have a very good chance of doing so, as nowadays sustainability is becoming an increasingly important part in many people's life. But as Hartmann mentioned, the tour operators have a stake in this evolution as well (Appendix 7, p. X). They are the ones who must make the tourist aware before they book a destination and delineate the advantages, so high-end tourists decide in favour of sustainable options.

5.2.1 The Experience

The increasing relevance of the experience itself and more meaningfulness in travel outlines that the luxurious part and materialistic values are getting less attention from the guests. The questioning of the materialistic values is according to Pokorny especially among Germans well developed, but as others haven't confirmed this statement and a comparison with high-end travellers from other countries is missing, one cannot say that this is a special characteristic of German high-end travellers. Luxury is becoming more a minimum standard for high-end lodges and

to convince customers a unique experience is needed. Under the consideration of the experience the destination Rwanda as well as the high-end lodges on-site presents itself very well. The results revealed that high-end tourists attach great importance to values such as exclusivity, privacy, authenticity and uniqueness.

Another promising finding is that projects such as reforestation are not only beneficial for the wildlife in the national park itself, but it also brings them closer to the lodge and thus to the guests. A side effect and advantage are that these unexpected wildlife encounters contribute to an unforgettable and unique experience.

A contradiction in the findings can be found in the statement that high-end tourists are deep in their comfort zone. This would indeed be a problem for a destination like Rwanda, since the options for transportation are limited and comfortable travelling is just possible by helicopter. It is especially problematic with safaris and monkey trekking. This requires a lot of willpower to move in the mud and to get very close to nature. But the cooperation between the high-end lodges and the RDB showed, that the staff of the RDB takes the high standards of the upscale tourist into account to maintain the service level.

5.2.2 The Accommodation

As already described in the theoretical foundation from Atwal & Williams, the results confirm that the materialistic component is getting less important for high-end tourists. For these guests the experience is much more important. But the survey of the interviewees also shows that luxury continues to have a high priority. Pure luxury can no longer be counted as a prerequisite for a booking decision, but not just because it is no longer important to tourists. Luxury is still important to them, and they see it more as a minimum requirement of an accommodation where they want to spend their vacation and it is therefore essential for ecotourism projects in this high-end segment to maintain a high standard in order to keep up with the demands of this sophisticated target group.

The results show that the lodges themselves contribute a lot to creating authentic experiences. In the case of Bisate and Singita, the furnishings are very extravagant and distinctive. They pay attention to local traditions and design, which they incorporate into their luxurious standards and style of the lodges. This provides an authentic local experience for guests, which is fully focused on Rwanda and the nature experience.

The limitation of rooms as well contributes to the high-end experience at the lodge, because less people mean more exclusives. As well this provides more privacy, which is ideal for high-profile tourists, since they are probably known and want to spend their vacation undisturbed.

5.2.3 The Purpose

Another promising finding, which at the same time confirms the result that there is a shift away from materialistic values, is that the purpose is a determinant argument for a travel decision in the high-end segment. Additionally, this is contributing to the assumption that sustainability is becoming more relevant. High-end travelers pay attention to what they spend their money on. The interviews showed that they actively question this on site and value philanthropic activities. Their goal is to give something back on vacation. Of course, this can be due to a guilty conscience, but in the end, it comes down to whether they take advantage of the opportunities for engagement.

And the results depict that they value these givebacks, but the anticipation in the booking process seems to be the same as with sustainability. This is not really surprising, since sustainability and philanthropic behavior both presuppose a certain renunciation of one's own needs. It can therefore be assumed that the demand for significant trips with positive effects for local populations will also increase in the future. On-site, according to the tourism providers, the acceptance of these activities and the will to help already exists. This finding is evidence that ecotourism projects can enhance the travel experience for high-end tourists. Above all, ecotourism, which is based on the three core criteria, includes the sustainability component, where the social component can be equated with this philanthropic manner, but also the will and understanding to preserve nature for future generations and to engage for that goal on-site, fits well with the ecological component of ecotourism. The lodges also integrate this very well and embed these social and environmental projects into their on-site experience to be able to satisfy the need of the high-end tourists to get involved, with projects where guests are invited to plant a tree at Singita or Bisate, as well as the one cow per family project from the Sabyinyo Silverback Lodge.

5.2.4 The Pricing

It turned out that pricing is a secondary and more irrelevant factor for high-end tourists, which is quite important for the high-end ecotourism segment. High-end lodges have by default, due to their high standard, prices at the upper edge, but with the combination of costly sustainability concepts for avoidance of air conditioning, recycling and waste reduction and use of local resources, which must be additionally considered in the construction of the lodges, lift the already expensive prices to another level. In addition, there are these projects, such as reforestation, school projects, as well as scholarships for students, which the high-end tourists have to finance indirectly through higher over-night prices.

Nevertheless, wealthy tourists do not spend their money indiscriminately and pay attention to good value for money when choosing a destination. The results of the interviews with tour operators depict consensual, that the price-performance ratio is balanced in the case of high-end destinations in Rwanda, which can be deduced from the fact that all guests express satisfaction, and no negative feedback comes back to tour operators while and as well after their tours.

The results demonstrate that the high price strategy resulting from the limitation of gorilla permits per day in order to reduce the number of visitors is not just helpful in terms of conservation, since it provides more protection for the gorillas in their habitat, but at the same time it makes the experience even more exclusive and thus promotes high-end tourism. From this it can also be deduced that ecotouristic activities contribute to high-end experience.

5.2.5 The Destination

While the results show that safety is one of the most important requirements for a high-end destination, it also gets confirmed by all interview partners that Rwanda is safe. Additionally, these high-end ecolodges have a certain status that stands for reliability, as Hartmann described. Rwanda as a destination benefits from their reputation, because high-end tourists know what to expect in terms of service and accommodations and at the same time project these values onto Rwanda. They therefore act as a seal of trust for this destination, as they radiate security, and it is fair to

say that these high-end ecolodges are making a big contribution to the perception of Rwanda as a safe destination. But on the other hand, which has to be admitted, is that this is probably not related to ecolodges in particular, since other globally known brands would probably have the same effect on high-end tourists, as long as they trust these brands.

However, the results also show that Rwanda's infrastructure is not crumbling. Streets are in good condition and can be used for car transportation. But the hilly landscape severely limits possible fast travel conditions, with Rwanda being just the size of Brandenburg, short distances can take a tremendous amount of time. The results showed that these high-end tourists are sophisticated and value comfortable travelling and especially Africa experienced tourists are experienced to fly everywhere. Compared with the existing infrastructure of long car distances and almost now domestic flights, there just remains the possibility to travel by helicopter, if it comes to convenient and fast travel, what makes traveling in Rwanda very costly.

5.3 Limitations

The practice of conducting interviews simultaneously on both the supply and demand sides proved to be unfavorable. These results from the demand side would have been helpful in structuring the interviews with stakeholders in Rwanda, which represent the perspective from the supply side. As a result, a more precise coordination of the questions could have been achieved. While these are special times through COVID, which impact the tourism industry in general, it has been difficult for both parties to schedule interviews. It is understandable that many in this industry had other concerns besides interviews, because many employees have been laid off, and many businesses are understaffed, while at the same time, demand has plummeted, resulting in lost sales.

Considering the constraints of space, the discussion about the sustainability of high-end ecotourism has been lightly touched upon in this paper, which can be revisited to support further study. Furthermore, it would be interesting to evaluate whether local ecotourism products could satisfy the desire of these affluent guests to experience unique, authentic and exclusive experiences, without having to fly.

To better understand the typical German high-end tourist, a study based on a comparison with high-end travelers from other countries could be helpful. This investigation could reveal differences between the characteristics of the travelers and make it possible to create a profile of a typical German high-end tourist.

A further topic for future research could be the perspective of tourists, in order to assess the reasons for the unequal perception of the tourists' preferences when making a booking decision, and how they behave on site as described by the touristic service providers. To evaluate the changes in preferences that occur during the travel period, it would be appropriate to conduct a survey of tourists regarding their philanthropic and sustainable values before and after the trip.

Since Rwanda is focusing on diversification of the tourism products and MICE tourism is responsible for 42% of all arrivals, the evaluation of the combination of MICE tourism with high-end ecotourism would be interesting and helpful for Rwanda in order to grant sustainable growth and diversification. Especially, the part Incentives from MICE

could be the intersection of both touristic segments, when bonuses or rewards are used as incentives from companies or at conferences.

6 Conclusion

The results indicate that there are no typical German high-end tourists. In general, the segment is extremely diverse and is dependent on the requirements and expectations of individual clients, which are difficult to reduce to an example that can be generalized. It can be concluded, however, that high-end tourists place a high value on experience - this is almost above anything else and is also a driving factor in the travel decisions of high-end tourists. Luxurious accommodations can be viewed as something mandatory, which must be met in order to be considered as a destination for this upscale tourist segment. Unsurprisingly, the price is secondary in this segment. Nevertheless, the high-end tourists expect great value for money, since the price they pay is not insignificant. Besides that, a destination needs good infrastructure, a safe environment and uncomplicated accessibility.

On the basis of the results, it can be concluded that Rwanda as a destination fits well into the high-end segment. Rwanda has many aspects that are characteristic of a high-end destination, including first-class accommodations, unique experiences, and limited access. The country scores well in terms of general requirements, such as security and accessibility. It appears that its infrastructure poses the only minor difficulty. Despite the basic infrastructure being in place, the geographical conditions of the country restrict the possibilities and make travel routes long and time-consuming. Consequently, helicopter transportation is the only viable option for a fast and convenient travel experience.

Since it is proven that Rwanda is a high-end destination, the purpose of this research was to elaborate on the extent of ecotourism contributing to this. From the accommodations perspective it can be said that these ecolodges do a great job in creating an authentic experience with great exclusivity in luxurious lodges and an escapist touch, which highly aligns with high-end touristic values. In this research, the definition of ecotourism based on the three core-criteria education, nature and sustainability was used as a basis to assess the extent to which ecotourism contributes to the high-end experience in Rwanda. From the Rwandan perspective it can be said that the destination itself delivers on all three areas. The ecolodges are not just located in pristine nature, they all follow a very natural approach to deliver in terms of nature-near experiences. As well, the lodges and the RDB include activities for learning and options to go backstage in their program. The sustainability criterion is also very well fulfilled by Rwandan lodges. In fact, this can be seen as one of their focal points, at least at Wilderness Safari and Singita. Their sustainability concepts prove to be comprehensive and are deeply embedded in their practices.

However, from the interviews with the tour operators it can be deduced that these three criteria are not demanded by high-end tourists initially. They report that tourists do not come up with suggestions or specific wishes in terms of sustainable destinations or educational activities while travel consulting. This proves that there is low initial interest in sustainability, but it is up to the way of communication. The tour operators are the ones who have to explain the advantages of sustainable travel options. If it's done properly among some high-end tourists, the understanding of sustainability needs is noticeable. But sustainability is far from away from being the decisive argument, even though it is getting more into focus and at the moment it looks like it will be one in the future.

The results have shown that there is a great discrepancy between the standards and services offered on-site and the activities and accommodations demanded and desired by German high-end tourists. Due to this status quo, one cannot speak from a market driven approach, as it was described by Jones, rather this is where the use of the driving markets approach, like Beaumont outlined, can be helpful for the lodges or Rwanda in particular, to further drive the longing for sustainability, education and nature and to expand the demand. What supports the driving market approach is that all interviewees report a rising awareness of sustainability, which appeared in the recent years and is expected to increase.

Finally, it can be deduced from the results that ecotourism certainly contributes to promoting the high-end experience on site. Even if this currently happens more indirectly, such as through contributing to unique, exclusive and authentic experiences, which are values high-end tourists are attracted to and not directly through the demand for sustainable travel offers or a longing for educational and natural experiences. What should be considered, however, is that this is reflected by the perspective of the tour operators, and it could be that although tourists are interested in this, they do not actively communicate it to their tour operators. However, this contradicts the findings of the tourism providers in Rwanda, who report sustainable behaviour and an interest in this topic and confirms a discrepancy between the perception of the behaviour of high-end tour operators and tourism stakeholder on-site. This provides opportunities for further research to interview high-end tourists before and after their trip on their attitudes towards ecotourism core-criteria.

Bibliography

African Development Bank Group. (2016). Rwanda. Bank Group Country Strategy Paper 2017 - 2021.

African Parks. (2020). 2020 Annual Report.

Atwal, G. & Williams, A. (2009). Luxury brand marketing -- The experience is everything! Journal of Brand Management, 16(5/6), 338-338–346. https://doi.org/10.1057/bm.2008.48

Ávila-García, P. & Sánchez, E. L. (2012). The environmentalism of the rich and the privatization of nature: high-end tourism on the Mexican coast. Latin American Perspectives, 39(6), 51–67.

Ban, J. & Ramsaran, R. R. (2017). An Exploratory Examination of Service Quality Attributes in the Ecotourism Industry. Journal of Travel & Tourism Marketing, 34(1), 132-132–148. https://doi.org/10.1080/10548408.2016.1141155

Beaumont, N. (2011). The third criterion of ecotourism: are ecotourists more concerned about sustainability than other tourists? Journal of Ecotourism, 10(2), 135-135–148. https://doi.org/10.1080/14724049.2011.555554

Cini, F., Leone, L. & Passafaro, P. (2012). Promoting Ecotourism Among Young People: A Segmentation Strategy. Environment & Behavior, 44(1), 87-87–106. https://doi.org/10.1177/0013916510389313

Close, C. (2021). Eco-wakening: how consumers are driving sustainability. https://www.weforum.org/agenda/2021/05/eco-wakening-consumers-driving-sustainability/

Correia, A., Kozak, M. & del Chiappa, G. (2020). Examining the meaning of luxury in tourism: a mixed-method approach. Current Issues in Tourism, 23(8), 952-952–970. https://doi.org/10.1080/13683500.2019.1574290

Costa, A., Abreu, M., Gestão, Á. & Barbosa, B. (2019). Millennials' trends in luxury marketing: The ecoturism. 2019 14th Iberian Conference on Information Systems and Technologies (CISTI), 1–6. https://doi.org/10.23919/CISTI.2019.8760822

Destatis. (2021). Statistisches Länderprofil Ruanda. www.destatis.de/kontakt

Duffy, R. (2014). Interactive elephants: Nature, tourism and neoliberalism. Annals of Tourism Research, 44, 88-88–101. https://doi.org/10.1016/j.annals.2013.09.003

Elliott, C. (2020). Bucket List Travel: The Top 21 Destinations For 2021. https://www.forbes.com/sites/christopherelliott/2020/11/14/bucket-list-travel-the-top-21-destinations-for-2021/?sh=1b8074d4545d

FVW Medien GmbH. (2019). Beliebteste Reiseziele der Deutschen in Zentral- und Südafrika nach Touristenankünften im Jahr 2018. Statista. https://de-statista-com.pxz.iubh.de:8443/statistik/daten/studie/874393/umfrage/beliebteste-reiseziele-der-deutschen-in-zentral-und-suedafrika-nach-ankuenften/

Gatsinzi, J. & Donaldson, R. (2010). Investment challenges in the hotel industry in Kigali, Rwanda: Hotel managers' perspectives. Development Southern Africa, 27(2), 225-225–240. https://doi.org/10.1080/03768351003740548

Google Maps. (n.d.). Distance from Kigali to Canopy Walk. Retrieved November 20, 2021, from https://www.google.com/maps/dir/Kigali,+Rwanda/Canopy+Walkway,+Cyangugu-+road,+Butare,+Rwanda/@-1.9501061,30.0970196,16.43z/data=!4m14!4m13!1m5!1m1!1s0x19dca4258ed8e797:0xf32b36a5411d0bc8!2m2!1d30.0618851!2d-1.9440727!1m5!1m1!1s0x19c2e8e8230fa845:0x9a73773bf7a334c9!2m2!1d29.195544!2d-2.4758046!3e0

Governors' Camp Collection. (n.d.). Sabyinyo Silverback Lodge. Retrieved November 3, 2021, from https://www.governorscamp.com/safari-camps/sabyinyo-silverback-lodge/

Jones, G. (2020). Luxury Tourism and Environmentalism. https://doi.org/10.1093/oxfordhb/9780190932220.013.31

Kabera, C. (2017). Entrepreneurialism in tourism and economic growth in Rwanda: challenges for policy formulation.

Kivu Belt DMU. (n.d.-a). Gishwati Forest National Park. Retrieved November 24, 2021, from https://kivubelt.travel/gishwati-forest-national-park/

Kivu Belt DMU. (n.d.-b). Kivu Belt Destination Management Unit. Retrieved November 3, 2021, from https://kivubelt.travel/about-the-kivu-belt-destination-management-unit/

Lu, A. C. C., Gursoy, D. & del Chiappa, G. (2016). The Influence of Materialism on Ecotourism Attitudes and Behaviors. Journal of Travel Research, 55(2), 176-176–189. https://doi.org/10.1177/0047287514541005

Manoj, M., Das, A. R., Chandran, A. & Mandal, S. (2020). Antecedents of environmental engagement and environmental learning behaviour. Journal of Hospitality and Tourism Insights, 3(4), 431-431–450. https://doi.org/10.1108/JHTI-01-2020-0001

Margles, S., Masozera, M., Rugerinyange, L. & Kaplin, B. (2010). Participatory Planning: Using SWOT-AHP Analysis in Buffer Zone Management Planning. Journal of Sustainable Forestry, 29, 613–637. https://doi.org/10.1080/10549811003769483

MINECOFIN. (n.d.). Vision 2050.

MINECOFIN. (2000). Rwanda Vision 2020.

MINICOM. (2009). Rwanda Tourism Policy.

Newsome, D. & Hassell, S. (2014). Tourism and conservation in Madagascar: the importance of Andasibe National Park. Koedoe - African Protected Area Conservation and Science, 56(2). https://doi.org/10.4102/koedoe.v56i2.1144

One&Only. (n.d.-a). Gorillas Nest. Retrieved November 2, 2021, from https://www.oneandonlyresorts.com/gorillas-nest

One&Only. (n.d.-b). Nyungwe House. Retrieved November 24, 2021, from https://www.oneandonlyresorts.com/nyungwe-house

RDB. (n.d.). Rwanda – Your next luxury eco-tourism destination. Retrieved November 2, 2021, from https://www.visitrwanda.com/rwanda-your-next-luxury-eco-tourism-destination/

RDB. (2020). Rwanda Development Board Annual Report 2019.

RDB. (2021). Rwanda Development Board Annual Report 2020.

Reuters. (2019). Rwanda signs deal with Paris St Germain to promote tourism. https://www.reuters.com/article/uk-rwanda-tourism-soccer-idUKKBN1Y81LX

Russo, V., Re, A., Angelini, A. & Jabes, D. (2017). An Analysis and Comparison of Expectations and Perceptions on Sustainable Tourism among Italian and German Tourists. Journal of Tourism & Leisure Studies, 2(3), 1-1–11. https://search.ebscohost.com/login.aspx?direct=true&db=hjh&AN=128129144&site=eds-live

Singita. (n.d.-a). Conservation at Volcanoes National Park. Retrieved November 30, 2021, from https://singita.com/conservation/volcanoes-national-park

Singita. (n.d.-b). Kwitonda Lodge. Retrieved November 2, 2021, from https://singita.com/lodge/singita-kwitonda-lodge

Snyman, S. & Leiman, A. (2013). High-end ecotourism and rural communities in southern Africa : a socio-economic analysis. http://hdl.handle.net/11427/5689

Tang, Y. (Elina) & Hinsch, C. (2018). Going green to be morally clean: An examination of environmental behavior among materialistic consumers. Psychology & Marketing, 35(11), 845-845–862. https://doi.org/10.1002/mar.21139

Africa's Singapore? (n.d.). Retrieved November 23, 2021, from https://www.economist.com/business/2012/02/25/africas-singapore

TIES. (n.d.). What Is Ecotourism? Retrieved October 31, 2021, from https://ecotourism.org/what-is-ecotourism/

United Nations. (2019). Population density in Africa as of 2020, by country (in people per square kilometer) [Graph]. Statista. https://www-statista-com.pxz.iubh.de:8443/statistics/1218003/population-density-in-africa-by-country/

Vinzenz, F., Priskin, J., Wirth, W., Ponnapureddy, S. & Ohnmacht, T. (2019). Marketing sustainable tourism: the role of value orientation, well-being and credibility. Journal of Sustainable Tourism, 27(11), 1663–1685. https://doi.org/10.1080/09669582.2019.1650750

Wilderness Safaris. (n.d.-a). Bisate Lodge. Retrieved November 24, 2021, from https://wilderness-safaris.com/our-camps/camps/bisate-lodge

Wilderness Safaris. (n.d.-b). Our Purpose at Bisate Camp. Retrieved November 30, 2021, from https://wilderness-safaris.com/our-camps/camps/bisate-lodge/purpose

World Bank. (n.d.-a). International tourism, number of arrivals. Retrieved November 24, 2021, from https://data.worldbank.org/indicator/ST.INT.ARVL

World Bank. (n.d.-b). International tourism, number of arrivals - Rwanda. Retrieved November 24, 2021, from https://data.worldbank.org/indicator/ST.INT.ARVL?locations=RW

World Bank. (n.d.-c). International tourism, number of arrivals - Sub-Saharan Africa. Retrieved November 30, 2021, from https://data.worldbank.org/indicator/ST.INT.ARVL?locations=ZG

Zukunftsinstitut. (n.d.). Megatrend Neo-Ökologie. Retrieved November 1, 2021, from https://www.zukunftsinstitut.de/dossier/megatrend-neo-oekologie/

Leapfrog and reverse innovation for survival of innovative start-ups: A conceptual framework and a logistics case

Mohammed Khalil
Zuyd University of Applied Sciences
Maastricht, The Netherlands
email: mohammed.khalil@zuyd.nl

Nanko Boerma
Transactieland Foundation
Amsterdam, The Netherlands
email: nanko.boerma@transactieland.nl

Abstract

Rapid and sustained innovation in developed markets triggers the generation of innovative start-ups, some with disruptive innovations. However, when their offering faces a saturated market with satisfactory and widely available established traditional solutions, many innovative start-ups from these markets may fail. The literature on some start-ups that successfully brought their innovation to emerging markets shows how using leapfrogging traditional solutions to innovative solutions can offer survival and growth opportunities to these start-ups. However, a wide exploitation of leapfrogging processes in emerging markets for survival or business growth of innovative start-ups from developed markets is not yet theorized. To contribute to closing this gap, we propose a conceptual framework to assess the readiness of an emerging market to leapfrog to innovative solutions.

The design of the conceptual framework uses a scenario-planning like approach with two key factors, namely Context Readiness and Value Network Integration. To test and refine the proposed framework and show its relevance for coming to an informed expansion decision making, we used PAR (Participatory Action Research). For the illustration of the application of the proposed conceptual framework, the case of telehealth in Morocco is used.

With this work, we contribute to both knowledge and business development for improving survivability of innovative start-ups or SMEs by proposing a conceptual framework:

- to be used to sense and qualitatively assess the plausibility of leapfrogging opportunities in a given sector in emerging market.
- that can effectively be used by innovative start-ups or SMEs in their process of identifying opportunities for closing the gap between their innovative solution development and its adoption and implementation.

https://doi.org/10.18418/978-3-96043-104-6_135

Key words: Start-ups, survival, innovation, failure, international entrepreneurship, adoption, implementation, , emerging market, developed market, leapfrog, reverse innovation, delivery, logistics, conceptual framework,

Background

Cbinsight (cbinsights, 2022) found that 70% of start-ups tech companies fail, usually around twenty months after first raising financing. 35% of start-ups failure cases are related to failure to serve a market need, cited as the no. 2 reason for failure (cbinsights, 2021). In his research on start-up failure, Eisenmann (Eisenmann, 2021) stated that validating concepts with real customers in real-world is one of the key elements for start-ups to avoid a false start, one of the two especially common recurring patterns that doomed ventures. Rapid and sustained innovation in developed markets triggers the generation of innovative start-ups, some with disruptive innovations. However, when their offering faces a saturated market with satisfactory and widely available established traditional solutions, many innovative start-ups from these markets may find themselves in an arrested development status at home or even fail. Closing the gap between the development of innovative solutions and their adoption and implementation may not be straightforward.

The aim of the work presented here is to contribute to the development of knowledge and processes for the increase of the rate of success of innovative start-ups struggling to launch break-out solution in their saturated home market. One of these processes is exploiting relevant leapfrogging of traditional solutions in emerging markets for test, adoption and even implementation of innovative solutions. The literature on some start-ups that successfully brought their innovation to emerging markets shows how leapfrogging traditional solutions to innovative solutions can offer survival and growth opportunities to innovative start-ups. The absence of literature on "how" to confidently sense and assess leapfrogging opportunities in a given emerging market served as motivation for this study. The focus of this work is to answer the question "How to assess that a given sector in a given emerging market has relevant leapfrogging opportunities and offer validation, adoption and implementation opportunities to a given innovative solution?". The objective is to propose a conceptual framework that could be used by start-ups to evaluate the plausibility of emergence of relevant leapfrogging opportunities in a given sector in a given emerging market or in a region in that emerging market. The conceptual framework is a tool to assess the readiness of an emerging market to leapfrog to innovative solutions in a given sector. This is to speed up the validation of the value proposition and adoption and implementation.

Keeping in mind the context dependent application of the proposed framework and the need to show its relevance for decision making the focus is on start-ups that:

a) Are from a developed market.
b) Have innovative "access to" delivery systems preferably combining devices, and digital platforms
c) Face barriers for testing, validating, adopting and implementing their solution in their home market.
d) Have specialised, customised and niche approach to the market.
e) Are willing to be among first movers in an emerging market.

To demonstrate the relevance of the framework and later its rigor, we use Participatory Action Research. For the illustration of the application of the proposed conceptual framework, the case of telehealth is used.

Relevance of emerging market for innovative start-ups survival

Emerging markets are countries that are in transition phase to become a developed countries both economically and structurally as their financial and regularly systems mature. Approximately 85% of the world population lives in an emerging market. Emerging markets account for 90% of the global population aged under 30. Because of their growing economy, they have growing consuming populations. However, the difficult access of a good share of these populations to some key services such as healthcare, education, energy and drinking water may slow their growth. The non-affordability of investments in infrastructure for governments, the centralised character of traditional delivery solutions, well established in developed markets, the shortage of required qualified staffing to operate them could trigger leapfrogging to more easily replicable emerging technologies in delivery systems. A well-documented example is the roll-out of mobile phones. This provided opportunities for many emerging countries to develop by skipping fixed-line telephone systems and associated infrastructure subjected to the decision making of governments as the main providers (Amankwah-Amoah, 2015; Coster, 2011).

How leapfrogging might help?

Leapfrogging occurs when a nation bypasses traditional stages of development to either jump directly to the latest technologies (stage-skipping) or explore an alternative path of technological development involving emerging technologies with new benefits and new opportunities (path-creating) (Yayboke, 2020). Because of their convenience and potential time and cost effectiveness, new solutions for delivery of services or products to homes may positively affect emerging markets governments decisions for leapfrogging traditional solutions. The subsequent process to leapfrogging for start-ups could be reverse innovation. Reverse innovation is the process of

innovating in an emerging market and then bringing back those tested, validated, adopted innovations and acquired knowledge to a developed market (Govindarajan & Trimble, 2012; Malodia et al., 2020). Several multinational companies (MNCs) such as GE and its low cost Electrocardiogram (ECG) device, Apple with its iPod Nano watch and LG with its Low-cost Air Conditioners have used this process (Khan, 2021).

Because of limited transportation infrastructure and limited number of distributors with logistics capabilities, emerging markets tend to have inadequate logistics. This results in long travel time and high travel expenses for customers that face difficulties with traditional kinds of transportations. The disadvantage of an imperfect infrastructure or the shortage of highly qualified staffing required for traditional delivery solutions in emerging market might turn into an advantage for an innovative start up to provide delivery services that fill the needs. Start-ups offering affordable products or services, combined with innovative and easy to replicate delivery services may find growth opportunities in leapfrogging traditional delivery systems in emerging markets. The use of Unmanned Aerial Vehicles (UAV's) or drones in delivery services in healthcare systems is one example for such start-ups. Despite their benefits, this type of service went seldom beyond pilots in developed countries (Fenwick et al., 2017). The focus of the regulator on the risks posed by drones instead of their potential benefits, the crowded airspace in developed markets were slowing factors that limited tests and validation of the drones value proposition. The use of drones in logistics in emerging markets may be part of the solution to some key transportation and logistics problems and then delivery issues. Their use in emergency scenarios where medical and relief supplies must be delivered quickly to remote area is a good example. For these reasons combined, the start-up Zipline created in 2016 left the US to Africa already in 2016 to explore drones as a new delivery system for medication and blood for diagnosis and treatment (Levy, 2022). Following a deal with the Rwandan government, Zipline, by couriering blood and drugs between a centralised laboratory and remote villages in Rwanda in 2016, allowed the medicine to reach remote areas underserved by traditional logistics. Zipline has expanded its operations to Ghana in 2019. Another American company, Vayu, is also flying blood and laboratory materials from rural villages to a research station for testing in Madagascar (Knoblauch et al., 2019). The same was with Avy, a Dutch drones start-up created in Amsterdam in 2016 and raised in Africa (Avy, 2022). Avy had activities in Botswana for example.

Why Rwanda, Ghana, Botswana, Madagascar? Was that the result of trial and error or a well thought out choice?

The question that a start-up manager or team could ask when sensing relevant leapfrogging opportunities in emerging market is:

How ***to assess*** that a given sector in a given emerging market has relevant leapfrogging opportunities and offer validation, adoption and implementation opportunities to a given innovative solution?

Our Approach

Beyond operationalisations, the consulted literature does not offer any conceptual or empirical findings on how leapfrogging in emerging markets could offer survival and growth opportunities to innovative start-ups from developed markets. Figuring out approaches that help these start-ups to cost effectively and confidently assess and sense leapfrogging opportunities in emerging markets with a strong demand but inadequate "access to services or products" is very important for their survival and further development. The approach proposed is centred on the development of a conceptual framework asses and sense leapfrogging opportunities.

Proposed Conceptual Framework

Identifying needs for improving "access to" products and services in an emerging market is not the same as transforming these needs into a viable business opportunity. Adoption and implementation of innovative solutions that fill in these needs remain two driving forces of the success of their introduction even in a leapfrogging market. Innovation adoption is defined here as the process of potential users seeing value with it and deciding to work and establish a habit with it, deliver it as intended and continue to use it over a longer period of time (Durlak & DuPre, 2008; Rogers, 2003; Zanaboni & Wootton, 2012). Implementation is defined here as the activities that are undertaken to realize the adoption, dissemination and continuous use of a product or service in its intended context (van Gemert-Pijnen et al., 2018).

When looking for adoption and implementation opportunities in a leapfrogging context, because of the time and resources constraints of start-ups, start-ups managers cannot afford to take into account the multitude of factors influencing this process. Using a scenario-planning like approach (Lindgren & Bandhold, 2009; Ringlad, 1998; van der Heijden, 1996; Wade, 2012), we identify and zoom in on the two most critical factors with high impact on the

adoption and implementation process: Context Readiness and Value Network Integration levels, both of which concepts are defined below. Considering the population to be served as well identified, our hypothesis is: Context Readiness and Value Network Integration are the two key necessary and sufficient factors to assess the readiness of a given emerging market to leapfrog, adopt and implement a new service or product in a given sector.

1) Context Readiness

We define Context readiness by two factors: Policy readiness and Payment readiness.

Policy readiness

Policy is defined here as decisions that are made at national or local level about what services to the public will be funded and about how (and by whom) they will be delivered(Greenhalgh et al., 2017). Policy making for the infrastructure and skills development, for payments modes and subvention for access to products or services are key for the adoption and implementation of innovative solutions. Policy making is part of the contextual environment as defined by Van der Heijden (van der Heijden, 1996), i.e. that part of the environment which has important repercussion for the organisation, here a start-up, but in which the organisation has limited influence. The lack of policies, regulations and their enforcement stimulate informal business generation in emerging markets, a context that start-ups from developed markets do not or seldom know or can manage.

Payment readiness:

Payers for services or products are often the customers themselves or organizations that set service rates, process claims, and pay providers claims. Payers could be private such as private healthcare insurance plans and employers or part of the public sector such as public organisation, subsidies or healthcare insurance scheme or non-governmental organisations. Availability of suitable and easy payment arrangements for providers and consumers are key for transactions and then for adoption and implementation of innovations. Many emerging markets have substantial numbers of unbanked people (Demirgüç-Kunt et al., 2022). Payments are then mainly made in person and in cash. This is also the rule for informal businesses. This limits payment ability for remotely accessible services to a small segment of population or to public or formal private organisations. It will have a high impact on the business models to be adopted when considering entering an emerging market.

2) Value Network and integration

Building on the term value network introduced by Christensen and Rosenbloom in 1995 (Christensen & Rosenbloom, 1995), we define it as: "the context within which a firm competes, solves customers' problems and creates value for them and for itself ". The value network members here are those involved in value creation and value delivery, namely **P**roviders of innovative solutions and **P**roviders of services or products to customers. They are both part of the transactional environment (van der Heijden, 1996), i.e. that part of the (contextual) environment in which they are significant players, influencing outcomes as much as being influenced by them. The definition of integration used here is that given by Stremersch & van Dyck (Stremersch & van Dyck, 2009) : "The extent to which a network of organizations or units within one organization provides or arranges to provide a coordinated continuum of services". Interactions between members of the value network have the possibility to provide a viable market and to benefit the members and their target customers population. Figure 1 below gives an example of patient centred interactions between the value network members and the context readiness factors in telehealth.

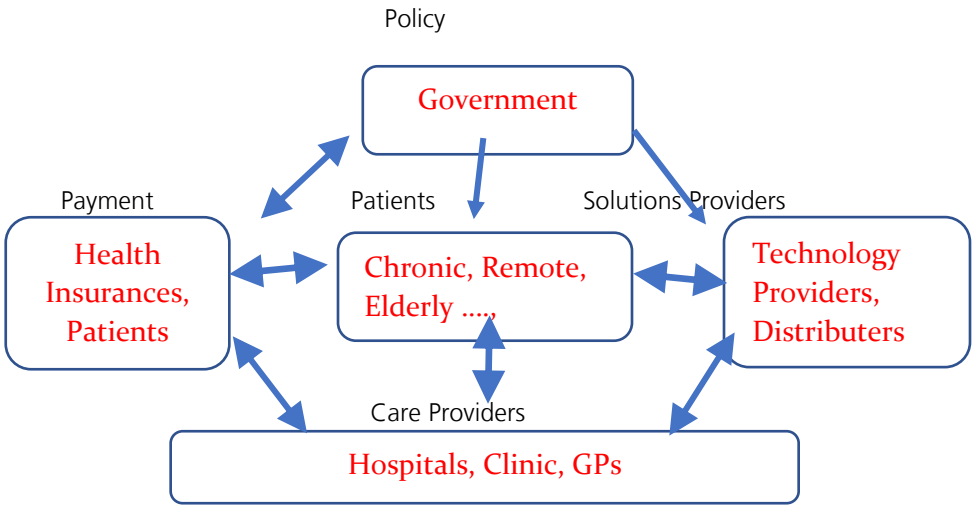


Figure 1: Value Network and Context Interactions (Patient Centred)

(Inspired by Stremersch & van Dyck (Stremersch & van Dyck, 2009))

As an example of the influence of changes in policies readiness and of the value network integration levels on the adoption and implementation of disruptive delivery systems we mention the change brought by the arrival of COVID-19 pandemic. Worldwide, COVID-19 pandemic increased policies readiness and value network members integration levels to keep delivery processes working.. New models such as pay on delivery were adopted in large cities in emerging markets as Cash on Delivery payment was made possible there. In several emerging markets, Covid-19 triggered leapfrog actions in healthcare, education and retail delivery. Stronger increase in online

shopping activities in post-COVID is foreseen (Netcomm Suisse Observatory & UNCTAD, 2020). Covid-19 also triggered reverse innovations. As the drones require minimal human interaction, the first delivery for Zipline Inc. in the U.S. was in North Carolina in May 2020 when the COVID-19 pandemic struck. It was done in collaboration with Novant Health which runs fifteen hospitals and nearly 700 clinics for delivering medical supplies and personal protective equipment (de León, 2020).

Conceptual framework design

The conceptual framework is designed as a classic 2x2 matrix, scenario cross. It uses the interplay of the two key factors defined above, namely Context Readiness and the Value Network Integration levels, both of which can vary between high and low (Figure 2). The four quadrants of this framework define the four scenarios area to be used to evaluate the plausibility (Schmidt-Scheele, 2020) of leapfrogging potential of a given emerging market or a region in an emerging market for a given sector. Each quadrant is defined by whether Context Readiness level will be either "high" or "low", and whether, at the same time, Value Network Integration level is either" high" or "low" (Wade, 2012). Starting from top-right and moving anti-clockwise on the matrix in Figure 2, one has the following four scenarios for a given country:

1) The Context Readiness level is high, and the Value Network Integration level is high too. This situation often occurs in a developed market and seldom in emerging markets. New technologies or solutions may be developed there and co-exist with the old technologies or solutions before supplanting them.
2) The Context Readiness is low while the Value Network Integration is high. This situation occurs in an emerging market or a region in an emerging market. The weakness of the Context Readiness could be related to the weakness of institutions. Leapfrogging may take place there but may not go beyond piloting projects.
3) The Context Readiness level is low while the Value Network Integration level is low too. This situation often occurs in a developing market. Leapfrogging may be very limited or even not possible.
4) The Context Readiness level is high while the Value Network Integration level is low. This situation often occurs in an emerging market or a region in an emerging market. The weakness of the integration of the value network could be related to weaknesses of infrastructure, of the efficiency of systems or the uneven

distribution of providers of services and providers of solutions. Nevertheless, leapfrogging may take place there as policy may be supportive and Value Network integration can be local.

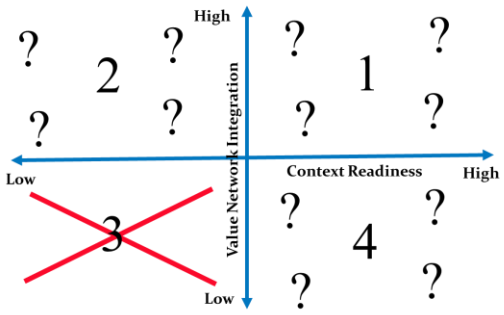


Figure 2. Conceptual framework: a 2x2 matrix, scenario cross for assessing leapfrogging traditional solutions opportunities in an emerging market

Our expectation is that leapfrog opportunities are to be found in quartiles 1, 2 and 4, whereas in quartile 3 leapfrogging is not possible.

To show the relevance and usability of the conceptual framework and to confirm or infirm the hypothesis above, namely that Context Readiness and Value Network integration levels are necessary and sufficient to have a reliable framework we use Participatory Action Research (PAR) approach (Baldwin, 2012), internationalisation (Cavusgil et al., 2013) and adoption and implementation (Greenhalgh, 2017) theories. PAR allows the involvement of start-ups and members of the value network, namely **P**roviders of innovative solutions and **P**roviders of services or products to customers, in codeveloping the framework and validating its relevance and usability in their emerging market context. This makes sure that involved start-ups and value network members interactively co-produce a framework that reflects their perspectives, priorities and concerns and use their personal opinion, expertise, and experience on adoption and implementations of innovations in their emerging market. In this paper we validate the relevance of the framework[2] through application in healthcare sector.

Application of the conceptual framework: telehealth example

[2] The ongoing PAR process required for the rigor part, i.e. to prove or disprove the hypothesis H1 is not included here. This means that the ability of the proposed framework to reliably "predict" the possibility of a given emerging market or a region in an emerging market to offer leapfrogging opportunities worth seizing to speed up adoption and implementation of innovative solutions is not fully included here.

According to the World Bank, due to weak healthcare systems in many countries some 400 million people lack access to essential healthcare services, mostly in Africa and South Asia. Physician per inhabitant ratio in the developing countries' is less than one thirtieth of the level in high income countries (Schanz, 2019). The non-affordability of investments in infrastructure, the centralised character, the shortage of required qualified staffing for traditional healthcare solutions slow their adoption or replication in emerging markets and could trigger leapfrogging to more easily replicable emerging healthcare delivery technologies. We consider here telehealth as it affects positively clinical practice of medicine, investments in infrastructures and equipment, the financing for services and regulations. In their paper, Almojaibel and al. report the following definition of telehealth (Almojaibel et al., 2020): Telehealth is the use of telecommunication technology and electronic devices to enable remote clinical health care and health-related education. In other words, it is offering healthcare remotely to the patient's home or neighbourhood (Greenhalgh et al., 2017). It is a game changer in healthcare delivery. How to know, with a good degree of confidence, that this is going to happen in a given emerging market and be an early mover to take advantage of it as an innovative start-up? This is what the conceptual framework is designed for.

Using the conceptual framework, the assessment of the plausibility of a leapfrogging scenario leading to the introduction of telehealth has to be done on the basis of context readiness and value network integration levels defined for telehealth. Keeping in mind that patients are central for adoption and implementation of telehealth, the elements to be evaluated for telehealth are:

A) Patients Target Segment fitness

It is important to make first sure that there is an expressed or latent need in the given emerging market for the start-up offer. It is important for patients' segment selection to consider current logistics for patients from that segment, their mobility constraints, the needed frequency of healthcare visits, their total costs in time and money for access to care their direct or indirect digital literacy. Chronic, rural, elderly patients may come first. The business relevance of the chosen segment has to be regularly evaluated.

B) Context Readiness

The availability of adequate policies affecting telehealth introduction, such as for infrastructure, skills, and regulations for prescription and payments may affect early adoption and implementation of telehealth related

solutions. To evaluate the Context readiness for telehealth we have to evaluate its two elements given above, namely, Policy making and Payment.

Policy making: Private care providers and solutions distributors may be hesitant to invest in telehealth where there is no or weak policies for telecommunication infrastructure, digital skills development, digital prescription and payment for remotely delivered care services. Whether and how policy concerns for telecommunication infrastructure, digital skills development, payment for telehealth services, privacy and confidentiality are resolved can affect both the development of telehealth programs and their benefits and costs for both providers and patients (Institute of Medicine (US) Committee on Evaluating Clinical Applications of Telemedicine, 1996). The availability of forward looking policies in the form of investment in infrastructure, institutional mechanisms to transition towards a digital future, subsidies of demonstration projects to encourage telehealth and introduction of related technologies, policies to adapt skills development and payment modes for that are a must for context readiness for telehealth. Their availability and application have to be evaluated.

Payment: Nearly two billion adults globally, one-third of the world's adult population, remain unbanked. Nearly all of them live in emerging markets (Demirgüç-Kunt et al., 2022). Emerging markets also have substantial numbers of people not covered nor by public nor by private health insurances. Many patients pay then the cost of healthcare out of pocket and in cash. In 2015, the share of out-of-pocket spending in total healthcare expenses had an average of 38% in low-income countries, 40% in lower middle-income countries and 31% in upper middle-income countries. The median share of private voluntary insurance in total healthcare expenditure is less than 2% (Schanz, 2019). In these circumstances, the payment for digital care services could be a real challenge for telehealth development in emerging markets. Policies for health coverage and for alternative payments methods to cash are determinant for context readiness for leapfrogging to telehealth and must be evaluated.

C) Evaluation of Value Network Integration for telehealth

For a chosen target segment of patients, the level of integration and the direct interaction between healthcare solution providers and care providers are key for the adoption, implementation and dissemination of innovative care solutions (Durlak & DuPre, 2008; Greenhalgh, 2017; Greenhalgh et al., 2017). Healthcare solutions providers need care providers for adoption, dissemination, implementation of innovative solutions and vice versa. They are

then both key for the success of any leapfrogging process. The level of integration of value network members for telehealth can be evaluated by how, through interaction, both new healthcare solutions providers and care providers are working together to remotely connect and care for the target patients' segment and be paid for their interventions. Who are they?

1. **Care Providers.** In emerging markets, geographic distribution of healthcare facilities often shows their concentration in their major cities. This may affect the integration and direct interaction between healthcare professionals in the country. In general, specialties have the highest physician shortage there and they are mainly concentrated in major cities leading to having hospitals and specialties clinics overcrowded and overburdened. Telehealth may play a vital role for specialties clinics and hospitals to move to triage patients who really need face to face consultation with specialists and help specialists to consult and prescribe remotely for patients who do not need face to face consultations. Resulting avoidance of higher travel costs in time and money for patients far from major cities and avoidance of long waiting times for a face-to-face appointment without affecting quality can be drivers for leapfrogging to telehealth. In this paper, we focus on specialists as care providers as they can be considered as the core of the decision-making unit for adoption and implementation of innovation**.**
2. **Healthcare Solutions Providers.** Healthcare solution providers here cover both innovative healthcare solutions producers, such as start-ups developing devices or healthcare platforms, professional users of these solutions for care needs such as clinical laboratories, and local distributers such as pharmacists or resellers of devices or equipment. Here also, in emerging markets, distributers of healthcare solutions are mainly concentrated in major cities. It is important to consider, in the value network integration evaluation their regional distribution in the considered country.

We consider here the case of four B2B Dutch start-ups (cf. Table 1) active in healthcare . All four start-ups were facing slowness in their value proposition validation process at home or faced challenges in meeting sophisticated requirements of potential local early adopters. Their target customers in general and early adopters in particular use rival's existing well established satisfactory solutions. The healthcare sector in Morocco was proposed as a possibility for closing the gap with validation, adoption and even implementation of their solutions. The four start-ups were involved in a a Participatory Action Research (PAR). This is also done to iteratively refine the design of the proposed conceptual framework and to test it.

Table 1. Four Dutch Start-ups involved in PAR process

Start-up	Value Proposition	Offer
Tomas B.V. 2016	Waistband without any adhesives for stoma patients confronted with leaks, skin problems and the associated nuisance and pain	Waistband for stoma patients
Avy 2016	Last mile delivery transport of blood products and medicines between blood banks and hospitals	Long range drones for medical transport and firefighting services
LIV 2017	Discriminate at home, atrial fibrillation (AF), a common arrhythmia, from normal cardiac rhythm.	One lead ECG recorder; Cardiology Call Centre
HICA 2020	Hand Controller and Virtual Reality gaming in rehabilitation of stroke upper limb and in Parkinson's patients	Hand Controller and Virtual Reality gaming for stroke patients

For a population of 36 million inhabitants, Morocco has a ratio of 7.1 doctors per 10,000 inhabitants, far from the standard of the World Health Organization (WHO) set at 15.3 doctors per 10,000 inhabitants (Zerrour, 2021). 63% of the Moroccan population has medical coverage (Ministère de La Santé, 2018). Chronic diseases account for 75 % of all deaths. Cardiovascular diseases, diabetes, and cancer are among the leading causes of death (57 %) (Chadli et al., 2018). In the public sector (resp. private sector), the size, composition and distribution of health workforce by region shows that medical health professionals are mainly concentrated in six out of twelve regions that Morocco has (resp. in 4 regions out of the six regions). Distributors of medical equipment and devices and major clinical laboratories are also concentrated in the same regions around major cities. The regional disparities in care providers and healthcare solutions providers makes that many patients with cardiovascular, diabetes and cancer have difficulties to continuously and timely access the required care, mainly to the specialised care. Bank account ownership rate in 2021 was 44 % (Demirgüç-Kunt et al., 2022).

For the use of the conceptual framework, criteria for context readiness and value network integration levels given in Table 2 were agreed between start-ups and involved local value network members. The conceptual framework was first used for assessing Morocco and Casablanca as the most advanced region in Morocco. Given the results from the conceptual network (cf. Figure 3), it was agreed to focus first on Casablanca region with higher value network integration and higher context readiness, mainly due to payments.

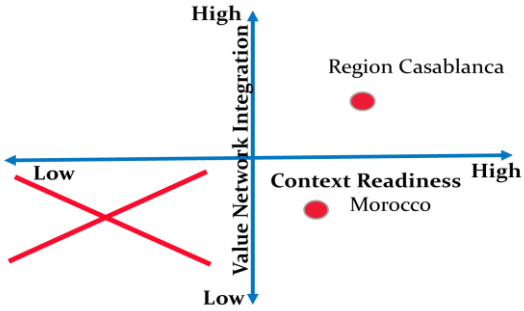


Figure 3. Use of the conceptual framework for Morocco and Casablanca region

For the test, refinement and application of the conceptual framework to the start-ups, next to the four start-ups, stakeholders from the value network in Casablanca region were involved in the PAR process. Throughout the planning, action, observation, and reflection stages of the PAR process, 5 cardiologists, 5 visceral surgeons, 3 general practitioners, 7 medical equipment and devices distributors, 56 physiotherapists (survey), 5 pharmacies, one NGO and two universities, one Dutch and one Moroccan were involved. Table 3 summarizes the results obtained using the conceptual framework for the four start-ups. It gives the most plausible scenario for each start-up and the actions worth taking as a follow-up, as agreed by involved stakeholders. To illustrate how we came to these results, we give below some details on the cases for Tomas B.V., Avy and Liv.

Tomas B.V.: The value proposition of Tomas B.V. in the Netherlands is (Tomas, 2021): "A waistband without any adhesives for stoma patients confronted with leaks, skin problems and the associated nuisance and pain". This value proposition is validated in the Netherlands but despite the demonstrated superior benefits of the waistband, its discriminator, short payback time and cost competitiveness, its introduction in the Dutch market faced fierce competition from well-established traditional pouches with adhesive supports. In Morocco, patients with stoma faced scarcity of pouches, their distribution issues and their relatively high out-of-pocket costs. The use of the framework for Tomas B.V. in Casablanca region led to the result given by Figure 4. The conclusion was that there is an opportunity for leapfrogging the use of both traditional pouches and adhesive supports. However, this requires a modified value proposition and the adaptation of the waistband to the local context. The adapted value proposition is: "A waistband without any adhesives for stoma patients confronted with high costs and difficult access to traditional pouches with adhesive supports, leaks, skin problems and the associated nuisance and pain". For this, Tomas B.V. had to review the waistband design to be able to use common bags commercially available

everywhere and much cheaper than traditional pouches. This creates a real opportunity for piloting and later reverse innovation. A pilot is designed for tests with professionals and stoma patients.

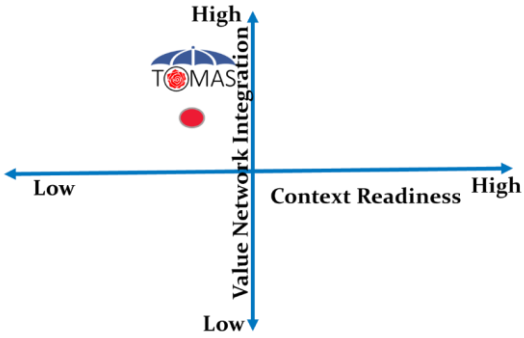


Figure 4. Use of the conceptual framework for Tomas B.V. in Casablanca region

Avy: Born in the Netherlands and raised in Africa (Avy, 2022), Avy's early value proposition in the Netherlands was: "Ensure urgent logistics, speedy deliveries in time of traffic jams and clogged roads**".** For Africa, this value proposition became "Last mile delivery transport of blood products and medicines between blood banks and hospitals". After success of pilots in Sub-Saharan Africa for delivering medical supplies and commodities, Morocco was considered for replication. Hospital facilities in small cities and medical laboratories in Casablanca region were identified as value network members in need of fast logistics systems. The use of the conceptual framework led to the positioning of Avy on the scenario cross as given by Figure 5. While the value network members were positive and willing to use the drone services, its integration for the usage of drones was low and the policy was a blocking as drones are banned in Morocco for commercial use. Skills were not readily available. All this was a showstopper.

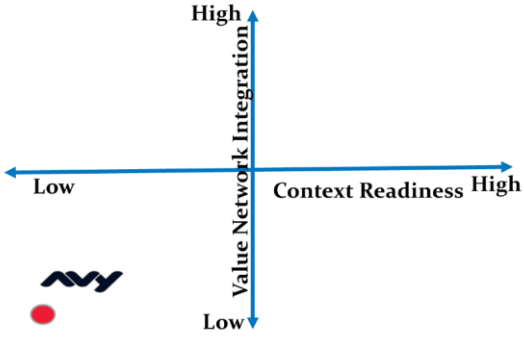


Figure 5. Use of the conceptual framework for Avy in Casablanca region

Liv: Liv developed a portable single lead electrocardiogram (ECG) device, a mobile app, and a call centre concept for atrial fibrillation management for stroke prevention. Its value proposition was:" Discriminate at home, atrial fibrillation (AF), a common arrhythmia, from normal cardiac rhythm.". Opportunities to replicate tests and validate the value proposition and the business model were very limited in the Netherlands. Morocco was considered for alternative test and validation opportunities. Cardiologist and distributors of medical equipment were identified as customers and the value network members. The use of the conceptual framework led to the positioning of Liv on the scenario cross as given by Figure 6. The value network, well integrated, and their patients were willing to test and validate both the value proposition and the business model. But the policy side was also here a showstopper: digital prescription did not exist and digital payment for care services was not allowed.

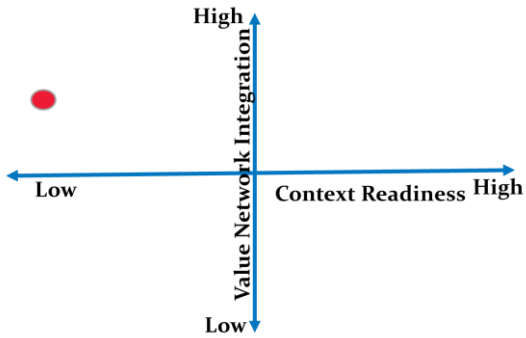


Figure 6. Use of the conceptual framework for Liv in Casablanca Region

Discussion

The aim of the work presented here is to contribute to the development of knowledge and processes for the increase of the rate of success of innovative start-ups in developed, often saturated markets. The literature found on failures of start-ups is mainly focused on understanding or explaining "why" they fail. The literature on some innovative start-ups that successfully brought their solutions to emerging markets to survive gives examples of how leapfrogging traditional solutions to innovative solutions there can offer survival and growth opportunities to innovative start-ups. These examples are not enough to stimulate the replicability of this process. At our knowledge, the process of sensing and using leapfrogging opportunities in a given emerging market for survival and growth of innovative start-ups is not theorised. The proposed conceptual framework has as an objective to

contribute to closing this gap. A successful expansion of a start-up in an emerging market may eventually lead it to bring its validated, improved, adopted and even implemented innovative solution back home.

The design of the conceptual framework uses a scenario-planning like approach with two key factors, namely Context Readiness and Value Network integration. To test and refine the proposed framework and show its relevance for coming to an informed decision making, we used PAR (participatory action research). Dutch start-ups and stakeholders in Casablanca, Morocco, from healthcare sector were involved in the PAR. Using PAR, we could uncover that, for these cases, the use of Context Readiness and Value Network integration levels is necessary and sufficient for assessing the plausibility of emergence of leapfrogging opportunities and to decide on follow-ups. We learned that, the conceptual framework has to be used in two steps: a) at the given emerging market or a region in that market for a given sector, b) at the start-up level to assess the fitness of the leapfrogging opportunities for this start-up as policies and value networks integration may be different from case to case.

The proposed framework can be incorporated by start-ups managers and other practitioners and researchers into an internationalisation process design or in context-policy gaps analysis. As experienced in cases done so far, application of the framework, even at the level of the first cycles of a PAR (Piña et al., 2015), enriches the work on start-ups development in general and on the efforts for helping start-ups in arrested development status to survive and then to thrive.

While the relevance of the conceptual framework was demonstrated using start-ups in healthcare sector, it is designed to be robust enough to be used for different businesses from different sectors and in different contexts. We fully recognize the need for further work to refine the definition of the criteria used for the levels of Context Readiness and Value Network integration. It is to refine the accuracy of the prediction and the rigor of the framework. The PAR work is ongoing to achieve this.

It is important to mention that, beyond identifying an attractive expansion opportunity into an emerging market, entering a given emerging market as a start-up requires entering a value network in this market and considering institutional and resources aspects there. A process for doing this successfully was proposed by Khalil (Khalil, 2021).

Conclusion

With this work, we contribute to both knowledge and business development by proposing a conceptual framework that:

- Is a tool to be used by innovative start-ups or SMEs to sense and qualitatively assess the readiness of a given emerging market or a region in an emerging market to leapfrog to an innovative solution in a given sector. It can be used when considering expanding into an emerging market or when considering replicating a successful expansion realized in one emerging market in another emerging market.
- its two key factors, namely Context Readiness and Value Network Integration can be qualitatively considered as necessary and sufficient to come to an actionable result
- Is shown to be relevant and applicable to make informed decision prior to considering expansion into a given emerging market. This is expected to improve survivability of innovative start-ups or SMEs stuck in their own developed markets.

More work is ongoing to refine the pragmatic validity and reliability of the framework.

Table 2. Draft criteria used for the Context Readiness and Value Network Integration levels

	Context Readiness		Value Network Integration
	Policy	Payment	
High	Infrastructure, skills required for telehealth, policies for remote payment available	Healthcare coverage is widely available, and patients are able to pay for out of pocket care health costs	The members of the value network work together to optimise patient care. Ex. Pharmacists and clinical laboratories are integrated into the GP team.
Low	No policy related to or affecting Telehealth (Infrastructure, skills, payment)	No payment by third parties or alternatives to payment by cash	No direct interaction between Solutions providers , care providers , weak or no collaboration

Table 3. Results of the use of the conceptual framework for the four start-ups

Start-up	Patient Segment 1P	Context Readiness		Value Network Integration	Leapfrog Opportunity?	Actions worth taking
		Policy	Payment			
Tomas B.V.	Colorectal cancer	Medium	Low		Yes	Pilot, use early adopters
Avy	Rural, Mountainous and Remote: drug delivery, laboratory analysis	Low	Low	Low to Medium -	No	None
LIV	Cardiology, Atrial Fibrillation	Medium -	Medium +	Medium +	Yes, But	Pilot
HICA	CVA, Parkinson	Medium -	Medium	Medium +	Yes	V.P. Validation

CVA: Cerebral Vascular Accident ; V.P.: Value Proposition

References

Almojaibel, A. A., Munk, N., Goodfellow, L. T., Fisher, T. F., Miller, K. K., Comer, A. R., Bakas, T., & Justiss, M. D. (2020). Health care practitioners' determinants of telerehabilitation acceptance. International Journal of Telerehabilitation, 12(1), 43–50. https://doi.org/10.5195/ijt.2020.6308

Amankwah-Amoah, J. (2015). Solar Energy in Sub-Saharan Africa: The Challenges and Opportunities of Technological Leapfrogging. Thunderbird International Business Review, 57(1), 15–31. https://doi.org/10.1002/tie.21677

Avy. (2022). Last-Mile Medical Delivery. https://avy.eu/applications/lastmile-medical-delivery/

Baldwin, M. (2012). Participatory Action Research . In M. Grey, J. Midgley, & S. A. Webb (Eds.), The SAGE handbook of social work (pp. 467–482). Sage Publications.

Cavusgil, S. T., Knight, G., & Riesenberger, J. R. (2013). A Framework for International Business. Pearson Prentice Hall.

cbinsights. (2021, August 3). The Top 12 Reasons Startups Fail. Https://Www.Cbinsights.Com/Research/Startup-Failure-Reasons-Top/.

cbinsights. (2022, July 19). 422 startup failure post-mortems. Https://Www.Cbinsights.Com/Research/Startup-Failure-Post-Mortem/.

Chadli, S., Taqarort, N., el Houate, B., & Oulkheir, S. (2018). Epidemiological transition in Morocco (1960-2015). Médecine et Santé Tropicales, 28(2), 201–205. https://doi.org/10.1684/mst.2018.0800

Christensen, C. M., & Rosenbloom, R. S. (1995). Explaining the attacker's advantage: technological paradigms, organizational dynamics, and the value network. Research Policy , 24, 233–257.

Coster, H. (2011, January 31). Forget the Grid. Can Solar Power Light Africa? https://www.forbes.com/sites/helencoster/2011/01/31/forget-the-grid-can-solar-power-light-africa/?sh=780a2a586480

de León, R. (2020, May 27). Zipline, Novant Health launch the first long-distance emergency drone operation in U.S. to deliver PPE and medical supplies. https://www.cnbc.com/2020/05/27/zipline-novant-health-launch-us-drone-service-to-fight-pandemic.html

Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2022). Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19. https://doi.org/10.1596/978-1-4648-1897-4

Durlak, J. A., & DuPre, E. P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. American Journal of Community Psychology, 41(3–4), 327–350. https://doi.org/10.1007/s10464-008-9165-0

Eisenmann, T. (2021). Why Startups Fail: A New Roadmap for Entrepreneurial Success. Currency.

Fenwick, M. D., Kaal, W. A., & Vermeulen, E. P. (2017). Regulation Tomorrow: What Happens When Technology Is Faster than the Law? American University Business Law Review, 6(3).

Govindarajan, V., & Trimble, C. (2012). Reverse Innovation Create Far From Home, Win Everywhere. Harvard Business Review Press.

Greenhalgh, T. (2017). How to implement evidence-based healthcare. . Wiley Blackwell.

Greenhalgh, T., Wherton, J., Papoutsi, C., Lynch, J., Hughes, G., A'Court, C., Hinder, S., Fahy, N., Procter, R., & Shaw, S. (2017). Beyond adoption: A new framework for theorizing and evaluating nonadoption, abandonment, and challenges to the scale-up, spread, and sustainability of health and care technologies. Journal of Medical Internet Research, 19(11). https://doi.org/10.2196/jmir.8775

Institute of Medicine (US) Committee on Evaluating Clinical Applications of Telemedicine. (1996). Telemedicine : a Guide to Assessing Telecommunications for Health Care. In The Policy Context of Telemedicine (Vol. 4, p. 288). National Academies Press. https://www.ncbi.nlm.nih.gov/books/NBK45446/

Khalil, M. (2021). A process for start-ups growth through expansion into emerging markets. 6–23. https://doi.org/10.18418/978-3-96043-083-4

Khan, M. (2021, December 10). 20 Inspirational Reverse Innovation Examples in Business. https://insightandinnovation.com/20-inspirational-reverse-innovation-examples-in-business/

Knoblauch, A. M., De La Rosa, S., Sherman, J., Blauvelt, C., Matemba, C., Maxim, L., Defawe, O. D., Gueye, A., Robertson, J., McKinney, J., Brew, J., Paz, E., Small, P. M., Tanner, M., Rakotosamimanana, N., & Grandjean

Lapierre, S. (2019). Bi-directional drones to strengthen healthcare provision: Experiences and lessons from Madagascar, Malawi and Senegal. BMJ Global Health, 4(4), 1–10. https://doi.org/10.1136/bmjgh-2019-001541

Levy, M. G. (2022, April 21). Drones Have Transformed Blood Delivery in Rwanda. https://www.wired.com/story/drones-have-transformed-blood-delivery-in-rwanda/#:~:text=In%202016%2C%20Rwanda's%20government%20signed,to%20the%20health%20care%20facility.

Lindgren, M., & Bandhold, H. (2009). Scenario planning: The link between future and strategy. Basingstoke, Hampshire: Palgrave Macmillan.

Malodia, S., Gupta, S., & Jaiswal, A. K. (2020). Reverse innovation: a conceptual framework. Journal of the Academy of Marketing Science, 5(48), 1009–1029. https://doi.org/10.1007/s11747-019-00703-4/Published

Ministère de La Santé. (2018). La couverture médicale de base au Maroc bilan d'étapes et perspectives. https://www.sante.gov.ma/Documents/2018/04/presentation%20JMS%202018.pdf

Netcomm Suisse Observatory, & UNCTAD. (2020). COVID-19 and E-Commerce. Findings from a survey of online consumers in 9 countries.

Piña, I. L., Cohen, P. D., Larson, D. B., Marion, L. N., Sills, M. R., Solberg, L. I., & Zerzan, J. (2015). A framework for describing health care delivery organizations and systems. American Journal of Public Health, 105(4), 670–679. https://doi.org/10.2105/AJPH.2014.301926

Ringlad, G. (1998). Scenario planning: managing for the future. Chichester, New York: John Wiley & Sons.

Rogers, E. M. (2003). Diffusion of Innovation. Free Press.

Schanz, K.-U. (2019). Healthcare in Emerging Markets: Exploring the Protection Gaps. www.genevaassociation.org

Schmidt-Scheele, Ricarda. (2020). The Plausibility of Future Scenarios: Conceptualising an Unexplored Criterion in Scenario Planning. Transcipt Verlag. https://doi.org/10.14361/9783839453193-004

Stremersch, S., & van Dyck, W. (2009). Marketing of the life sciences: A new framework and research agenda for a nascent field. Journal of Marketing, 73(4), 4–30. https://doi.org/10.1509/jmkg.73.4.4

Tomas, B. V. (2021). Product. https://tomas.care/product-en/

van der Heijden, K. (1996). Scenarios: The art of strategic conversation. Chichester: John Wiley & Sons.

van Gemert-Pijnen, L., Sanderman, R., Kelders, S. M., & Kip, H. (2018). eHealth Research, Theory and Development: A Multi-Disciplinary Approach. Routledge, Taylor and Francis group.

Wade, W. (2012). Scenario Planning: A Field Guide to the Future. Hoboken, N.J.: John Wiley & Sons.

Yayboke, E. (2020). The Need for a Leapfrog Strategy. csis.org/analysis/need-leapfrog-strategy

Zanaboni, P., & Wootton, R. (2012). Adoption of telemedicine: From pilot stage to routine delivery. BMC Medical Informatics and Decision Making, 12(1). https://doi.org/10.1186/1472-6947-12-1

Zerrour, L. (2021, June 16). Carte sanitaire au Maroc : Ces chiffres à retenir…. Aujourd'hui Le Maroc . https://aujourdhui.ma/societe/carte-sanitaire-au-maroc-ces-chiffres-a-retenir#:~:text=Au%20total%2C%20le%20Maroc%20compte,10.000%20%2F36.000.000).

Creating Internships in the Absence of the Private Sector

Margareth Gfrerer
Ethiopian Ministry of Education
Ethiopia
email: Margareth.gfrerer@cimonline.de

Ephrem Tekle Yacob
Kotebe University of Education
Ethiopia
email: ephr1981@gmail.com

Efa Gobena, Afework Getachew & Biruktawit Megersa
German International Cooperation (GIZ)
Ethiopia
email: efa.gobena@giz.de

Abstract

The differentiation of the higher education sector in Ethiopia has created a new sector of Higher Education Institutions: Universities of Applied Sciences (UAS). Its focus is on educating academically trained experts for regional industries. Close cooperation between industries and UAS is set as a key requirement. However, Ethiopian industries in many regions are not developed enough that those could be considered as active partners for UASs and able to accommodate interns or to provide expert teachers to UAS classes.

European UAS structures serve as benchmarks for the Ethiopian Ministry of Education (MoE). Therefore, UAS curricula of study programmes in building-construction, electro-engineering and economic/business/tourism from different European countries build a common ground for Ethiopian UASs. But, due to the lack of industries in the regions, Ethiopian UAS are not able to mirror the European counterparts, where study programmes at bachelor level comprise 70 credits out or 210 credits as practical works, internships and bachelor thesis. - The question is, how can Ethiopian UASs in the absence of companies offer practice-oriented education in their study programmes?

This paper refers to the ongoing research, on how to integrate UAS (academic and non-academic) departments at UAS campuses to create internship placements for students in the absence of internship placements in the private

https://doi.org/10.18418/978-3-96043-104-6_157

sector. Kotebe University of Education (KUE) - as one of the newly founded UAS in Ethiopia - has agreed to act as subject of this try-out.

Keywords: university of applied sciences, internships, in-campus internships

Background

The differentiation of the higher education sector in Ethiopia has created a new sector: the Universities of Applied Sciences (UAS). Its focus is on educating academically trained experts for regional industries. Close cooperation between industries and UAS is set as a key requirement. However, Ethiopian industries in many regions are not developed enough that those could be considered as active partners for UASs and able to accommodate interns or to provide expert teachers to UAS classes.

European UAS structures serve the Ethiopian Ministry of Education (MoE) as benchmarks. Therefore, UAS curricula of study programmes in building-construction, electro-engineering and economic/business/tourism from different European countries build the common ground for Ethiopian UASs. However, the Ethiopian industries in the regions are not able to mirror European counterparts and to provide practical trainings and internships in the extend of 70 credits out or 210or 240 credits.

Insight to the macro-economic situation provides the Report on Large and Medium Scale Manufacturing and Electricity Industries Survey (Statistical Bulletin 2017, p. 57) where the distribution of large and medium scale manufacturing industries – both, public and private by regional state and industrial group are indicated. A total number of 3,596 large and medium scale manufacturing industries is reported in 2015/16 (2008 E.C.). About 37% of the manufacturing industries were located in Addis Ababa followed by Oromia with more than 27% of the industries. More than 23% of the manufacturing industries are aligned in the category of food products and beverages followed by non-metallic mineral products with about than 18% and the furniture industry with more than 12%.

The Ethiopian large and medium scale manufacturing and electricity industries as well as the hospitality industries face the request of 251,000 students (student number in 2020/21 at from year 1 to year 4 at universities differentiated as UAS and reported by the Ethiopian Ministry of Education), who are looking for internships.

The question is, how can Ethiopian UASs in the absence of companies offer internships - practice-oriented education - in their study programmes?

This research will work on the macro-economic structure of Ethiopia and considerations, on how to provide a practice-oriented education, while companies are not available in the number to accommodate students for a one-semester internship.

Literature

a. Definitions of Internships

According to the National Association of Colleges and Employers (NACE), "an internship is a form of experiential learning that integrates knowledge and theory learned in the classroom with practical application and skills development in a professional setting. Internships give students the opportunity to gain valuable applied experience and make connections in professional fields they are considering for career paths; and give employers the opportunity to guide and evaluate talent."

The Bellevue College adds that "it [the internship] is structured and supervised professional experience, within an approved agency, for which a student earns academic credit. It is guided by learning goals and supervised by both academic and agency personnel." In contrary to the internships outside of the college there is the Academic Internship Program at Bellevue College (BC), which is described as follows: "that [the internship] allows students to earn course credit while working and learning in a professional environment. Students are able to apply the knowledge they have gained in the classroom in a work setting, thus enriching their learning experience."

The Edgewood College refers to an internship as "a form of experiential learning that integrates knowledge and theory learned in the classroom with practical application and skills development in a professional or community setting. Internships provide resources, equipment, and facilities that enable students to gain experience in a professional work environment and provide students with skills or knowledge that are transferable to other settings.

Internships with defined learning objectives, professional supervision and opportunities for reflection offer valuable enriched learning experiences."

Internship Definition at the Edgewood College Career Development "is a form of experiential learning that integrates knowledge and theory learned in the classroom with practical application and skills development in a professional or community setting. Internships provide resources, equipment, and facilities that enable students to gain experience in a professional work environment and provide students with skills or knowledge that are transferable to other settings. Internships with defined learning objectives, professional supervision and opportunities for reflection offer valuable enriched learning experiences."

American Association of Colleges and Universities defines internships as "an increasingly common form of experiential learning. The idea is to provide students with direct experience in a work setting—usually related to their career interests—and to give them the benefit of supervision and coaching from professionals in the field. If the internship is taken for course credit, students complete a project or paper that is approved by a faculty member."

In Great Britain WikiJob presents the internship understanding in the following: "an internship is an opportunity offered by an employer to potential employees, called interns, to work at a firm for a fixed period of time. Interns are usually undergraduates or students, and most internships last between a month and three months. Internships are usually part-time if offered during a university semester and full-time if offered during the vacation periods. Summer internships usually last for eight weeks. Some internships may include periods spent abroad, on secondment, or in more than one office. An internship should give [interns] practical skills, experience and greater knowledge of an industry, in exchange for the employer benefiting from your labour. With the emphasis firmly on training, internships give students real-life experience of the workplace and field they hope to break into."

National Institute for Learning Outcomes Assessment (2017) structures internships into three models:

- the "apprenticeship" model: learning to perform the practiced activity is itself the intended outcome, and the activity is conceived as something that can only be learned fully and adequately by doing.
- the "application" model: work–based learning as an application of a body of knowledge or a discipline that should be learned first in an academic environment.
- the "service-based" model, internships intersect importantly with the objectives of public service, civic engagement and service-learning.

The University of Bremen in Germany states that "the term internship usually refers to a temporary employment which students complete as part of their curriculum in order to gain practical experience. "

The CBS International Business School advocates internships by indicating that „for many students, internships are both mandatory and valuable. They [the internship] show you what the professional world is like and what you can expect later. Here you can already gain your first work experience during your studies and also make useful contacts in professional life."

b. Impact of Internships

b.1 Students

The NACE (2018) Student Survey shows that "Students feel that their experiential education assignments have a positive impact on their career readiness competencies ".

Galbraith and Mondal (2020) refer to the 7 NACE criteria which need to be considered for internships. These criteria demonstrate the benefits for the students to apply for internships:

- The experience must be an extension of the classroom: a learning experience that provides for applying the knowledge gained in the classroom. It must not be simply to advance the operations of the employer or be the work that a regular employee would routinely perform.
- The skills or knowledge learned must be transferable to other employment settings.
- The experience has a defined beginning and end, and a job description with desired qualifications.
- There are clearly defined learning objectives/goals related to the professional goals of the student's academic coursework.
- There is supervision by a professional with expertise and educational and/or professional background in the field of the experience.
- There is routine feedback by the experienced supervisor.
- There are resources, equipment, and facilities provided by the host employer that support learning objectives/goals.

b.2 Organisations

The benefits for the hosts of interns the Greater Baltimore Committee (GBC) lists as the following:

- Interns can complete project work and increase organization's productivity.
- Begin training the organization's future workforce.
- Internship programs are cost effective.
- The presence of interns provides an opportunity for mid-level staff to learn to manage since they are typically responsible for day-to-day direction of interns.
- Interns can bring the newest technology from the classroom into your company or organization.
- Interns can be another source for the recruitment of diverse employees into your company or organization.

Methodology

This research is based on the results of a 1st survey at the Kotebe University of Education and focues on whether in-campus internships is an idea that should be explored in a wider extend for Ethiopian UAS.

Macro-economic data applied in this research derives from internet research. Interviews with 7 heads of department who see potentials to offer internship placements were conducted face-to-face at the Kotebe University of Education, Addis Ababa/Ethiopia. The interviews followed a structured questionnaire that allowed more than one answer and included questions such as:

- What is your understanding of the Internship Programmes?
- What kind of activities your unit could undertake to implement/Initiate this program
- Will your department be able to take in interns?
- What tracking methodology are you applying to monitor the quality of implementing assigned work?
- How can you improve what are you doing within the internship programme?
- What and how does the unit contribute to the development and growth of the institution?

Results and Implications

a. Survey Answers

The following is an overview of answers collected and edited to the given questions.

What is your understanding of the Internship Programmes?

Figure 1:

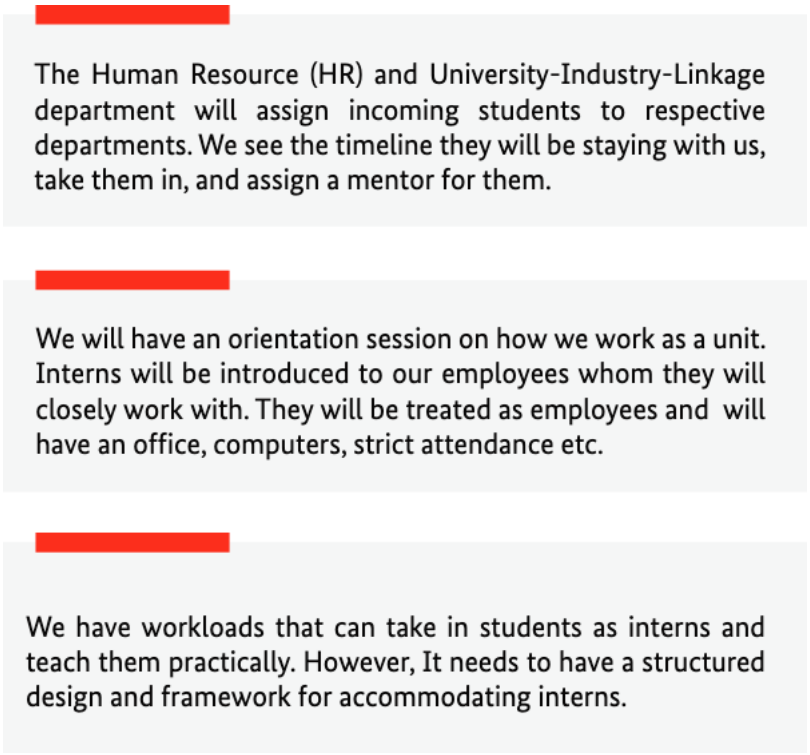
Source: Survey Data on In-Campus Internships, 2022

What kind of activities your unit could undertake to implement/Initiate this programme?

Note: Some Departments at KUE have experience from incoming students doing an internship from other colleges.

So far, KUE students are not applying for in-campus internships.

Figure 2:



Source: Survey Data on In-Campus Internships, 2022

Will your department be able to take in interns?

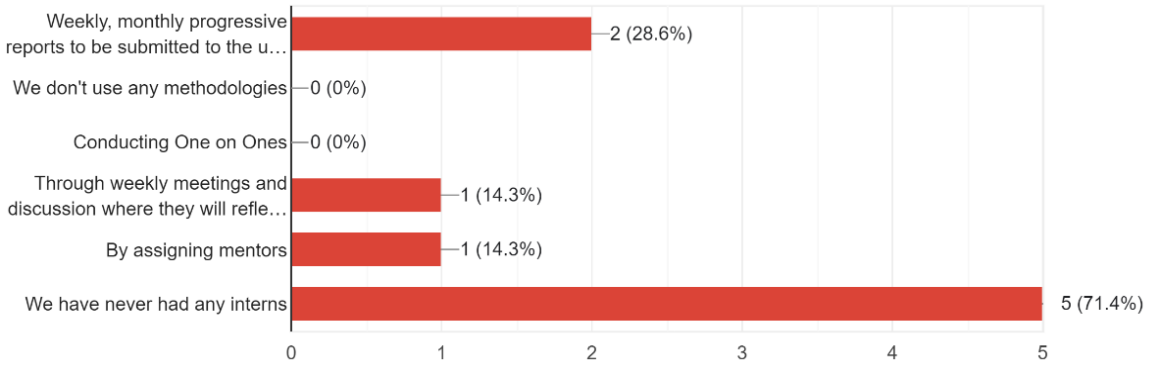
All department heads are welcoming the possibility to accommodate interns.

What tracking methodology are you applying to monitor the quality of implementing assigned work?

- Incorporate the interns in the weekly and monthly reports which are shared with the sending colleges.
- Mentors are assigned for the interns.
- Weekly meetings with the interns to reflect on their learning and experiences.

How can you improve what are you doing within the internship programme?

Figure 3:



Source: Survey Data on In-Campus Internships, 2022

What and how does the unit contribute to the development and growth of the institution?

- Bringing the best talents to the university.
- Contributing to the development of the institution by laying-out how "we" can deliver quality education

b. Implications (theoretical and practical/managerial implications)

The interviewees are seeing the idea of organising internships for students as very beneficial and are prepared to cooperate in such an endeavour. However, guidance and structure are requested. Additionally, there is the

suggestion that the internships will be conducted during the academic year that students could use the campus facilities.

Overall, the UAS curriculum foresees 30 credit hours for practical (experiential) "learning/teaching". This time budget is formally set. On the other side there is the situation that currently Ethiopia has not enough industries able to accommodate interns for "experiential learning". Due to the fact that Ethiopian industry structure counts 115,200 micro- and small-sized enterprises in 2020/2021 (New Business Ethiopia, 2022) with an average of 5.08 people as well as 3.596 large and medium-sized enterprises with in average 76.88 people on their payrolls - there are not enough "quality" internship placements available in companies. In the academic year 2013 Ethiopian Calendar (2020 Gregorian Calendar) 53,533 students have started in the 1st year in one of the 15 UAS. Taking this number and assuming that some study programmes foresee the internship in semester 5 and others in semester 6, overall, 26,000 (some students might drop-out) internship placements are requested per semester. In this calculation there is no consideration about the different kind of disciplines. This paper is focusing primarily on the numbers of placements needed for UAS students, while students from research and comprehensive universities are also competing for the same internship placements. In a next step the research will focus on internship placements for the different economic sectors. - If in-campus internships at UAS are possible, this would ease the situation and take-off the stress from the shoulders of the university-industry-linkage managers.

With reference to the general understanding of "internships" as "experiential" learning interns are learners and should not take over the responsibilities of employees. Micro- and small-sized enterprises might not have the expertise working with interns and would need guidance in how to accommodate "learners". While the large and medium-sized enterprises might have already a certain experience in working with interns and screening interns as potential labor force in the future.

UAS departments might step in as alternative partners of the private sector for "experiential learning" and mirror the private sector on the campus. However, this implicates that UAS department heads need to start thinking like managers from the private sector. International Universities are reporting that university managers started with projects for the department that interns from different cohorts and disciplines have designed, implemented and eventually managed. In general, interns are conducting desirable work, for which the employed staff never has time.

Managerial-wise the UAS should work on the benefits for the organization when working with interns. Like many USA universities and internship promoters such as the Greater Baltimore Committee (GBC) have elaborated a handbook and published that on the Townson University website under the title "Developing an Internship Programme – Step-by-Step customized approach". The presented GBC internship process can be structured in the following:

1. The needs assessment with the question for assistance - preferably to work on topics, which the department sees as interesting or important, but has not the human resource available to work this specific topic.
2. The job description and recruitment process which will not differ much from the regular recruitment process with the committee composed of a human resource expert, the head of department, often future mentors and supervisors are joining the recruitment committee.
3. The selection of interns and preparation of their contracts.
4. The preparation of the workplaces. From the first day onwards, the mentors are the key persons for the interns. The supervisors are in charge of the work-related issues and will set jointly the goals, the intern should/wants to achieve during the internship.
5. The cooperation agreement (goals to be achieved during the internship) signed by supervisor and the intern.
6. The assessment processes on the improvement of knowledge, skills and attitude during and at the end of the internship.
7. The final evaluation that also includes a self-assessment by the intern in order to see the learning process.

Conclusion

Curricula of UAS incorporate practical sessions in the extend of 30% of the credits. This internship is part of the curriculum in all UAS study programmes and is widely understood as an experiential learning process that exposes learners to the real world of work. Interns apply for internships in the same way as potential employees based on a call for applications. Companies and organisations recruit interns based on job descriptions prepared by the respective

departments together with the human resource and university-industry-linkage departments. Chambers of commerce should be invited as advisory bodies in order to define the job descriptions, recruitment processes and the assessments of the interns' learning as well as the UAS departments' performance as the providers of the internships in the notion of the private sector.

For each intern a mentor and a supervisor should be assigned to guide the intern through the internship and the experiential learning challenges.

In case of UAS in-campus internships, the situation of the interns should not differ much from the situation in a private sector organization. However, the UAS administration will face changes. Guidelines and structures for accommodating interns need to be elaborated and implemented. Departments have to create job descriptions for potential interns in the way to meet the requirements of private sector-like internships. University managers require business-like thinking in order to mirror the private sector.

It is widely mentioned that interns should not take over the work of regular employees but should primarily work on topics not captured by the regular staff. They should work on topics such as re-organization/re-engineering of processes in laboratories, on projects for community collaboration, on innovative ideas for the department, on potentials for industry collaboration or in international projects as assistants or as assistants in proposal writing for national and international funding, etc.

Overall, UAS in-campus internships would allow UAS students to get exposed to the real world of work during their education, while companies don't have the potential to accommodate the requested number of interns. However, internships in companies still should be seen as the 1st choice for UAS students' internships.

References

- American Association of Colleges and Universities; retrieved from: https://www.aacu.org/trending-topics/high-impact
- Bellvue College; retrieved from: https://www.bellevuecollege.edu/internships/welcome-student-and-community-members/
- CBS International Business School; retrieved from: https://www.cbs.de/en/blog/internship-in-germany

- Edgewood College Career Development; retrieved from: https://www.edgewood.edu/docs/default-source/careers-docs/edgewood-college-internship-definition.pdf?sfvrsn=c48ecf8e_4
- Greater Baltimore Committee (GBC): Developing an Internship Programme – A Step-by-Step Customized Approach; retireved from: https://www.towson.edu/careercenter/media/documents/employers/gbc_handbook_developing_an_internship_program_for_employers.pdf
- Galbraith, D., Mondal, S. (2020): The Potential Power of Internships and The Impact on Career Preparation; in: Research in Higher Education Journal, Vol. 38; retrieved from: https://files.eric.ed.gov/fulltext/EJ1263677.pdf
- National Association of Colleges and Employers (NACE); retrieved from: https://www.naceweb.org/career-development/internships/
- National Association of Colleges and Employers – NACE (2018): Students Internships Positively Impact Competencies; retrieved from: https://www.naceweb.org/career-readiness/internships/students-internships-positively-impact-competencies/
- New Business Ethiopia (2022): A Glance at the Manufacturing Industry of Ethiopia; retrieved from: https://newbusinessethiopia.com/ethiopianproductscatalog/investment-tips/a-glance-at-the-manufacturing-industry-of-ethiopia/
- Statistical Bulletin (2017): Report on Large and Medium Scale Manufacturing and Electricity Industries Survey; retrieved from: https://www.statsethiopia.gov.et/wp-content/uploads/2019/06/Large-and-Medium-Manufacturing-Industry-Survey-Report-2017.pdf
- The Federal Democratic Republic of Ethiopia - Central Statistical Agency (2017): Report on Large and Medium Scale Manufacturing and Electricity Industries Survey - Statistical Bulletin; retrieved from: https://www.statsethiopia.gov.et/wp-content/uploads/2019/06/Large-and-Medium-Manufacturing-Industry-Survey-Report-2018.pdf
- University Bremen; retrieved from: https://www.uni-bremen.de/en/career-center/counselling/internship-in-germany
- UCONNECT; retrieved from: https://cdn.uconnectlabs.com/wp-content/uploads/sites/68/2019/10/NACE-Position-Statement-Internships.pdf
- WikiJob; retrieved from: https://www.wikijob.co.uk/internships/advice/what-internship#what-is-an-internship

A qualitative investigation of doctoral students experience with mobile devices

Kwaku Anhwere Barfi & Christopher Kwame Filson
University of Cape Coast
Cape Coast, Ghana
email: kwaku.barfi@ucc.edu.gh
email: cfilson@ucc.edu.gh

Abstract

Mobile technologies have evolved into the means of gaining access to information for learning. Its application in higher education is still a novel concept, particularly in underdeveloped countries. This study is aimed at exploring the views of doctoral students regarding their learning experiences with mobile technologies. Student focus group interviews of 24 doctoral students from 3 different academic institutions were interviewed. The participants' responses were recorded, transcribed, and analyzed to make conclusions. According to the findings of this study, mobile devices play an important part in the learning experiences of doctoral students. The participating students engaged in collaborative learning using mobile technologies. Given the benefits of adopting mobile technologies for learning activities, academic institutions should focus on teaching faculty members to use this to involve students in their learning process. The implications of this study call for the continued advancement of mobile technologies to facilitate effective learning experience for the multitude of mobile learners in developing countries. Another implication is that academic institutions with collaboration with libraries should see the need to develop user friendly mobile app that is linked to the library management system. Such an application would allow the students to optimally use their smartphones and tablets to search the library's resources from their mobile devices. Training should be offered to the teaching faculty members to come to terms with the benefits of mobile technologies for learning activities.

Keywords: Mobile technologies, learning experience, doctoral students, information sharing, ease.

https://doi.org/10.18418/978-3-96043-104-6_169

Introduction

Today's information users appear to be technologically savvy (Shonhe & Jain, 2017). There is a plethora of smartphone and tablet applications available that can help students with their information demands and facilitate research (Fritschi & Wolf, 2012). As these technologies advance, students will require support in learning how to properly search for information. Students can search for information in university programs that use mobile technologies. Because of advancements in mobile technologies, most students not only own many mobile devices (Vázquez-Cano, 2014), but now most students use these technologies in their academic lives as well (Barfi, Arkorful & Abaidoo, 2021; Chen & deNoyelles, 2013).

When it comes to learning opportunities, Kim and Frick (2011) believe that the usage of mobile devices can help students learn more effectively. According to Al-Fahad (2009), research on students' adoption of mobile learning shows that they are becoming active learners who have a lot of influence over their learning activities. It's fascinating to see how mobile technologies are influencing students' learning styles. Mobile technologies appear to play an important part in doctoral students' learning experiences. Doctoral students can benefit from collaboration enabled by mobile technologies. Schuler, Hutchins, and Lashell (2012) define collaboration as the state in which students use mobile devices to share academic-related information with colleagues. Users can exchange learning resources and even revise their colleagues' assignments with the use of mobile technologies (Kiryakova, 2017).

Mobile technologies continue to provide diverse learning options for students. Mobile technologies not only reduce the time of getting information but also provides a platform for information sharing and collaborative learning which add new dimensions to students learning experience (Miller & Doering, 2014). The use of mobile devices currently plays amazing roles in terms of teaching and learning. For instance, students can use learning management systems to easily access information online to satisfy their information needs, access academic databases, and a website, to name a few. They can also access their lecture materials on their mobile device. This was made clear in the works of Masiu and Chukwuere (2018), who claimed that students' life has been made easier by mobile devices because they may access course materials on them. Despite these contributions of mobile technologies to students learning, little is known about how such contributions influence doctoral students learning experiences in Ghana. To increase the rate of information consumption for purpose of academic and policy innovations, doctoral students should be able to learn anywhere and at any time at their own pace (Khaddage & Lattemann, 2013). The question that arises is whether doctoral students are exploiting mobile technologies to achieve their learning experiences or potential in Ghana.

Additionally, the advent of mobile technologies has occasioned the use of social networking sites which promotes information dissemination. Within the educational sector, these social networking sites are being used for collaborative learning or information sharing. Libraries are developing mobile application platforms to help in information retrieval (Burford & Park, 2014; Vandi & Djebbari, 2011). How well are these platforms contributing to the learning experience of doctoral students in Ghana?. As a result, it's critical to examine how mobile technologies are contributing to the learning experiences and how these students (doctoral) are exploiting the mobile technologies to advance collaborative learning and information sharing.

The study aimed to address the following research objectives:

1. To acquire a better understanding of doctoral students' learning experiences with mobile technologies.

2. To examine how mobile technologies ease information sharing among doctoral students.

Literature Review

This section examines some of thematic concepts pertaining to students' experience with mobile devices for learning. This includes mobile technologies, the advantages of mobile technologies, social media technologies and construct created to address the use of mobile devices for learning.

Mobile technologies

Mobile technologies can be thought of as internet enablers that employ mobile devices to store, identify, and transport information for consumers (Vandi & Djebbari, 2011). As a result, Kim, Mims and Holmes (2006) define "mobile technologies" as the various types of mobile devices available. The term 'mobile technology,' according to them, refers to several gadgets (such as smartphones, tablets, PDAs, iPods, and laptops) that allow users to access data and information from any location. Similarly, Elkins, Hwang, Kim, Manolovitz, Mueller and Owens (2020) observed that while looking for information on mobile devices, consumers are not restricted to specific times or locations.

Advantages of mobile technologies

Users benefit from some features of mobile technology. The device's mobility, simplicity, and availability are among the characteristics noted by Khaddage and Lattemann (2013). Short, Linn, Merianos, Burke, and Upperman (2014) avers that these mobile technology properties or characteristics enable quick and dependable access to a variety of information on the Internet. Given these characteristics, mobile technologies have enormous potential to improve learning. According to Barfi, Bervell, and Arkorful (2021), the use of mobile technology in the classroom has made learning more personalized and self-directed. Chang (2013) supports this viewpoint, observing that users used mobile devices to browse, search, and receive library services without regard to location. This occurs when users access learning management platforms for the study material via their mobile devices.

Mobile technologies, according to Yeboah, Nyagorme, and Barfi (2020), offer access to information. These mobile devices can also be used to gather and disseminate information knowledge. Mobile technologies, according to Saxena and Yadav (2013), function as the primary point of contact for users seeking and sharing information with the aid of technology. Meyer (2016) claims that technical devices let users design and customise online information searches, as well as create an interface to fit their information needs.

Mobile technologies have the potential to be a useful tool for promoting collaborative learning (Barfi, 2020). Students can share their knowledge and experiences with their peers through collaborative learning. Students in a collaborative atmosphere, according to Burford and Park (2014), can obtain academic information for optimal learning. This form of learning can help kids develop critical thinking skills and gain confidence in expressing their thoughts and opinions (Phongtraychack & Dolgaya, 2018).

Users can also explore library databases on their mobile devices for information that will help them complete academic assignments like presentations and personal research. It was revealed that students are involved in a wide range of responsibilities. These responsibilities include completing a take assignment, preparing for discussions,

writing an academic paper and preparing for a conference. To perform such activities, students can use mobile devices to access learning management services or institutional repositories for academic-related information.

Social media technologies

Users can share information using social media technologies (Akeriwe, 2013). Social media technologies, according to Sharma and Godiyal (2016), are internet-based platforms that foster user communication, content exchange, and cooperation. This type of service, according to Akeriwe (2013), enables users to browse and search for online information. Examples of social media technologies are Google team, Zoom, WhatsApp, Microsoft teams and Facebook group chart.

Construct created by authors to address the use of mobile devices for learning

In today's world, mobile devices have a big impact on how people share information.

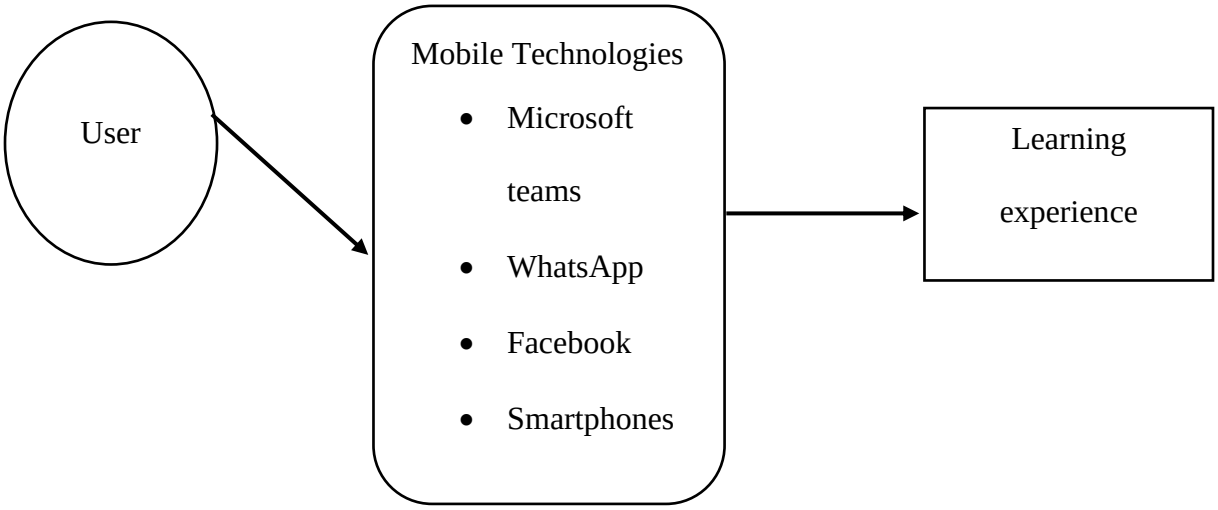


Figure 1: Graphical representation of mobile technologies and students' learning experience

Figure 1 gives a summary representation of doctoral students learning experience within the context of mobile technologies. From the diagram, it could be observed mobile technologies intermediate doctoral students (users) and their learning experiences.

Methodology

This study adopted a basic interpretive qualitative study developed by Merriam (2009) to understand the learning experiences of doctoral students who use mobile technologies in their studies. In this study, participants' information was gathered through interviews. The researchers employed an inductive research style, and the research findings are descriptive. Through analysing the data inductively, repeated patterns were identified. Finally, comprehensive and descriptive research findings were discussed following past issues developed by Merriam. Thus, in-depth face-to-face focus group student interviews were conducted to collect their views on mobile technologies for learning.

Sample

To align the student use of the mobile device for learning, the researchers adopt the Gikas and Grant (2013) requirement of mobile computing device characteristics. In terms of the context of the research, the researchers followed Gikas and Grant's (2013) approach with some customization. The study invited doctoral students from the University of Cape Coast (UCC), the University of Ghana (UG), Legon, and the University of Education, Wineaba (UEW). A purposive sampling technique was adopted in selecting these 3 Universities from Ghana. The researchers observed 24 doctoral students utilizing mobile technologies for instructional purposes. The respondents were selected based on their experiences of using mobile technologies for academic-related activities. This technique is similar to that of Grundmeyer (2012). He used participants' experience as a factor in selecting volunteers for his study. The doctoral students were asked to participate in focus group interviews to provide their thoughts on mobile learning.

The focus group interviews were conducted following Krueger and Casey's focus group interview criteria (2009). Participants in the same programme were arranged in groups and the interviews were also audio recorded. Since the sampled participants come from different universities, the 24 participants were grouped into three with 8 from each of the three locations. A week before the interview day, each group's interview schedule was created. Before the interview session, each student was given the interview questions. This made the interview go more smoothly and in less time. All of the interviews were audio-recorded using sound recording devices. The audio recordings are subsequently transcribed into transcripts, which can be read again and coded for analysis.

To make the data more comprehensible, it was summarized and relevant categories were identified and kept in files. The researchers eliminated probable data inaccuracies throughout this stage of the analysis. The derived data were categorized and summarized according to the relevant themes.

Data analysis

The analysis in this study attempts to narrate and interpret the students' views about this phenomenon. The Gikas and Grant (2013) qualitative data analysis approach was used by the researchers, who used inductive data analysis to create themes and categories from the 'bottom-up' to organize the data into a more abstract form of information.

To obtain a complete comprehension of the content, it was read several times. Rereading the manuscript and comparing it to the recorded interviews assisted the researchers in organizing and editing the statements made by the participants. To make it easier to manage, the obtained data were summarized, and relevant categories were recognized and saved in files. The researcher eliminated potential flaws in the data throughout this stage of the analysis. The derived data were classified and summarized based on the pertinent themes. The empirical findings were provided following the study's research objectives.

Trustworthiness

Data triangulation was used to increase the data's credibility, as the interviews were supplemented by documentary data. Furthermore, participants were chosen from several university departments so that perspectives on the same issues could be easily cross-checked, enhancing the accuracy and reliability of the findings.

Findings

The goal of this part is to present empirical evidence on how doctoral students use mobile technologies for learning and how mobile technologies facilitate information sharing. Mobile learning entails the use of learning-enabled mobile devices. Mobile devices used for learning must be able to connect to other devices to give instructional content and allow students and instructors to exchange ideas. This indicates that mobile learning occurs when users have the means and ability to use their mobile devices in conjunction with other interconnected gadgets.

Research Question 1: What are the learning experiences of doctoral students in the use of mobile technologies for learning?

Doctoral students learning experiences may be influenced by mobile technologies. When asked about their experiences searching for information on their smartphones or tablets, most of the participants answered that they have been using them for a long period. As a result, they have the requisite technical knowledge and skills to conduct effective information searches using these devices. Six of the participants, namely Participants #A, #B, #F, #H, #J, and #N, responded to this question by saying: "I have been using smartphones and tablets in information seeking for some time now; even from my undergraduate days and I'm very conversant with using my smartphone in searching for information in all areas."

Participant #O, on the other hand, believes he is an expert at utilizing a smartphone to find academic and non-academic material. When it comes to searching for information, he claims to be an expert at utilizing his smartphone and tablet. Participant #O agreed with Participant #K when he claimed that he knows how to use his mobile device for information searches. In furtherance of the remarks of Participants #K and #O, Participant #E stated that she was familiar with the usage of mobile technologies when looking for information.

Participants #C, #D, #M, #P, #T, and #Y, on the other hand, claimed that they can download any information they require from online journals, e-books, online dissertations and theses, and other e-resources using their smartphone. Similarly, Participant #Q said she uses her mobile device to connect to the Internet and enters or writes "certain terms to obtain varied outcomes." She then checks through the results she's retrieved, downloading what she requires and saving the sources she's chosen for later use. "I plan and structure my searches," participant #S continued. I begin by downloading the articles, then sit down and look through them to preserve the important ones." Mobile technologies were used to complete these downloads. Some of the participants saved the downloaded information on their Google Drives (to which they had access on their mobile devices, such as smartphones and tablets) for future use after downloading the information they needed.

It was discovered that users access learning management platforms for study materials via mobile devices. Mobile devices, according to the participants' comments, made it easier for them to move around while still being able to view study-related content on their devices.

Research question 2: How do mobile technologies ease information sharing among doctoral students?

The major goal is to determine whether mobile technology can be leveraged to facilitate information sharing. It was revealed that the participants used a familiar platform to share information in real-time using their

mobile devices and tablets. When looking for information, the participants' responses suggested that they collaborate with their peers. Participants #K, #M, #P, and #S are the best at explaining this. They claim that if they don't understand anything, they asked their friends for explanations and clarifications, who then explain it to them. In turn, Participant #J disclosed that she prefers reading in her room, but that if she doesn't understand something, she turns to her classmates for help by using a shared social media platform where they discuss subject-related concerns.

Similarly, Participant #G mentioned that when a colleague wants to offer a journal article as a potential source of information, a mobile communication software like WhatsApp makes exchanging information very simple. Using WhatsApp assists her in obtaining additional information to better comprehend the subjects and problems she finds challenging in her education. This is due to the fact that she can discuss academic concerns with her peers. She mentioned that her academic colleagues had varying levels of experience and knowledge of the subject and that they utilize their mobile devices to post comments and discuss various topics on social media. She also emphasized the importance of holding such debates on a unified platform.

Information services that enable the transmission of data from one end device to the other are also deployed via mobile technology. Based on the empirical data, it was discovered that mobile technology lets the students cooperate and share knowledge more easily. The method in which the participating students were able to exchange knowledge and ideas demonstrates the relationship between mobile technologies and collaboration. The flow of information from one information user to another is made easier with the introduction of mobile technologies (mobile applications like WhatsApp).

Discussion

The empirical data gathered from the doctoral students are presented in this section. The findings revealed that the doctoral students who took part in the study had learning experiences with mobile technologies when searching for information. The participants' responses indicated that mobile technologies play a significant role in the learning experiences of doctoral students. Mobile applications have been discovered to make mobile learning easier. Mobile technologies, according to empirical evidence, have mobile applications that aid students in their learning experiences. For this reason, the participants are required to be able to connect to the Internet. Similar findings were discovered by Qayyum and Smith (2015). They discovered that students might use their mobile devices to connect to the Internet and search for information. Students looked to be at ease using these electronic resources for learning, according to them and Elkins et al., (2020). The replies of the participants are comparable to those recorded by Barfi (2020). He stated that the chances that people have when searching the Internet for information on their mobile devices have made mobile technology the ideal information resource for learning. Students thought using mobile devices to seek information was very useful and appropriate, according to these researchers. Furthermore, students' ability to download material for learning has improved as a result of employing mobile devices to seek information (Barfi, Bervell & Arkorful, 2021; Omidian, 2011). As mobile technologies advance and become more accessible to all students, the number of students who use them will rise. Doctoral students will have additional possibilities to learn when they are exposed to and use mobile learning environments.

Mobile technologies are also used to deploy information services that facilitate the transfer of data from one end device to another. According to the empirical data, mobile technology benefited the participating students

in collaborating and sharing knowledge with their peers. The method in which the participating students were able to exchange knowledge and ideas demonstrates the relationship between mobile technologies and collaboration. The flow of information from one information user to another is made easier with the introduction of mobile technologies (mobile applications like WhatsApp).

Some of the participants utilize WhatsApp to collaborate and share information with their peers about their studies. They share information and 'explain' things to one another for this reason. WhatsApp is a brief messaging tool that is used to cooperate as well as to develop knowledge and skills via the usage of mobile devices. WhatsApp provides a collaborative venue or platform. The doctorate students who took part in the study were able to work in groups, and it is during this time that collaboration becomes effective because they were able to tackle information-related challenges that were too difficult for individuals to answer alone. Participating students were able to easily explain specific ideas to their colleagues who had a knowledge gap thanks to the use of WhatsApp. This response is consistent with the findings of other researchers, including Kiryakova (2017) and Schuler, Hutchins, and Lashell (2012). They discovered that mobile devices, in general, increase the opportunities for student collaboration in learning. As a result, they were able to work together to tackle information-related challenges that were too difficult for the participants to handle on their own. Participants might also contribute material relevant to their subject of study and even modify the work of their peers.

Conclusion and Recommendation

According to the findings, mobile devices play a vital role in the learning experiences of doctoral students. Doctoral students can engage in additional learning activities outside of class as a result of these experiences, giving them more learning chances. Mobile learning has been discovered to be facilitated by mobile technologies. The study's findings revealed that doctoral students viewed mobile devices as a useful learning tool for communicating with classmates, exchanging learning materials, and group learning.

Furthermore, the doctoral students used WhatsApp to collaborate. Doctoral students could also use WhatsApp to share material relating to their assignments. The doctoral students who took part also used their mobile devices to save and download information for later use. The participating doctoral students engaged in collaborative learning through the use of mobile technology, allowing for information sharing and knowledge transfer. After lecture times, doctoral students might use mobile technology to communicate, comments and make suggestions to their lecturers for further explanation using mobile technologies.

Given the benefits of adopting mobile technologies for learning activities, academic institutions should focus on teaching faculty members to use this to involve doctoral students in their learning process. Training should be offered to the teaching faculty members to understand the potential benefits and features of mobile technologies that could help engage doctoral students effectively to promote teaching and learning activities. In order to improve doctoral students' mobile learning experiences, the results also highlight the necessity for institutional support to invest in academics' professional growth and technology training.

Implications of the study

This study is very relevant because of the growth of mobile device ownership and usage among not only doctoral postgraduate students but among students in higher education in general. Higher education institutions must dedicate more thought and attention to the development of mobile learning programs now and in the future, given the growing trend of widespread usage of mobile technology. Given the continued advancement of mobile technologies and the growing number of mobile device users, educators and institutional leaders will need to create more mobile learning environments and interventions to facilitate effective learning for the multitude of mobile learners in developing countries.

Another practical implication is that academic institutions with collaboration with libraries should see the need to develop mobile app that is linked to the library management system. In essence, this will bring together stakeholders and librarians to create mobile library applications for developing countries that maximize the value of mobile applications for learning experience. Such an application would allow the students to optimally use their smartphones and tablets to search the library's resources from their mobile devices. This will broaden the range of possibilities available for information searching activities.

Limitations of the study and suggestions for further studies

In the university community, there are many different types of information users. There is also a large number of university employees that work in administrative roles. Due to the nature of the study and the research objectives, the study was confined to selected doctoral students who use mobile devices for information seeking. Future studies could look into administrative staff's mobile learning experiences.

References

Akeriwe, M.L. (2013). The use of mobile technologies for web 2.0 based service delivery to graduate students in Ghanaian Universities: the case of the University for Development Studies, Ghana. Master's dissertation – University of Pretoria, Pretoria.

Al-Fahad, F. (2009). Student's attitudes and perceptions towards the effectiveness of mobile learning at King Saud University. The Turkish Online Journal of Educational Technology, **8**(2), pp. 1-9. Microsoft Word - 8210.doc (tojet.net)

Barfi, K.A. (2020). Information needs and seeking behaviour of doctoral students using smartphones and tablets for learning: A case of the University of Cape Coast. Doctoral Thesis submitted to the University of South Africa.

Barfi, K.A., Arkorful, V. and Abaidoo, N. (2021). Availability of electronic information resources that support student learning: A case at the University of Cape Coast. The International Journal of Technology, Knowledge, and Society, **17**(2), pp. 1-10. https://doi:10.18848/1832-3669/CGP/v17i02/1-10.

Barfi, K.A., Bervell, B. and Arkorful, V. (2021). Integration of social media for smart pedagogy: initial perceptions of senior high school students in Ghana. Education and Information Technologies. https://doi.org/10.1007/s10639-020-10405-y.

Burford, S. and Park, S. (2014). The impact of mobile tablet devices on human information behaviour. Journal of Documentation, **70**(4), pp. 622-639. https://doi.org/10.1108/JD-09-2012-0123.

Chang, C. (2013). Library mobile applications in university libraries. Library Hi Tech, **31**(3), pp. 478-492. https://doi.org/10.1108/LHT-03-2013-0024.

Chen, B. and deNoyelles, A. (2013). Exploring students' mobile learning practices in higher education. Journal of Nursing Education [online]. https://er.educause.edu/articles/2013/10/exploring-students-mobile-learning-practices-in-higher-education/ (Accessed: 11 August 2020).

Elkins, S., Hwang, S., Kim, D., Manolovitz, T., Mueller, K.L. and Owens, E. (2020). What do you want from us? Evaluating student interest in technology-based services in academic libraries. College & Research Libraries, **81**(5), pp. 1-25.

Fritschi, J. and Wolf, M.A. (2012). Mobile learning for teachers in North America: exploring the potential of mobile technologies to support teachers and improve practice. Paris, UNESCO working paper series on mobile learning. Fontenoy, Paris, France.

Gikas, J. and Grant, M.M. (2013). Mobile computing devices in higher education: Student perspectives on learning with cellphones, smartphones & social media. The Internet and Higher Education, **19**, pp. 18–26. https://doi.org/10.1016/j.iheduc.2013.06.002.

Grundmeyer, T.A. (2012). A qualitative study of the perceptions of first year college students regarding technology and college readiness. Graduate Theses and Dissertations, Paper 12599. http://lib.dr.iastate.edu/cgi/viewcontent.cgi?article= 3606&context=etd.

Khaddage, F. and Lattemann, C. (2013). The future of mobile apps for teaching and learning. In Z. Berge & L. Muilenburg (Eds.), Handbook of mobile learning (pp. 119-128). NY: Routledge.

Kim, K. and Frick, T.W. (2011). Changes in student motivation during online learning. Journal of Educational Computing Research, **44**(1), pp. 1-10. https://doi.org/10.2190%2FEC.44.1.a.

Kim, S.H., Mims, C. and Holmes, K.P. (2006). An introduction to current trends and benefits of mobile wireless technology use in higher education. AACE Journal, **14**(1), pp. 77-100. https://www.learntechlib.org/primary/p/6158/.

Kiryakova, G. (2017). Application of cloud services in education. Trakia Journal of Sciences, **4**, pp. 277-284. https://doi.org/10.15547/tjs.2017.04.001.

Krueger, R.A. and Casey, M.A. (2009). Focus groups: A practical guide for applied research (4th ed.). Thousand Oaks, CA: Sage.

Masiu, M.T. and Chukwuere, J.E. (2018). The effect of smartphones on students' academic life: A perceptive from a South African University. International Conference on Business and Management DynamicsICBM-2018.

Merriam, S.B. (2009). Qualitative research: A guide to design and implementation. San Francisco, CA: Jossey-Bass.

Meyer, W.J. (2016). Untangling the building blocks: a generic model to explain information behaviour to novice researchers. Proceedings of ISIC: The Information Behaviour Conference, Zadar, Croatia, 20-23 September 2016: Part 1. Information Research, **21**(4).

Miller, C. and Doering, A. (eds.). (2014). The new landscape of mobile learning. NY: Routledge.

Omidian, F. (2011). E-learning: student's attitude towards e-learning in relation to computer self-efficacy and anxiety. Germany: LAP LAMBERT Academic Publishing.

Phongtraychack, A. and Dolgaya, D. (2018). Evolution of mobile applications. MATEC Web of Conferences 155, 01027. https://doi.org/10.1051/matecconf/201815501027.

Qayyum, A.M. and Smith, D. (2015). Learning from student experiences for online assessment tasks. Information Research, **20**(2).

Saxena, A. and Yadav, R.D. (2013). Impact of mobile technology on libraries: a descriptive study. International Journal of Digital Library Services, **3**(4), pp. 1-13.

Schuler, P, Hutchins, G. and Lashell, B. (2012). Student perceptions of tablet computers in a cooperative learning experiment. North American Colleges and Teachers of Agriculture, pp. 11-17. http://www.nactateachers.org/attachments/091_Shuler_June%202010%20NACTA%20Journal-2.pdf (Accessed: 7 June 2020).

Sharma, S. and Godiyal, S. (2016). A study on social networking sites usage by undergraduate students. Online International Interdisciplinary Research Journal, **6**(3), pp. 157-170. http://www.ijarsct.co.in/.

Shonhe, L. and Jain, P. (2017). Information dissemination in the 21st century: the use of mobile technologies. In N. Mnjama, & P. Jain (Ed.), Information and Knowledge for Competitiveness (pp. 425- 447).

Short, S.S., Lin, A.C., Memrianos, D.J., Burke, R.V. and Upperman, J.S. (2014). Smartphones, trainees, and mobile education: implications for graduate medical education. Journal of Graduate Medical Education, pp. 199-202. https://dx.doi.org/10.4300%2FJGME-D-13-00238.1.

Vandi, C. and Djebbari, E. (2011). How to create new services between library resources, museum exhibitions and virtual collections. Library Hi Tech News, **28**(2), pp. 15-19. https://doi.org/10.1108/07419051111135236

Vázquez-Cano, E. (2014). Mobile distance learning with smartphones and apps in higher education. Educational Sciences: Theory and Practice, **14**(4), pp. 1505–1520. https://www.learntechlib.org/p/154410/.

Yeboah, D., Nyagorme, P. and Barfi, K.A. (2020). Mobile learning support in delivering distance education: Perception of students of University of Cape Coast, Ghana. Texila International Journal of Academic Research, pp. 1-11. https://doi/10.21522/TIJAR.2014.07.02.Art007.


UEED
Dr Phanuel Wunu


UEED
INTERNATIONAL CONFERENCE
UNIVERSITIES
ENTREPRENEURSHIP
ENTERPRISE

Digital Social Business Models
An Analysis of Building Blocks and Typology

Charlotte Ring
Rheinische Friedrich-Wilhelms-Universität Bonn
Bonn, Germany
email: charlottekatharinaring@gmail.com

Abstract

Social businesses have a great positive impact on communities and are a sustainable way to do business today and in the future. This impact can be amplified through the means of digitalization. In the past, traditional for-profit business models have been used to understand the structures of business operations. However, the underlying business model of digital social businesses has not yet been explored. This study presents a building block analysis of business models and a subsequent typology. Digital and social business models are identified via a literature review. The building block analysis encompasses an assessment of the individual business activities contained in the business models. The typology is developed from existing literature utilizing a matrix for the evaluation of digital social businesses. Additionally, five semi-structured expert interviews are conducted to inform, extend, or content the findings of this study. To this end, an inductive coding procedure is applied to the transcribed interviews for the detection of themes within the text. This study contributes to social business model research by providing a first insight into the unique building blocks of digital social business models. It also creates a typology tool based on two parameters, which enables the comparison of digital social businesses.

https://doi.org/10.18418/978-3-96043-104-6_181

1 Introduction

In the wake of the COVID-19 pandemic the global poverty and hunger crisis has been significantly amplified. Worldwide, an additional 70 to 161 million people have likely experienced hunger in connection to the pandemic in 2020 (UN Statistics Report 2021) and an estimated 119 to 224 million have fallen back into extreme poverty (UN Report 2022). Extreme poverty is defined by individuals living on less than 2 US Dollars a day (Gapminder 2021). The UN initiated a call to action in 2015 formulating 17 Sustainable Development Goals (SDGs), which were agreed upon by all UN member states (UN 2015). The first goal being no poverty and the second goal zero hunger across the globe by 2030. However, today we are further away than ever from achieving those goals.

Companies have a huge impact on the society through enabling labour, working conditions, social protection (Mohr et al. 2001). Thereby, this impact can be both positive and negative. Some companies have started to question their roles in society, how they are impacting the people involved in the respective business ecosystem (Yunus et al. 2010). A strong manifestation of this development are social businesses. Social business or social entrepreneurship is broadly defined as "a self-sustaining company that sells goods or services and repays its owners' investments, but whose primary purpose is to serve society and improve the lives of the poor" (Yunus 2010, p. 309). Digitalization plays a crucial role in the upscaling of social impact.

With the broad diffusion of the internet in the 1990s firms such as Amazon, eBay, and Google have implemented new digital business models (Reman et al. 2016), revolutionizing the way we do business. Moreover, today the internet has more active users than in the 1990s, with almost 4.66 billion active users around the world (Statista 2021). This has greatly increased the access to digital resources and created a whole new type of business model. Combining the digital business model with social business, therefore, seems to be a promising tool to solve the globes' most pressing problems. The foundations of digital social businesses, however, has not yet been extensively explored in research.

This study discusses the building blocks of a digital social business model and a typology of those models. The building blocks for a digital social business model are derived from literature as well as expert interviews. The identified business models are then assessed for commonalities and differences. Two main concepts are applied for understanding the foundations of digital social business models better, a) analysing the building blocks and b) developing a typology.

For the first aim of this study (building blocks of digital social business models), both literature and expert interviews are used. For the second aim, two typologies from the literature are combined to build a matrix tool which enables

the systematic assessment and comparison of digital social businesses. To apply the typology derived from literature, expert interviews are conducted to confirm, contend, and extend the qualitative findings.

The results contribute to social business literature and provide a tool for present and future digital social business owners to create more efficient and successful businesses which will aid in the fight against poverty and hunger. Finally, policy makers might use this study to create more targeted and functioning policies to incentives an influx in digital social businesses.

2 Literature Review

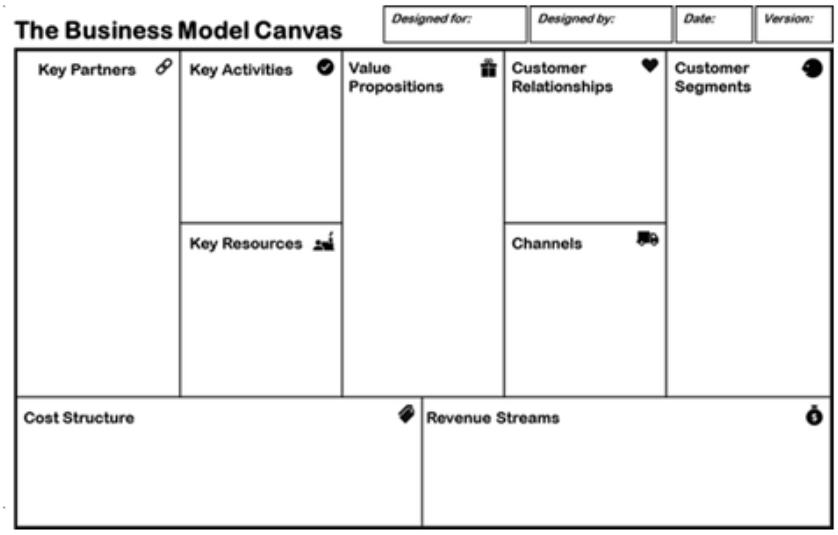
The following section describes the traditional for-profit business models as well as digital and social business models from existing scientific literature. For the course of this study, business models (BMs) are defined as a set of assumptions about what businesses do, for whom and how. The business model identifies who the customers are, what is the value that the business generates for them, how this value is financed, produced, and delivered, and how the customers pay for that.

2.1 For-Profit Business Models

In today's world, business conditions are constantly evolving. With the rise of new technologies, changing consumer preferences and the formation of social trends, the greatest challenge for businesses is the correct definition of the current business model of a company (Gorevaya & Khyrullina 2015). However, the importance of business models is not a novel occurrence, but it is more prevalent than ever before and a powerful tool for social, digital, and for-profit businesses alike. In order to gain a better understanding of what a digital social business model looks like it is necessary to take a closer look at existing for-profit business models first. A for-profit business strives to generate profits and value for their shareholder (George et al. 2022). The business model concept first gained popularity in the early 1990s during the emergence of e-commerce and the dotcom boom (Zott et al. 2011). Today, it is viewed as a tool for systematic analysis, planning, and communication of the configuration and implementation of complex business structures including organizational units and relevant parts in their environment (Doleski, 2015; Knyphausen-Aufsess and Meinhardt 2002). One of the most widely applied for-profit business models is the Business Model Canvas (BMC) from Osterwalder and Pigneur (2010). The Business Model Canvas lists 9 building blocks of a business model, which are nine types of activities or assumptions that help understand what a business is and how

it operates. These building blocks are Customer Segments, Value Propositions, Channels, Customer Relationships, Revenue Streams, Key Resources, Key Activities, Key Partners & Cost Structure. The building blocks of the BMC are illustrated in Figure 1.

Business Model Canvas



Source: Osterwalder & Pigneur (2010)

The term "building blocks" was first coined by Margiono et al. (2017) and describes the different activities of a business in a business model; for example, Key Partners is one important building block of the BMC. The BMC is adaptable to not only for-profit businesses but also digital and social businesses which is explained in the following sections.

2.2 Digital Business Model

In a world that rapidly embraced the digitalization and successfully adopted technologies to address some of the planets most urgent problems, new business models have been developed to meet the unique challenges of digital business (Richter et al. 2017). In the literature digital business is referred to as "the use of digital technologies and resources to drive day-to-day business operations, develop revenue, performance, and deliver personalized, meaningful experiences to customers" (McKendrick 2020). According to Wind (2008), digital businesses represent a "shift from traditional management approaches to 'network orchestration'". New models have started to emerge, coinciding with the digitalization along the whole supply chain of businesses. Yet, they appear to have quite a few

distinct building blocks such its dynamic nature and the gap between business strategy and business process due the rapidly changing nature of the Information Technology (IT) sector (Al-Debei et al. 2008). In Table 1. these differences are summarized.

Traditional vs. Digital Business Model

Traditional Business Model	Digital Business Model
Based on physical assets	Based on digital
Buildings, Machinery, Labor, Distribution	Digital Platforms, Business Intelligence, Information
Traditional Governance (slow iterations > 12 months)	Agile Governance (fast iteration < 12 months)
Increase productivity	Increase customer experience & value
Low and growth and profit margins	High growth and profit margins

Source: Adopted from Gillior (2018)

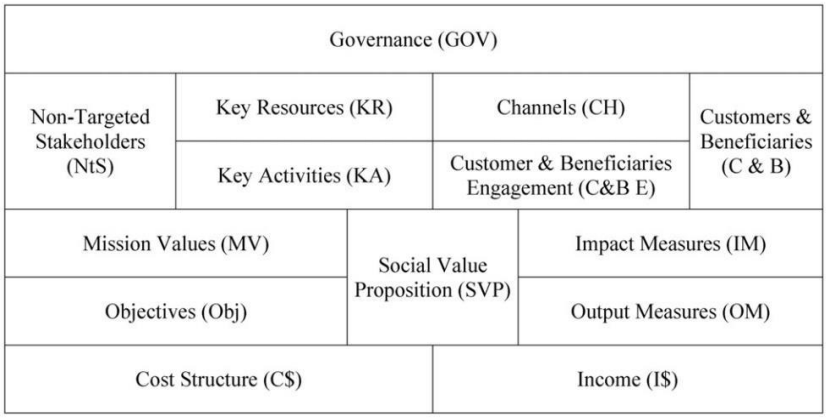
In Table 1., Gillior (2018) points out the difference in assets. Traditional for-profit business models have physical assets, an inventory which needs to be stored before it is sold. In addition to the characteristics named by Gillior (2018), Al-Debi et al. (2008) describes the emerging world of digital business as "complex, dynamic and enjoys high levels of uncertainty and competition."

Dutot and Van Horne (2015) found that digital business models can be summarized into four building blocks: the appearance of goods and services, digitization of the distribution channel, digital communication with stakeholders and internal processes carried out on a digital basis. Digital business models have many advantages compared to the traditional ones. A) With the internet granting relatively easy access to information and decreasing transaction costs significantly, Hair et al. (2012) argues that digital ventures are easier to found than traditional ones. B) With an increase in digitalization and internet communications technology (ICT), information and digital tools have become increasingly accessible to a greater amount of people. Not only the number of people being able to use these technologies has increased significantly but also the customers who are able to access the products and service has gone up. C) Digital businesses are easier to scale up compared to the traditional for-profit businesses (McKinsey, 2020). Therefore, the scalability of digital business will create an impact beyond just the physical communities surrounding the business. Making it an ideal business model for greater social impact.

2.3 Social Business Models

Social businesses are unique in the sense that they combine the logic of different sectors (Battilana and Lee 2014, Doherty et al. 2014). The Nobel-Peace-Prize winning economist Mohammad Yunus describes social businesses as a "new kind of business introduced in the marketplace with the objective of making a difference in the world" (Yunus 2010). Essentially, social businesses are designed and operated like a private business, but the profit maximization principle is being replaced with a social mission. Figure 2.

The Social Enterprise Model Canvas

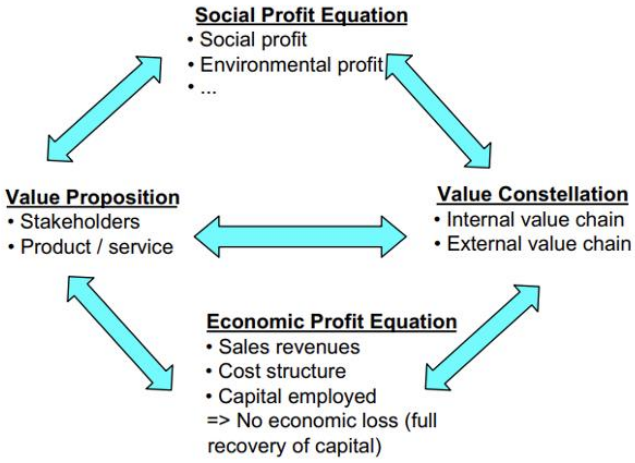


Source: Sparviero 2019

In the BMC from Sparviero (2019), the Social Value Proposition (SVP) is in the center of the model. The location indicates the centrality of this building block for social businesses, which are "more cause than profit driven" (Yunus et al. 2010). However, this aspect of social business is crucial in order to provide stakeholders and other interested parties with a measurement of success.

In the literature, other illustrations of social business models exist. Although, they differ in labelling of building blocks, they do have value proposition, social profit equation, value constellation, and economic profit equation in common. Yunus et al. (2010) identified these commonalities and developed an overview of the 4 building blocks of social businesses which are summarized in Figure 4.

The Four Building Blocks of Social Business Models



Source: Yunus et al. (2010)

Figure 3. contains similar building blocks to the business model canvas from Osterwalder & Pigneur (2010), such as the value proposition, sales revenue (revenue streams), and cost structure. However, the focus is on the interplay between value proposition and value constellation as well as the adding in of the social profit equation which differentiates the social business model from the for-profit business model.

2.4 Typologies

Typologies are a descriptive tool used in a wide variety of contexts and scientific disciplines (Bailey 2005). They are a form of theory-building tool and offer a way to organize complex, non-linear relationships (Fiss 2011; Doty & Glick 1994; Snow & Ketchen 2014). Heise (2015) describes a typology as "differentiating entities at a particular level of a taxonomy in terms of one or more properties" (Heise 2015). Many similar definitions exist in the literature but they essentially imply a systematic classification of things into types according to their common characteristics.

Typologies are also a popular tool in social business model research. Mair et al. (2012) developed a typology of social entrepreneuring models leveraging different types of capital. The authors assessed business models as well, however, they took a quantitative approach using cluster and discriminative analysis. Typologies are also applied in other research areas. Another study by Wells (2005) takes conceptual rather than an empirical approach to business model analysis and closed-loop supply chains. They developed four new categories of closed-loop systems and applied them to the automotive industry.

Lastly, typologies for digital business models have gained in popularity since the e-commerce boom (Look 2020). A study by Guggenberger et al. (2020) developed a typology of digital business models and found that 5 different research streams of digital business models exist in scientific literature as well as a typology which differentiates between data-driven business models and platform-based types. The term digital business is very broad and the study by Guggenberger er al. (2020) provides a great approach to differentiating between the business models.

To summarize the literature review, it can be said that many different for-profit, digital, and social business models exist in scientific literature. However, it is not clear what the structures and building blocks of a digital social business models look like, therefore this study asks:

RQ1: What are building blocks of digital social business models?

The development of a digital social business model can be supported by a typology rooted in existing literature in order to develop a tool for the assessment of digital social businesses. As a result, this study aims to answer the following question:

RQ2: Can we perceive a typology of digital social business models?

In the following sections, the methodology and results of this study are presented, followed by a discussion and conclusion of the findings.

3 Methodology

3.1 Framework Development based on Literature.

A literature review of business models was undertaken to inform the building block analysis and typology, using the Web of Science database as well as Google Scholar. Following the snowballing principle outlined by Cleas Wohlin (2014). To summarize the snowballing procedure, it can be said that the researcher uses the reference lists of academic papers to expand the list of sources used for a literature review. Hereby, the identification of digital and social business models as well as digital business model typologies and social business model typologies, were the main goals.

For answering the two research questions, literature analysis and expert interviews are used. In the following, the two sub-chapters will investigate the approaches in more detail.

3.1.1 Building Block Identification

After screening the selected papers, a final database of business models will be constructed. The following information was extracted from the papers: title, author's name, type of BM (digital or social BM), visual representation of BM, adaptive capacity, distinction of building blocks.

The criteria of Visual Representation of BM were adopted from existing literature. Di Valentin et al. (2012) developed a conceptual framework for adaptive BMs in which core elements of business models are analyzed regarding their dependencies with aspects of strategy and business process design. The distinct building block criteria assesses if the individual activities and processes of a business model can be easily differentiated from one another visually. Additionally, the criteria of visual representation of business models are adapted from a BM analysis by Gaspareto & Henriqson (2020). They argued that the visualization is crucial for an easy understanding and application in praxis and science alike. Thus, enabling a systematic understanding and holistic view of a businesses' activities and operations (Gaspareto & Henriqson 2020), summarized in table 2. below:

Business Model Selection Process

Business Model	Author	Digital or social business model	Visual Representation of BM	Distinct Building Blocks	Adaptive Capacity
The Four Building Blocks of Social Business Models	Yunus et al. (2010)	Social	Yes	Yes	Yes
The social stakeholder layer of the triple layered business model canvas	Joyce et al. (2016)	Social	Yes	Yes	Yes
The Social Enterprise Model Canvas	Sparviero (2019)	Social	Yes	Yes	Yes
The conceptual framework of "digital"	Bican & Brem (2020)	Digital	Yes	Yes	Yes
Hybrid Business Model	Endres, Sotiber and Wenzl (2020)	Digital	Yes	No	No

Source: Own representation of BM selection criteria

According to IBM's Global CEO study, CEOs are increasingly forced to adapt their business models to dynamic factors for staying competitive within the continuously changing business environment (IBM, 2010). Thus, emphasizing the adaptability of business models. Visual thinking is not only indispensable to working with business models (Osterwalder & Pigneur 2010) but it also provides a tool for people from different educational backgrounds that is easily understood and applied.

3.1.2 Development of a Typology

Typologies are a form of theory-building tool and offer a way to organize complex, non-linear relationships (Fiss 2011; Doty & Glick 1994; Snow & Ketchen 2014). In other words, a typology is a systematic classification of things into types according to their common characteristics. There are two aspects to the typology of digital social business models. There are two types of business models: the digital business model and the social business model. They each possess distinct characteristics, for example, the social value creation by social business models and the digitalized form of value creation in the form of assets by digital business models. In this study, two existing typologies were used to build a typology for digital social business models. This study selected a typology of digital business models by Kreutzer & Niendorf (2017) and a typology of social business models by Hull et al. (2007).

The typology of Kreutzer & Niendorf (2017) assesses social business models based the integration of beneficiaries. They differentiated between (1) beneficiaries as customers; (2) beneficiaries engaged as employees in the process of value creation; (3) beneficiaries as suppliers; or (4) beneficiaries without a role in the process of value creation. This study adapts the idea of beneficiary integration as a measure for social business models.

Finally, combining the two existing typologies contributes to scientific literature by providing a toll to compare and measure digital social businesses, which previously does not exist.

This study follows the typology framework from Kreutzer & Niendorf (2017), assessing social business models based on two parameters: the degree of beneficiary integration and allocation of resources to create economic and social value. For the purposes of this study, one parameter is from social business models and the second parameter is from digital business models. So, the parameter of allocation to resources is replaced with the parameter of degree of digitalization.

Hull et al. (2007) considers three categories to measure the level of digitalization. Each category ranging from mild to moderate to extreme digital entrepreneurship, considered every aspect of a business including production, the

goods or services themselves, advertising, distribution, and the customers. Resulting in a typology based on the degree of digitalization adapted by this study. The three degrees of digitalization are: (1) mild digital entrepreneurship, (2) moderate digital entrepreneurship, and (3) ex- treme digital entrepreneurship. They define the three categories as follows:

(1) Mild: involves venturing into the digital economy as a supplement to more traditional venues.

(2) Moderate: requires a significant focus on digital products, digital delivery, or other digital components of the business.

(3) Extreme: the entire business is digital, including production, the goods or services themselves, advertising, distribution, and the customers.

These categories capture the characteristics of digital business models and provides the first parameter. Digital social businesses can differ significantly in the degree of digitalization, all the way from solely operating a website, to the use of Artificial Intelligence (AI) within business models. Therefore, it is necessary to capture in which category they fall in order to compare them with one another. The second parameter is the social business model typology. Here, the study borrows directly from Kreutzer & Niendorf (2017) by adopting the parameter of beneficiary integration. Kreutzer & Niendorf (2017) ranked social business models from differentiated to integrated beneficiaries. A business model with differentiated beneficiary integration, indicates that the beneficiary has no involvement in the process of value creation of the social business (Kreutzer & Niendorf 2017). On the other hand, an integrated social business model can be either or both a customer and/or employee involvement in the value creation (Kreutzer & Niendorf 2017).

3.2 Expert Interviews

3.2.1 Sample

The sample consists of five experts on digital social businesses, 3 females and 2 males, were interviewed. These experts were selected through a social media search using LinkedIn. The search included the following keywords: digital social business, digital business model, and social business model, A total of 8 potential interviewees were identified and all eight were contacted between April 20220 and May 2022. Five responded and were willing to be interviewed. The interviews were scheduled and conducted between May 2022 and June 2022. Three different

industries were represented: a social business startup, academia, and a non-profit organization. Interviewees A, B, and C are located in Germany. Interviewee D is located in Kenia and interviewee E in Uganda.

3.2.2 Interview Procedure and Questions

Overall, the semi-structured interviews were approx. 35 min. in length and recorded with Zoom Video Conferences. After a pre-test, minor changes had to be adjusted. The developed interview guide started with questions about the interviewees career background on digital social business models, followed by questions about building blocks and ended with a discussion on the developed typology. The open-ended questions were posed in a way to make the interviewees.

3.2.3 Data Analysis

The recordings were transcribed manually and coded by using the software MAXQDA. For the analysis of the qualitative data, the inductive coding procedure as outlined by Thomas (2003) is applied. Step one is the clean-up of the data files, this includes formatting and proofreading the transcripts. Step two is the close reading of the text; this helps the researcher to gain a first understanding of the themes and details in the text. In the third step, the categories are created. Here, the upper level categories are derived from the research questions and the lower level categories are derived from multiple readings of the text. Further codes are derived from the parameters putlined in section 3.1. The fourth step is overlap coding and uncoded text. Overlap coding allows for one segment of text to be coded into more than one category (Thomas 2003). The author also points out that "a considerable amount of the text may not be assigned to any category, as much of the text may not be relevant to the research objectives" (Thomas 2003). In the fifth and last step, revision is continued, and the category system is being refined. Additionally, subtopics can be identified, or categories can be combined and linked under a superordinate category when the meaning is the same. Quotes that can convey the core theme are also selected in this fifth step.

4 Expected Results and Discussion

In this section, preliminary results are presented and discussed. This study provides a first insight into the building blocks of a digital social business model as well as a typology tool for the evaluation of digital social businesses. The

expected findings indicate that the digital social business models differ from for-profit, social, and digital business models.

4.1 An Analysis of Building Blocks

A total of 10 (6 social and 4 digital) business models were identified via the literature review and then assessed for building blocks. The expert interviews support the building block analysis and the inductive coding allowed for the detections of themes within the interviews. Table 3. summarizes the building block analysis and themes from the interviews. The themes are labeled major if they appeared in more than 80% of the business models and interviews. If they appeared in less than 80%, they are labeled minor.

Summary of Reoccurring Themes in the Building Block Analysis

Major/Minor Theme	**Building Block**	**Business Models**	**Interviews**	**Summary**
Major	Social value	6/6 Social business models	5/5 Interviews	Social value is the central point of digital social business models
Major	Customer/Beneficiary Relationship	6/6 Social business models 3/4 Digital business models	4/5 Interviews	Customers are often the beneficiaries of the digital social business and therefore essential to the business model
Major	Impact Measure	6/6 Social business models	4/5 Interviews	Literature and praxis is still missing a universal tool for impact measurement yet, this is a central building block to experts and businesses.
Minor	Channel of Distribution	2/6 Social business models 3/4 digital business models	2/5 Interviews	The digital tools used by the business can create both opportunities and risks for the beneficiaries.

Source: Own summary of reoccurring themes in the building block analysis

The building block social value is a major theme as 6 out of 6 social business models as well as 5 of 5 interviewees mentioned that this building block should be included in a digital social business model. However, interviewee C argued that solely the social value has should be added to the business model canvas by Osterwalder & Pigneur (2010), as it is already sufficient for a digital social business model because it contains all building blocks necessary to run any type of business. On the other hand, interviewee D argued that all building blocks of the BMC would need to be adapted to some extent, due to the fundamental change in the core mission and vision of the business.

This is in line with the primary focus of social businesses in their social value/mission rather than profit maximization (Nicholls 2006). Interviewee D added that the adaptation is necessary in order to increase the social impact.

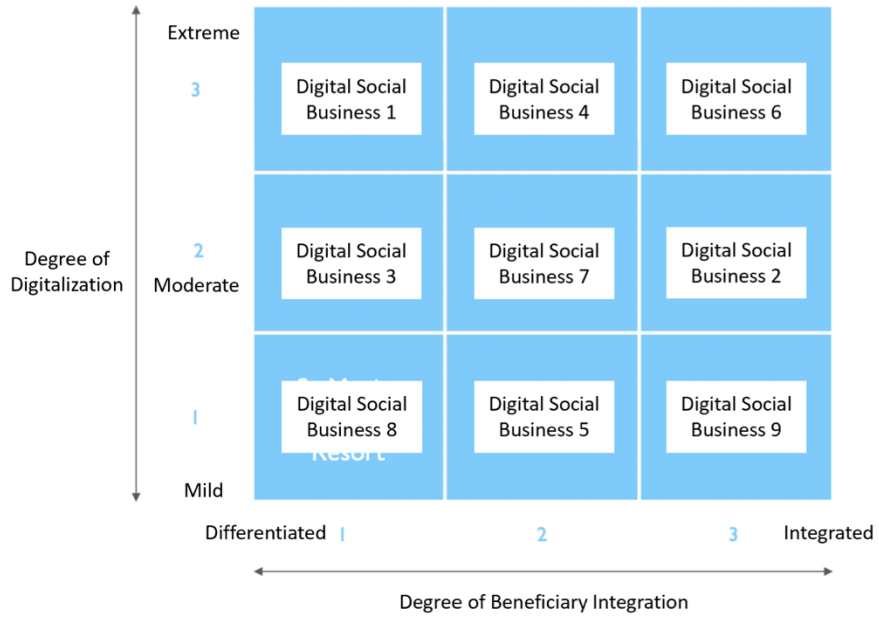
The building blocks customer relationships and customer segment, also called beneficiary in social business models, were important in 6 out of the 6 social business models, in 3 out of 4 digital business models while all 5 interviewees mentioned the significance of the customers. Social businesses serve people who have been neglected by the conventional system (Chell et al. 2016) therefore, representing a specific target customer segment. Interviewee A raised an interesting point when saying all digital social businesses should be designed either in direct cooperation with the beneficiary or at least with the beneficiary in mind because the business will only have an impact if the beneficiaries deem the product or service useful.

A minor theme is the channel of distribution. Jamali et al. (2016) explored the differences of social enterprises in the global north versus the south and found that not every social business that is successful in the global north also creates impact in the south. Jamali et al. (2016) lists a variety of reasons but one argument that also aligns with the findings of this study is that target customers or beneficiaries from different geographical locations have different needs and abilities to access the products or services of businesses. This concept also plays an important role in the channel of distribution. In the analysis 2/6 social business models and 3/4 digital business models mentioned this building block, as well as 2/5 interviewees. Interestingly, access to digital tools and digital literacy can limit the impact of digital social businesses as opposed to increasing it. Interviewee C said: "If the digital tools are too complex, certain groups will not be able to access them. Therefore, they are left out and this could even increase the social divide." So, the channel of distribution should be designed to create opportunity for the beneficiaries rather than leaving some of them behind.

4.2 Typology Development

This study found that a typology based on the degree of digitalization and degree of beneficiary integration, can be used to compare digital social businesses with one another. The five expert interviews were conducted to test the typology matrix, illustrated in Figure 4.

Typology of digital social businesses



Source: Own concept of typology matrix of digital social businesses

All five experts were asked to place the following three digital social businesses on the matrix: Goodwill Thrift Store, Grameen Bank, and ChildGrowth Monitor. These three businesses were selected based on their very different digital social business models. Each representing one degree of digitalization from mild to extreme and ranging from differentiated to integrated in regard to degree of beneficiary integration.

Five out of five interviewees placed Goodwill Thrift Store at Digital Social Business in the lower right corner of the matrix. They argued that the level of digitalization is low because the company only operates a website and online customer service. Interviewees A, C, and D placed Goodwill at a moderate level of digitalization while interviewees B and E placed it at the mild level. However, the degree of beneficiary integration was argued to be integrated by all five because Goodwill employs people who are typically left out of the job market due to disabilities or other challenges thus, directly integrating the beneficiary into the business operations. Kreutzer & Niendorf (2017) also found that social businesses who employ the beneficiaries in the business, in any role such as customer facing or production, are considered highly integrated.

In the interviews the experts were asked to provide feedback on potential negatives of digital social businesses, and these are some points that were mentioned:

- Social isolation due to increased virtual interactions.
- More digital social businesses designed without the end-user in mind, which essentially makes them useless.
- Scaling of digital social businesses. Not every country has access to the same technologies.
- Digital education varies widely amongst people.
- Negative environmental impact due to increased use of digital technologies

Many of these problems are already experienced today and can likely be amplified by an in- crease in the number of digital social businesses. Therefore, it is crucial to design policies and businesses with these issues in mind. Nevertheless, all experts are convinced that digital social businesses will contribute to more economically healthy communities and aid in the fight against poverty and hunger across the globe.

5 Implications and Future Research

By providing an analysis of building blocks, this study presents entrepreneurs with a tool to structure and better understand their own business operations. Further, it summarizes their value creation, value capture, value network, and strategic choices (Shafer et al. 2005). Additionally, the building blocks are easily understood, therefore, making it accessible to entrepreneurs and business owners from different types of backgrounds. The building blocks can be adjusted during a businesses' lifetime, thus, creating a highly versatile business tool. It is also inexpensive for the business owner to gain access to the building blocks. The cost-factor and simplicity of the building blocks incentivizes for-profit companies to create a digital social business alongside their core business operations (Joyce and Paquin 2016).

It has been proven that policy alone will not solve problems like poverty and hunger (Carletto et al. 2015). A typology enables a closer look at the existing digital social businesses in the marketplace and how they are positioned. Thus, enabling policy makers to develop better policies which could promote incentives for entrepreneurs and established companies, to build a digital social business. Being able to compare digital social businesses could also help entrepreneurs to know where their business would be positioned and make better informed business decisions based on that. Another advantage of this typology can be drawn by for-profit companies. It is important for the companies to be able to show their stakeholder how and where the money will be spent. A typology could be used to present stakeholders with concrete evidence of market evaluation and positioning (Meyer et al. 2019). Research has

contributed to the development of many business models and could also provide data-backed decision tool for policymakers and entrepreneurs alike.

Future research may consider a complete digital social business model and other tools to help entrepreneurs and established companies to conceptualize better digital social businesses which will increase the social impact and contribute to economically healthy communities.

Appendix

Table 1A: Interview Guidlines

Research Question		Analytical Dimension	Subject	Question	Literature/Theory
RQ1: What are building block of digital social business models?	1	Professional and personal information of the respondent (general)	Personal Questions	Where do you work?	
				What is your current role the institution/company?	
	2	Business Model	Definition of Business Model	Considering the 9 building blocks of the BMC, which one you think would need to be adapted?	Osterwalder & Pigneur (2010)
	3	Digital Social Business Models	Definition of DSBMs	For what purpose could a DSBM be useful?	Gartner (???) , McKinsey (2019)
				How could a DSBM contribute to the success of start-ups? What would support the development of DSBs?	
			Application Barriers	What barriers do you see in the application of DSBMs? How could these barriers be overcome?	
RQ2: Can we perceive a typology of digital social business models? Can established typologies of social business models and digitals business models be combined to develop a typology of digital social business models?	4	Typology of Digital Social Business Models	Classification by characteristics of DSBs	According to what central aspects or characteristics could a DSBM be classified into types?	Hull et al. (2007) Kreutzer & Niendorf (2017)
			Validation of Typology	Where would you put the following companies (name 3 for then interviewees)	
				Guiding question: who are the beneficiaries of the business? What are the digital components of the business?	

				In your opinion, does a higher level of digitalization coincide with a greater social impact or do you see potential negatives? (Maybe it is less personal…?)	
	5	Outlook	General Development of DSBs	How do you personally view the development of digital social businesses?	
				Are DSBs the future?	
				Will they contribute to economically healthy communities?	

References

Al-Debei, M., El-Haddadeh, R., Avison, D. (2008). Defining the Business Model in the New World of Digital Business, 14th Americas Conference on Information Systems, AMCIS 2008. 3. 300.

Altman, I. (2016, March 21). Half of nonprofits are set up to fail -- how about your favorite? Forbes.

Battilana, J.; Lee, M. (2014). Advancing research on hybrid organizing insights from the study of social enterprises, Academy of Management Annals, Vol. 8 No. 1, pp. 397-441.

Chell, E., Spence, L.J., Perrini, F. (2016). Social Entrepreneurship and Business Ethics: Does Social Equal Ethical?. Journal of Business Ethics 133, pp. 619–625.

Doeringer, Stefanie. (2020). The problem-centred expert interview, Combining qualitative interviewing approaches for investigating implicit expert knowledge, International Journal of Social Research Methodology. 24.

Doherty, B.; Haugh, H. And Lyon, F. (2014). Social Enterprises as Hybrid Organizations, Interna- tional Journal of Management Reviews, 16: 417-436.

Doleski, O. (2015). Integrated Business Model: Applying the St. Gallen Management Concept to Business Models, Springer, pp. 121.

Doty, D.; Glick, W. (1994). Typologies As a Unique Form Of Theory Building: Toward Improved Understanding and Modeling. Academy of Management Review, Vol. 19, No. 2.

Dutot, V.; Van Horne, C. (2015). Digital Entrepreneurship Intention in a Developed vs. Emerging Country: An Exploratory Study in France and the UAE, Transnational Corporations Review, 7.

Fiss, P. (2011). Building Better Causal Theories: A Fuzzy Set Approach to Typologies in Organiza- tion Research. Academy of Management Journal. 54.

Gapminder (2021). Income Levels, Retrieved July 19, 2022.

Gaspareto, M.; Henriqson, E. (2020). Business Model Analysis from the Activity System Perspective: A Design Science Research. BAR - Brazilian Administration Review. 17.

Gillior, H. (2018). The Threat of Digital Business Models, Institute for Digital Transformation.

Gorevaya, E.; Khayrullina, M (2015). Evolution of Business Models: Past and Present Trends, Procedia Economics and Finance, 27, pp. 433-350.

Guggenheimer, T.; Möller, F.; Boualouch, K.; Otto, B. (2020). Towards a Unifying Understanding of Digital Business Models, 24th Pacific Asia Conference on Information Systems, At: Dubai, UAE.

Hair, N.; Wetsch, L.; Hull, C.; Perotti, V.; Hung, Y.-T. (2012). Market orientation digital entrepreneurship: advantages and challenges a web 2.0 networked world, International Journal of Innovation and Technology Management, Vol. 9 No. 6, pp. 1-17.

Hull, C.E.; Hung, Y.-T.C.; Hair, N., Perotti, V.; Demartino, R. (2007). Taking advantage of digital opportunities: a typology of digital entrepreneurship, International Journal of Networking and Virtual Organizations, Vol. 4 No. 3, pp. 290-303.

Jamali, Dima & Mohanna, Nadine & Sherif, Dina & El-Sayeh, Salma. (2016). A Comparative Study of Social Enterprises: North vs. South Perspectives.

Joyce, A.; Paquin, R. (2016). The triple layered business model canvas: A tool to design more sustainable business models, Journal of Cleaner Production, Volume 135, pp. 1474-1486,

Knyphausen-Aufsess, D.Z.; Meinhardt, Y. (2002). Revisiting Strategy: ein Ansatz zur Systematisierung von Geschäftsmodellen, In: Bieger, T., Bickhoff, N., Caspers, R., Knyphausen-Aufseß, D.Zu, Reding, K. (Eds.), Zukünftige Geschäftsmodelle. Springer.

Kreutzer, K.; Niendorf, E. (2017). Social Business Models - A typology based on levels of integra- tion. Die Unternehmung. 71.

Lofland, J.; Snow, D.; Anderson, L.; Lofland, L.H. (2006). Analyzing Social Settings: A Guide to Qualitative Observation and Analysis, (4th Ed.)

Loock M. (2020). Unlocking the value of digitalization for the European energy transition: A typology of innovative business models, Energy Research & Social Science, Volume 69.

Magretta, J. (2014). Why business models matter. Harvard Business Review.

Margiono, A.; Zolin, R.; Chang, A. (2017). A typology of social venture business model configura- tions, International Journal of Entrepreneurial Behavior & Research, Vol. 24 No. 3, 2018, pp. 626- 650.

MAXQDA. (2022). Retrieved February 28, 2022, from https://www.maxqda.de/

Meyer, C.; Cohen, D.; Gauthier, J. (2020). Social entrepreneurship, stakeholder management, and the multiple fitness elements of sustainability: where cash is no longer king, Journal of Small Business & Entrepreneurship, 32:5, pp.431-455

Mohr, L.A.; Webb, D.J.; Harris, K.E. (2001). Do Consumers Expect Companies to be Socially Responsible? The Impact of Corporate Social Responsibility on Buying Behavior, Journal of Consumer Affairs, 35: pp. 45-72.

Nicholls, A. (2006). Introduction. In Social entrepreneurship: New models of sustainable change, pp. 1–35. New York, NY: Oxford University Press.

Nunkoosing, K. (2005). The Problems With Interviews. Qualitative Health Research. 15(5): pp. 698-706.

Osterwalder, A.; Pigneur, Y. (2010). Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers. John Wiley & Sons.

Pir, S. (2019). Transforming experience: How blurring of lines in business calls for iteration and experimentation. Forbes.

Richter, C.; Kraus, S.; Brem, A.; Durst, S.; Giselbrecht, C. (2017). Digital entrepreneurship: innovative business models for the sharing economy, Creativity and Innovation Management, Vol. 26 No. 3, pp. 300-310

Shafer, S.; Smith, H.; Linder, J.(2005). The Power of Business Models, Business Horizons, 48. 199-207.

Snow, C., Ketchen, D. (2013). Typology-Driven Theorizing: A Response to Delbridge and Fiss. Academy of Management Review. 39, pp 231-233.

Sparviero, S. (2019). The Case for a Socially Oriented Business Model Canvas: The Social Enter- prise Model Canvas, Journal of Social Entrepreneurship, 10:2, pp. 232-251.

Thomas DR. (2006). A General Inductive Approach for Analyzing Qualitative Evaluation Data. American Journal of Evaluation, 27(2): pp. 237-246.

United Nations. (2021). SDG indicators. United Nations. Retrieved February 28, 2022.

Di Valentin, C.; Emrich, A.; Werth, D.; Loos, P. (2012). Conceiving Adaptability for Business Models: A Literature-based Approach, CONFIRM Proceedings.

Welthungerhilfe.de. (n.d.). Retrieved February 28, 2022.

Wells, P.; Seitz, M. (2005). Business models and closed-loop supply chains: a typology, Supply Chain Management, Vol. 10 No. 4, pp. 249-251.

Wind, Y.J. (2008). A plan to invent the marketing we need today, MIT Sloan Management Review, Vol. 49 No. 4, pp. 21-28.

Wohlin, C., (2014). Guidelines for snowballing in systematic literature studies and a replication in software engineering, In Proceedings of the 18th International Conference on Evaluation and Assessment in Software Engineering, EASE '14, pp. 38:1-38:10

Yunus, M.; Moingeon, B., Lehmann-Ortega, L. (2010). Building social business models: Lessons from the Grameen experience. Long Range Planning, 43(2/3), 308–325.

Zott, C.; Amit, R.; Massa, L.; (2011). The business model: recent developments and future research. Journal of Management. 37.

Zoom Video Communications. (n.d.): Video conferencing, cloud phone, webinars, chat, virtual events: Zoom. Retrieved July 19, 2022.

Analysis of entrepreneurship education ecosystem of three institutions in Kenya

Collins Ronoh
IU Internationale Hochschule
Germany
email: collins.ronoh@iu.org

Prof. Dr. David Rempel
IU Internationale Hochschule
Germany
email: david.rempel@iu.org

Abstract

The paper investigates the nature of Kenya's entrepreneurship education ecosystem (EEE) through a comparative analysis of three entrepreneurship education programs and an examination of how the institutions foster a favourable entrepreneurial environment. This study looks at the entrepreneurship education ecosystem through the lens of universities, NGO's and private institutes in Kenya.

A systemic analysis of EEE is provided by utilizing the Actiotope Model as a conceptual framework. The exploratory research adopts a pragmatic mixed-method methodological approach best suited to understand the research problem.

The results reveal that entrepreneurship education at higher education institutions was primarily theoretical and relied on traditional forms of entrepreneurship education. Recurring rigid patterns show minimal personalization of content and learning styles within the University, with more personalization reported in the Mully Model of education and the more specialized entrepreneurship program of the Identity Projects.

The adaptation of the Actiotope Model provided a new and unique approach to analyzing entrepreneurship ecosystems. The person-centred approach of the model provides valuable insights to learners and to entrepreneurship education institutions and researchers.

Enhanced collaboration between the different entrepreneurial education stakeholders could be a more effective short to medium-term solution to addressing the gaps in entrepreneurial education at tertiary institutions.

In the long term, the study recommends adopting practical-based and goal-oriented entrepreneurship teaching models.

Key Words: Entrepreneurship, Education, Ecosystem, Actiotope Model

https://doi.org/10.18418/978-3-96043-104-6_203

INTRODUCTION AND THEORETICAL BACKGROUND

Entrepreneurship can balance the inequality in society and create solutions for major issues facing our communities today, especially in developing countries. Kenya is a developing country but has a considerably advanced and sophisticated entrepreneurship environment by the region standards. The advancement of the entrepreneurship landscape in the country coincides with the rise of mobile payment services such as M-Pesa and improved internet connectivity.

The Kenyan economy is one of the most diverse in Sub-Saharan Africa. The primary industries in Kenya include agriculture, manufacturing, tourism, and the service sector, and the primary sources of foreign exchange for the country are agricultural exports, tourism, and diaspora remittances (World Bank 1a, 2021).

Despite the generally positive outlook, entrepreneurs in Kenya still face numerous challenges, such as a lack of quality entrepreneurship education. Kenya's education system creates skills that employers do not value while also raising the aspirations of those who learn them. The current education system results in people having neither employable skills nor skills to start and run a business (Gachugia et al., 2014). The topic of study is particularly relevant now as the Government of Kenya is in the process of implementing a new competency-based education curriculum (Oxford Business Group, 2018).

Over the previous few decades, the concept of entrepreneurship education has evolved into a much broader picture. The field was in the past widely perceived as the study of entrepreneurs and the economics surrounding entrepreneurship. However, entrepreneurship studies now incorporate the research and promotion of entrepreneurial behavioral patterns in businesses and individuals, university-industry-government partnerships, start-ups and scale-ups, and entrepreneurs' aspirations and education orientation (Belitski & Heron, 2017; Bonaccorsi et al., 2013). Recent developments have led to the introduction of the concept of an ecosystem within the entrepreneurship education field.

The term ecosystem is associated initially with topics from the natural sciences. However, the term ecosystem is increasingly used in social sciences to emphasize inter-organizational solid ties (Brush, 2014). What, however, constitutes this ecosystem within entrepreneurship education? The research fills several critical gaps in the Entrepreneurship Education Ecosystem (EEE) literature by examining the individual's environment, which has an educational impact and shapes people's mental and emotional states. More specifically, the study has the following objectives.

Research Objectives

This study attempts to analyze the Kenyan entrepreneurial education ecosystem systematically. It investigates the nature of entrepreneurial education in the country, presents the Actiotope Model as a systemic framework that can be used for analyzing entrepreneurial education ecosystems, and compares the model’s five exogenous capitals in three entrepreneurship education programs. This is achieved by answering the following research questions:

1. **What is the nature of the three institutions' entrepreneurship education? (RQ1)**

Certain factors, such as teaching methodologies, learning content, and educational curriculum, can foster or hinder entrepreneurship skills development. By understanding these factors, the strengths and limitations of the institutions' entrepreneurship education can be estimated.

2. **How are the three entrepreneurship education programs creating a systemic environment that supports their learners' entrepreneurial education? (RQ2)**

   The systemic perspective of the Actiotope Model provides for additional learning and educational resources. The presence of these resources in the programs is assumed to reflect the program's systemic nature.

3. **Is there a personalization of content and learning styles in the individual programs? (RQ3)**

   Every entrepreneur's educational requirement cannot be assumed to be similar. The didactics and pedagogies of the entrepreneurial education programs are used to reflect their degree of personalization.

The three entrepreneurship education programs are comparatively analyzed to recommend innovative approaches to improve Kenya's entrepreneurship education ecosystem.

Entrepreneurship Education in Kenya

Kenya adopted Ashmore's entrepreneurship learning model based on the premise that the skills and attitudes required for effective entrepreneurship growth do not emerge at a single point in time. As a result, EE should be introduced early in a child's education and developed as they grow. (Nafukho & Muyia, 2010). The proposed model has five levels, which would begin at the primary school. Level two is taught at the secondary school to impart management skills through business studies, accounting, and commerce. The learning model incorporates the third level at the tertiary education level to educate students on the skills needed to run a successful business. Levels four and five focused on entrepreneurship venture growth to meet the ongoing need for assistance to get a project off the ground and keep it running successfully (Nafukho & Muyia, 2010).

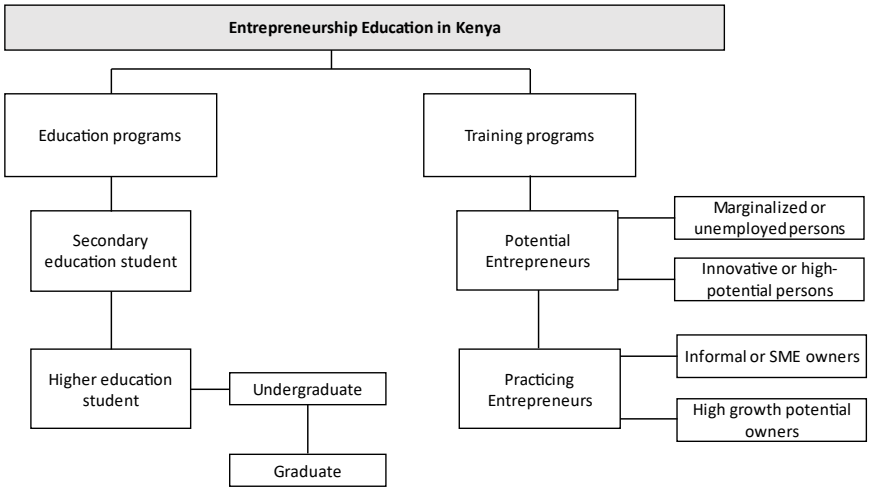


Figure 1: Entrepreneurship Education in Kenya

Source: Adapted from Valerio et al., 2014

While the Ashmore model adopted by Kenya seems to be progressive and fitting the Kenyan education system, why does the EE in the country still face a myriad of challenges?

One answer would be that the current system does not follow the proposed Ashmore model as proper entrepreneurship education is not introduced until the tertiary level. To help provide further answers to the failure of the Kenyan EE, table 1 summarizes the results and recommendations from Mbila (2021) research to understand the nature of the contents, curriculum, and teaching methodologies of entrepreneurship education in Kenya (Mbila, 2021).

Table 2: Results and Recommendations from Mbila (2021)

Methodology	The study utilized mixed-method research by reviewing entrepreneurship program course outlines and conducting interviews with entrepreneurship students and teachers.
Sample Size	The study reviewed the course-outlines of fifteen universities and five mid-level colleges courses. Interviewed ten entrepreneurship teachers, twenty universities, and ten college learners
Findings	
Course Outline	1. 90% of courses are mainly theoretical 2. A minority of courses had practical subjects such as idea generation, development of business plans, market selection, deal structuring etc. 3. Assessment in all the courses was largely theoretical. These included written exams for 2 hours, group and individual presentations, and continuous assessment tests
Teachers view	92% of the teachers reported that they were bound to teach within the country and university curriculum, which exhibited limited flexibility. The teachers could not incorporate more practical aspects even if they wanted because they had to stick to the curriculum provided by the university or college.
Students view	95% of the interviewed students enjoyed the learning concepts and curriculum because it was easy to memorize and pass their exams. The students believed that passing exams was a priority and good grades demonstrated that they are the best fit for employment or entrepreneurship.
Teaching methodologies	98% of the reviewed courses and interview results showed that traditional lecture methods were the primary teaching method.

Recommendations
1. Adoption of learning by doing. Entrepreneurship education should shift to an enterprise methodology that involves the students in the learning process. 2. There should be a shift from teacher-centred to learner-oriented education. The teacher should be a facilitator of the learning process. 3. Innovative teaching methods should be adopted, including business plan development, gamification, entrepreneur visits, behavioral assessments, simulations, etc.

Source: Own Illustration with concepts adopted from Mbila (2021)

Mbila (2021) study gave an in-depth examination of the nature of entrepreneurship education and teaching in Kenya. This study aims to go a step further and examine the learner's environment beyond just the entrepreneurial learning environment. Therefore, the study utilized the concept of the entrepreneurship education ecosystem. Research on the concept of entrepreneurship education ecosystem is mainly from the developed economies like in Europe (Toutain et al., 2019). Still, few studies exist for Kenya or Africa at large. The study employed the Actiotope Model by Ziegler as a conceptual framework to try and recommend systemic and innovative methodologies on how to improve the entrepreneurship ecosystem in Kenya.

The Actiotope model

The Systemic Perspective

The systemic perspective introduces the idea of additional learning resources. Ziegler and Baker (2013) stated that excellence is a revolutionary process that requires adaptation to even the relatively stable Actiotope systems. This adaptation can only be accomplished by continuously introducing new resources that maintain stability and ensure the Actiotope modifiability. Therefore, two learning resources are defined: "Learning Capital" and "Educational Capital".

> "Learning capital is in the person's component of the Actiotope and thus encompasses all endogenous resources that can be used to foster a person's learning progress in a domain. Educational capital is the environmental component of the Actiotope and thus includes all exogenous resources that can be used to foster a person's learning progress in a domain." (Rempel & Mully, 2019)

The research aims to analyze the environment surrounding the individual. The endogenous capitals are within the individual, while the exogenous capitals constitute the individual's environmental aspects. Therefore, the research only looked at the exogenous capitals as the study is more interested in the environment around the individual. More specifically, the research analyses the Kenyan EEE based on the five exogenous capitals of the Actiotope Model.

For this study, the endogenous capitals will not be explored further, while table 2 below, adapted from Rempel and Mully (2019), defines and illustrates the five exogenous educational capitals.

Table 3: Definition and Illustration of the five exogenous capitals

Capital	**Definition**[1]	**Illustration**
Economic Educational Capital	Every kind of wealth, possession, money, or value that is invested in the initiation and maintenance of the education and learning process (pg. 27)	A learner's socio-economic background will significantly affect their academic success. In 2018, 29.1% of Kenyans were still living below the poverty line. Such a high poverty level means families do not have sufficient economic resources to spend on their children's education (World Bank 1a, 2021).
Social Educational Capital	Includes all persons and social institutions that can directly or indirectly contribute to the success of the learning and education process (pg. 27)	Mentors, coaches, and role models are essential for entrepreneurs
Cultural Educational Capital	Includes value systems, thinking patterns, models and, the like that can facilitate or hinder the attainment of learning and education goals (pg. 28)	In the researcher's experience, an educated person was more valued than an uneducated person in Kenya. A lot of emphasis is therefore placed on education and learning.
Infrastructural Educational Capital	Relates to materially implemented possibilities for action that permit learning and education to take place (pg. 28)	This may include classrooms, libraries, computer labs, incubation centres etc.
Didactic Educational Capital	The assembled know-how is involved in the design and improvement of educational and learning processes (pg. 29)	"Training based on superior didactic know-how can easily yield improved effects of at least half a standard deviation." (Rempel & Mully, 2019)

Source: Own illustration adapted from Rempel and Mully (2019)

Note: [1]The definitions are quotes from Zeigler and Baker (2013, pg. 27 – 31)

Key Factors of the EEE Framework in Kenya

This research argues the following critical findings of the EEE in Kenya.

1. There is a significant gap between what the EEE offers and what students/entrepreneurs or other stakeholders expect. According to the research, there is a considerable gap in the following areas.
    - One is an entrepreneurial mindset. (Parton et al., 2014).

- Two is the significant need for more involvement of the business community within the EEE. (World Bank, 2014, pg. 61).
- Three is the lack of personalized content and training programs. (Parton et al., 2014).

2. The EE programs offered are, by nature, brief, one-time programs. There are increasing calls for more systematic initiatives. The research argues that more systemic initiatives with holistic and long-term approaches are needed to address the Kenyan market environment's weaknesses by providing ongoing support.
3. According to the general EE studies, initiatives in this domain can help provide income and enhanced business practice adoption. In Kenya, research shows that EE initiatives mainly focus on the contextual challenge of creating jobs and poverty reduction with minimal research to establish its role in promoting self-employment or establishing enterprises (Parton et al., 2014). Thus, most students end up with skills suitable for jobs that do not exist and abilities that cannot start and run a business.
4. The EE initiatives in Kenya are decentralized, with little evidence of a regional or national strategy for EE promotion (World Bank 2014, pg. 61). There is an urgent need to promote communication among EE stakeholders (Parton et al., 2014). The decentralized nature of the EEE in Kenya presents a challenge in analyzing the entrepreneurship education ecosystem.

RESEARCH METHODOLOGY

The study is exploratory mixed-method research as quantitative and qualitative methods are used. The philosophical worldview adopted by the study is pragmatic. This worldview emphasizes the research problem and approaches best suited to understand the problem (Cherryholmes, 1992). The study conducted a multi-level analysis that followed a convergent parallel design utilizing mixed-method research, as shown in figure 2.

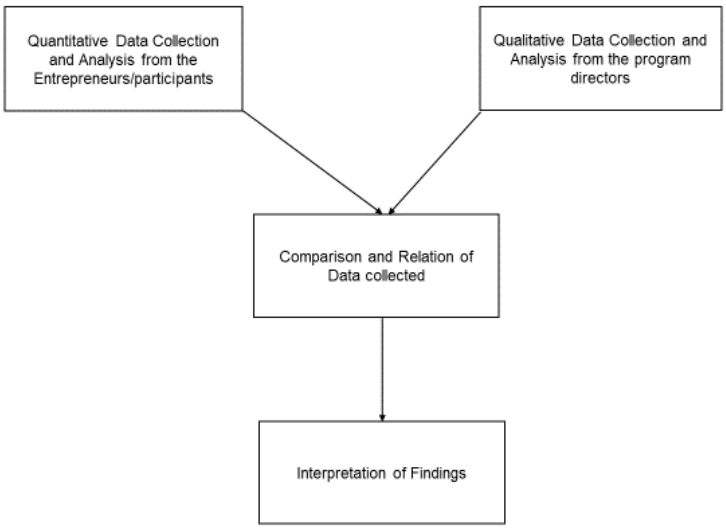


Figure 2: Research design (Source: Own Illustration)

The research connects the findings as per the five exogenous capitals of the Actiotope Model to address this concern. Therefore, the interview questions and the questionnaire questions are built around the exogeneous capitals to ensure consistency and a more straightforward analysis of the findings. The study looks at the research design in the following section.

The following sections discuss the quantitative and qualitative parts, highlighting the data collection procedure, data collection instruments used, sample size, and the research validity of the data collection instruments.

Quantitative Research

The study obtained quantitative data using anonymous questionnaires adapted from the Questionnaire of Educational and Learning Capital (QELC). QELC has been tested and re-tested on different continents, with results showing construct and concurrent validity. Vladut et al. (2013) administered the questionnaire to 503 participants across China, Germany, and Turkey (Vladut et al., 2013). The validity of the questionnaire was confirmed in another study conducted on 248 post-secondary students from Germany. The findings revealed that QELC had good psychometric properties and factorial and concurrent validity (Vladut et al., 2015). A similar study in Israel affirmed the validity and reliability of measuring the Actiotope Model capitals using QELC (Paz-Baruch, 2015). Rempel (2019) also used a similar QELC questionnaire adapted to entrepreneurial education in his study in Kenya (Rempel & Mully, 2019).

The anonymous questionnaire was created using the software Unipark.de. The questionnaire was structured into six sections plus a confidentiality consent section at the beginning of the form. The 1st section collected general characteristic information from the respondents. These included age, gender, level of education, type of high school attended, family residence (urban vs rural), family monthly income level, and years of entrepreneurship experience. Sections 2 – 6 contained questions on the five exogenous capitals of the Actiotope Model. The questions were rated on a 6 -point Likert scale where one means 'Not true at all' and six means 'Fully true'.

The major players offering entrepreneurship education in the Kenyan ecosystem include public and private universities, NGO's, certificate programs, and local and international entrepreneurship organizations. One institution from three major categories was selected using the non-random purposive sampling technique. Furthermore, time constraints, the availability of direct contacts, and the organizations' willingness to participate further impacted the sample selection.

Therefore, three institutions were selected: Identity Project (IP), Maasai Mara University (MMU), and Mully Children's Family (MCF). The anonymous questionnaire was then administered for data collection to the target respondents between June and July 2021. The target respondents should have completed a program, semester, or module each organisation offers. This was to ensure that the participants experienced the programs' entrepreneurship education environment.

Number of Respondents per Institution

The study obtained 108 total responses from the three institutions. Incomplete responses were removed, and the data was cleaned before analysis. The research only conducted a descriptive analysis using mean and standard deviation to achieve the research objectives and answer the research questions. The table below summarizes the sample characteristics.

Table 4: Research sample characteristics

		Total	IP	MMU	MCF
Gender	Male:	49 (45%)	10 (28%)	14 (41%)	25 (66%)
	Female:	59 (55%)	26 (72%)	20 (59%)	13 (34%)
Age	Below 30:	85 (79%)	16 (44%)	33 (97%)	36 (95%)
	31-40:	7 (6%)	6 (17%)	1 (3%)	0
	Above 41:	16 (15%)	14 (39%)	0	2 (5%)
Level of education	Secondary:	2 (1%)	1 (3%)	1 (3%)	0
	Diploma/Certificate:	51 (47%)	12 (33%)	2 (6%)	37 (97%)
	Bachelor's degree:	47 (45%)	18 (50%)	29 (85%)	0
	Post-graduate:	8 (7%)	5 (14%)	2 (6%)	1 (3%)
Family monthly income (Kenya shilling)	Below 23,670:	54 (50%)	10 (28%)	13 (38%)	31 (82%)
	23,671 – 71,835:	29 (27%)	12 (33%)	11 (32%)	6 (15%)
	71,835 – 120,000:	10 (9%)	5 (14%)	4 (12%)	1 (3%)
	Above 120,001:	15 (14%)	9 (25%)	6 (18%)	0
Place of family residence	Rural:	63 (58%)	11 (31%)	19 (56%)	33 (87%)
	Urban:	45 (42%)	25 (69%)	15 (34%)	5 (13%)
Entrepreneurship experience	None:	14 (13%)	2 (6%)	8 (24%)	4 (10%)
	Less than a year:	37 (34%)	9 (25%)	11 (32%)	17 (45%)
	1 – 3 years:	43 (40%)	15 (42%)	14 (41%)	14 (37%)
	3 – 5 years:	10 (9%)	8 (21%)	1 (3%)	1 (3%)
	5 – 10 years:	4 (4%)	2 (6%)	0	2 (5%)

Qualitative Research

The research was interested in gaining new insights from the program directors on the environment around the entrepreneurs or participants within their programs. The term program director was used to describe the persons

administratively responsible for the entrepreneurship education programs. The persons may hold different titles in their respective institutions but are categorized as program directors for study purposes. The researcher's supervisor provided the contacts to the program directors.

The first interview partner was Pascal Strauss from Identity Projects. Mr. Strauss was one of the Identity Projects' initiators and co-founders and served as the principal trainer. The second interview partner was Dr George K. Rukaria, the Maasai Mara University's School of Business and Economics dean. Lastly, Mr. Vincent Opiyo was the program manager at Mully Children's Family, where he oversaw all the programs within the institution.

The study employed qualitative research in the form of semi-structured interviews. The interviews were semi-structured to ensure all the interviews were conducted in an orderly manner while at the same time giving space to the interviewees to address some questions in more detail. The directors of the three programs were interviewed. The interviewees possessed significant specialized expertise and were deemed specialists for this study task due to their project position, professional certifications, and many years of experience. The interview method is, therefore, expert interviews.

After transcription, the analysis was conducted using MAXQDA and the evaluation procedure followed the qualitative analysis procedure described by Kuckartz (2019). First, the text was deductively assigned to categories based on the interview guideline. The main categories were the five exogenous capitals. Second, the main category text passages were compiled, and subcategories were constructed from the material. The interview analysis then focused on the five exogenous capitals per the interview guideline (Kuckartz, 2019).

The researcher researched the research respondent's data with utmost care and ethical consideration. The interview partners agreed to share their data and presented it in the following chapter by signing the data consent form. Therefore, the research shows the findings using the researcher's names, positions, and organization names.

RESULTS, ANALYSIS, AND DISCUSSION

Quantitative Results and Analysis

Table 4: Summary of the means and standard deviations of the five exogenous capitals

Capital	Total		IP		MMU		MCF	
	Mean	SD	M	SD	M	SD	M	SD
Economic	3.2667	1.090305	2.833	0.80782	3.6588	1.02754	3.3263	1.25239
Cultural	4.4333	0.84433	4.5444	1.05896	4.5118	0.83730	4.2579	0.57122
Social	4.0509	0.8000	4.1611	0.81392	3.5176	1.03411	4.4237	0.54855

Infrastructural	4.2389	0.94817	4.0778	1.00885	4.1882	1.00416	4.4368	0.81851
Didactic	4.5352	0.990	4.6722	0.79299	4.1059	1.324124	4.7895	0.67535

Source: Own illustration (M=mean & SD=standard deviation)

The findings show didactic capital had the highest total mean, followed by cultural, infrastructural, social, and economic, with a substantially lower mean than the four other capitals. The result on the economic capital is not very surprising considering the general economic state of Kenya, and 50% of the respondents have family monthly income levels of less than 183 Euros per month:

The Economic capital findings show the means of IP ranked last in all five questions. MMU had the highest mean in questions E1, E3, and E4. However, the difference in the means of MMU and MCF in question E1 was minimal. On the other hand, MCF had the highest means in questions E2 and E5. The results show that all respondents' families or guardians tend to spend higher in education than entrepreneurship. Question E2 had the lowest means, and question E3 had the highest means across three institutions.

Interestingly, table 3 showed that most MCF respondents came from families with the lowest income levels. At the same time, IP had most respondents from higher income levels. However, the findings on the economic capital show contradictory results as one might expect the higher the monthly income, the higher the economic capital. Still, IP has a lower mean on all five questions than MCF.

The results show that the cultural capital had higher means than economic capital. MCF had the least averages in all the five questions, while IP had the highest means in questions C3, C4, and C5. MCF had the lowest standard deviations compared to IP and MMU. The study argues that most MCF respondents live in a similar and controlled environment, hence low SD in the cultural capital.

The averages of the social capital are observed to be lower than the cultural capital but higher than the economic capital. MCF had the highest averages followed by IP, and MMU had the least means across all five questions. It is observed that all the means of MMU are below 4.0 while all from IP and MCF are above 4.0. Questions S1 and S2 relating to business ideas had the lowest averages from all the respondents. Again, it is observed that respondents tend to receive more support about entrepreneurial education or learning than starting a business. This observation concurs with the analysis of the economic capital.

The variation of the infrastructural capital means between the three institutions was minimal, with MCF having the highest means in all the questions. The most significant variation in means is observed in question I2, where IP respondents have the least favorable studying conditions at school. It is important to note that IP does not have any physical infrastructure or school-like structures, and the program is done virtually. Question I5 had the lowest averages across the three programs.

The findings show that IP and MCF have higher averages than MMU across all the questions of the didactic capital. MCF has higher means than IP in all questions except D3. Interestingly, the means of MCF are the highest, and the SD is the lowest, signifying minimal variation between the respondents' answers to the questions. MMU reported the lowest mean in question D2 about entrepreneurship and business training.

Qualitative Results and Analysis

Table 5: An overview of the Institutions

Institution	Description
IP	The Identity Projects is a non-governmental not for profit entrepreneurship education and empowerment organization present in various countries, including Kenya.
MMU	MMU is a Kenyan state-accredited public university offering diploma, certificate, bachelor, master, and PhD courses.
MCF	MCF started as a humanitarian organization to rescue and give a home to homeless children in Kenya. The charity organization rescues, rehabilitates, educates, and trains underprivileged children and young people. The primary purpose is to give the children and young people an opportunity to become self-sufficient and live regular lives after leaving the institution.

The results showed a diverse set of organizations aiming to provide entrepreneurship education to Kenyans. MMU and MCF are local organizations only present in Kenya, while IP operates beyond the Kenyan ecosystem.

The Nature of the Entrepreneurship Program

The results showed diverse approaches to entrepreneurship programs. Identity Projects was the shortest, but the duration cannot be precisely determined because, as Mr. Strauss mentioned, the program had three parts (incubator, accelerator, and connector). The two months only referred to the incubator. Therefore, the results presented in this study only reflects one part of the entrepreneurship program.

The entrepreneurship degree program at MMU lasted for four academic years, but students from other bachelor programs must study a mandatory entrepreneurship course for 15 weeks in their third academic year. MCF provided a rather personalized program depending on the student's situation at the time of rescue. Therefore, a student at MCF may take anywhere from 18 to 42 months to complete the program, including coaching and mentorship.

The research also noted differences in the target group, with each program targeting a specific target group. However, a student from MMU and MCF may also be a participant of the IP as the target group of IP overlaps with the target group characteristics of MMU and MCF. The study cannot accurately make such an inference on the

participants of MMU and MCF. Still, it can be the case that a student from MCF gets sponsorship to pursue a degree at MMU as MCF does not provide university education.

Economic Education Capital

Financial and Time Costs

The interviewees provided information on the monetary and temporal costs invested by the participants in the program. Time investment per week refers to the hours per week required to fulfil the program objectives, and the cost of the program is any direct costs incurred by the student to be part of the entrepreneurship program.

Table 6: The monetary and time costs of the programs

	Time investment per week	**Cost of Program**
IP	2 hours teaching & 1-hour coaching	No cost incurred by the participant
MMU	3 hours per week in each of the seven courses in their respective study programs	Tuition fees: - Ksh 26,000 and 30,000 (200-230 Euros) for government-sponsored students per semester - Ksh 60,000 per semester for self-sponsored students Other costs include administrative, computer lab fees, and the cost of academic field trips.
MCF	Students devoted three hours per week to each subject in their course. A student typically uses 18 hours a week	The program was free to the students who obtained full scholarships worth Ksh 45,000 (360 Euros) per year from MCF

Financial Support and Incentives

Table 7: The types of financial support and incentives offered by the programs

IP	**MMU**	**MCF**
• Personalized support, i.e., depending on student needs • Connection to funding opportunities	• Partial Scholarships • External support • Work-study program • Informal sources, e.g., university staff philanthropy efforts	• Full Scholarships • Pocket money • Start-up capital • Work-study program • Financial training • Partnerships

Cultural Education Capital

The value systems and thinking patterns facilitate the attainment of a program learning goals. The study divided this capital into two sub-sections for results comparison and analysis.

Program Values

The research investigated the fundamental values of the respective entrepreneurship programs, and the findings are summarized in the table below

Table 8: The program value systems

Institution	IP	MMU	MCF
Values	• Learn • Grow • Lead	• Honesty • Hard work • Accountability	• Visionary • Accountability • Honesty • Bravery

Thinking Patterns

The interviewees provided more information on the thought process and models behind the development of the entrepreneurship programs. Mr. Strauss mentioned that the program used the growth mindset as a base model to attain the program goals and support an open entrepreneurial mindset. The project works on changing the attitude of "not being able to do anything about one's circumstances" by creating a shift in mindset from identifying problems to finding solutions.

Mr. Opiyo stated that the education model at MCF integrated entrepreneurship at all levels to create an entrepreneurial culture. The education curriculum prioritized business management and entrepreneurship studies to prepare the students for entrepreneurship from an early age (Opiyo, 2021, pg. 1, lines 46 ff). Emphasis was placed on developing business plans and then presenting and defending the business plan in front of a panel. Every department at MCF, including technical departments, had a detailed business planning program. Mr. Opiyo referred to the competitive nature of the business plan preparation and submission, which prepared students for the business environment.

Dr Rukaria emphasized the importance of entrepreneurship education in the Kenyan education ecosystem, noting that only a few institutions of higher learning had specialized entrepreneurship programs. He envisioned a future in which every program at the higher education level, regardless of specialization, would include four or five entrepreneurship-related subjects. For example, Maasai Mara University's computer science, botany, and zoology degrees should consist of more than the one entrepreneurship course offered because that might be insufficient. He believed that by doing so, the education ecosystem could lay a stronger entrepreneurship foundation for students, allowing them to understand better the role of entrepreneurship and self-employment as a career path.

Social Education Capital

Qualification and experience of the Trainers

Table 9: Trainer's background

IP	Entrepreneurs, Professors, and Specialists in training". IP does not have any full-time staff, and all the facilitators (coaches and trainers) volunteer part-time
MMU	The university had lecturers with a minimum qualification of a master's degree. Many lecturers had doctorate degrees, and others were professors. Dr Rukaria stated that most teaching staff had a professional connection to the industry.
MCF	Certified vocational trainers, college tutors, expert coaches, and practitioners provided academic support. The vocational trainers are certified by the National Industrial Training Authority (NITA) and Technical and Vocational Education Training (TVET). Some college tutors are the Teacher Service Commission (TSC) members, while others are certified tutors through the Kenya Technical Training Institutes.

Number of trainers & Trainer to Participant ratio

Table 5: The number of trainers & trainer to participant ratio

IP	The program in Kenya had between 10 to 15 facilitators for around 40 participants. The trainer to participant ratio is about 1:3
MMU	The school of business and economics has between 20 and 25 full-time lecturers and around 30 part-time lecturers. The trainer to participant ratio is about 1:70
MCF	Mr. Opiyo stated that there existed a shortage of qualified instructors in Kenya. Therefore, MCF employed part-time instructors to supplement the full-time instructors. The trainer to participant ratio is about 1:10

Support Networks

Vladur et al. (2013) stated that social institutions contribute to the success of learning and educational processes (Vladut et al., 2013). The study compared and presented the various forms of social networks established by the institutions to facilitate learning.

Table 11: Results on the program support networks

IP	MCF	MMU
• Peer to peer coaching groups • Feedback model	• Alumni group • Peer-peer coaching and counselling • Mentorship and Leadership • Community Linkages	• Alumni networks • International Conferences • Mentorship • Community Linkages

According to the study, MCF support networks are more extensive and well-established. For example, MCF's mentorship program is structured and already in place, while MMU was still working on a policy. MMU and MCF had alumni groups and community linkages but with different descriptions. MMU's alumni group, for example, was described as a networking platform, whereas MCF's alumni group provided direct opportunities to students, role models, and alumni events. Dr Rukaria reported that MMU students connected to the community through community service, whereas MCF used the community connection to create opportunities and markets for their students produce.

Additionally, all three organizations provided external support networks and partnerships through external trainers and partnerships with other organizations.

Infrastructural Education Capital

Physical Infrastructure

Table 12: Results on the physical infrastructure within the institutions

IP	The institution did not possess any physical infrastructure as the program was held virtually via Zoom. However, the institution collaborated with universities to use their physical facilities
MMU	lecture halls and classrooms with amenities such as whiteboards and public address systems. The students attended virtual classes where the rooms were insufficient Only the postgraduate lecture rooms had permanent screens and projectors, which all students could use when needed The university's primary source of electricity was the national grid, but it had a backup generator in case of a power outage. MMU had numerous internet hotspots throughout the university, resulting in adequate and robust internet connectivity. The university had additional provisions for structures to support student entrepreneurs. - Student center where students could rent stores and set up businesses while studying.

	- Hospitality lab. The students could use the lab to prepare meals and sell them to other students and staff members.
MCF	MCF offered primary, secondary, vocational, and college educational facilities. The schools had lecture halls, workshops, laboratories, and field demonstration units Besides the physical infrastructure, the institution had projects where the students gained practical experience. Mr. Opiyo gave a few examples. - One was the ongoing construction projects within MCF, where students from the welding, metalwork, electrical installation, and masonry department could book appointments to have practical work - Another example was the MCF farms, which set aside land for students to use. Students interested in agriculture and farming used these lots to grow crops or raise animals to gain experience and sell the produce MCF also provided accommodation facilities for visitors The institution had a stable supply of electricity from the primary grid and a backup generator in case of loss of power. MCF provided the necessary technological support such as computers and internet access to the students. The results showed MCF facilities and education was so good that other institutions in the region went for benchmarking.

Infrastructural Limitations

The last section of the infrastructural capital looked at the reported challenges to the institution's infrastructure. The study summarized the difficulties reported in Table 13.

Table 13: Results on infrastructural limitations

IP	MMU	MCF
Lack of internet access and connectivity. Insufficient access to laptops/computers	Lack of a proper incubation center Unstable internet access and power outages	Limited computers Unstable internet connection

The findings showed inadequate internet access as a common challenge between all the three institutions. IP and MCF reported limited computers for students to use. Dr Rukaria spoke about the importance of incubation centers at universities and how the lack of one at MMU hindered effective entrepreneurship education.

Didactic Education Capital

The program curriculum

Table 6: A description of the program curriculum

Identity Projects (IP)
The program structure consisted of two hours of teaching and one-hour coaching sessions every week. Mr Strauss explained that by only teaching a person, you improved productivity by 22%. When you combine teaching with coaching on the same subject over time, you increase productivity to 88% Mr Strauss stated that the curriculum was designed based on scientific insights on learning more effectively. For example, the program gave the instructional segments 20 to 25 minutes but never more than 25 minutes. The justification was that the human brain is better at remembering the beginning and end of a lecture. Therefore, the shorter the teachings, the more the beginnings and endings hence better information absorption and retention. The type of teaching was known as the Pomodoro. At the end of every 20-25 minutes teaching cycle, the participants were put into smaller groups to share and discuss the teaching. The environment created by the program triggered creative thought processes, critical thinking, and decision making between the participants. The teaching sessions covered personal well-being, healthy habits, behavioural assessments, business models, value innovation, customer identification, and team and personal leadership. In contrast, the program did not cover marketing, human resources, and sales skills in so much detail (Strauss, 2021, pg. 6, line 231 ff). The learning content links theoretical concepts to real-world experiences by answering the participant questions using practical experiences. (Strauss, 2021, pg. 9, line 358 ff).
Maasai Mara University (MMU)
The entrepreneurship program had eight semesters and seven courses per semester. The students would typically take four academic years to complete the degree program. The university offered specific courses in the curriculum to help the students develop an entrepreneurial mindset. One example was critical thinking which was a one-semester university-wide course. Aside from that, the education curriculum included tasks that enhanced the students' critical thinking, problem-solving, decision-making, and creative thought processes. A student, for example, could improve their decision-making skills by completing an assignment in which they solved an accounting problem and made recommendations The curriculum significantly included general business skills such as customer identification, sales, human resource, production, and service delivery. The program offered foundation and advanced courses in management, while marketing had two separate subjects. The general business skills were further emphasized when the students prepared their business

plans. The program also included soft skills such as communication, negotiation, leadership, presentation, and human relations
Mully Children's Family (MCF)
MCF is a Technical and Vocational Education Training (TVET) institute, and the curriculum was developed and approved by the Kenya National Examination Council (KNEC) and the National Industrial Training Authority (NITA). Mr Opiyo described the general design of the learning environment at MCF as a hybrid system that he defined as the integration of theory and practical work. The institution established various entrepreneurial departments to generate income and provide students with practical skills and experience. Therefore, MCF designed the training programs around the entrepreneurial ventures to ensure the students can obtain valuable exposure to improve their entrepreneurial skills continuously. The business plan preparation process is crucial for the Mully model of education. Mr. Opiyo stated that the students undergo training from the beginning of the program to prepare a business plan and defend them before a panel. Students consult with entrepreneurs in their field during the business plan preparation process who provide advice to ensure that their business plans develop into a business. Mr. Opiyo shared his experience of how impressed he was to see students at the certificate, craft, or diploma level defend their business plans in a way that demonstrated their ability to do business. Furthermore, MCF used the business plan defense process to assess students' creativity and business skills.

The findings showed variations to the curriculum development process and contents of the respective entrepreneurship programs. IP leveraged scientific principles and the Pomodoro technique and used short teaching and coaching sessions to structure their program. MMU's program was a university degree focused on general business management skills, which took four academic years. MCF structured its program around the institution's goal of income generation and financial sustainability. MCF emphasized the business plan as a vital component of its curriculum.

Only MCF reported curriculum regulation from governmental organizations such as NITA and KNEC. IP's curriculum included business topics such as business models and value innovation, but an equal emphasis was on empowering the individual.

Methods of curriculum delivery

Following an examination of the curriculum's design, it is critical to comprehend how the curriculum was delivered to the intended audience. The delivery methods play a vital role in the didactics of any education program. The study summarized the findings in Figure 3.

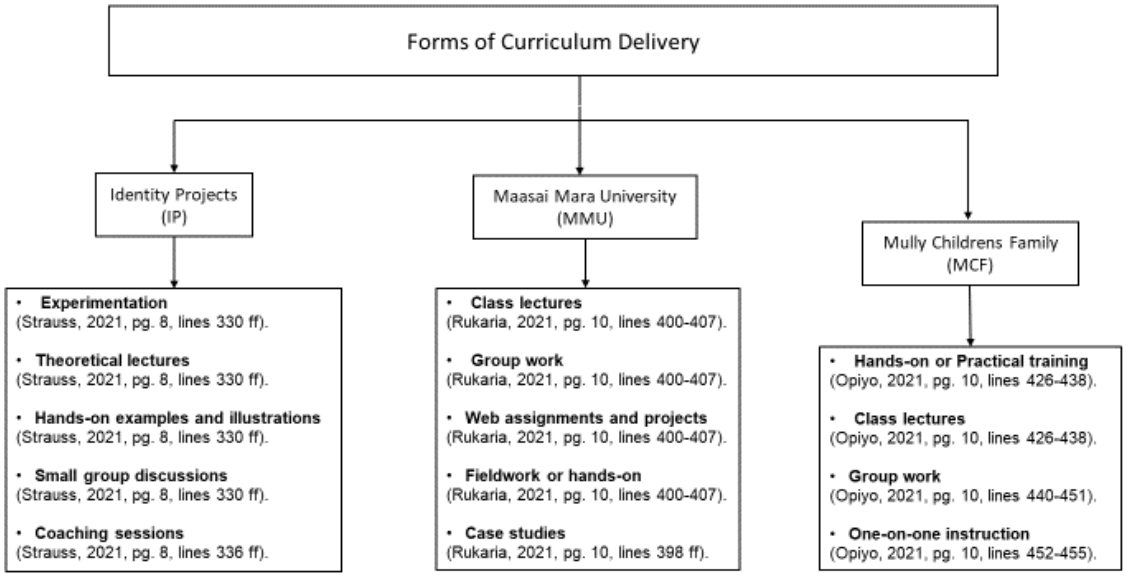


Figure 2: An illustration of the methods of curriculum delivery

The figure shows similarities in forms of curriculum delivery between the entrepreneurship programs. All programs used class lectures, experimentation or practical learning, and group work. Only IP followed every teaching with a coaching session. However, one could argue that one-on-one instruction by MCF is a form of coaching.

Discussion

This section attempts to answer the three research questions by discussing the research findings and comparing them to the literature. The questionnaire and interview results are synthesized to infer meaning. The research questions are listed as sub-headings.

RQ1 - What is the nature of the three institutions' entrepreneurship education?

The first step in answering this question is to give an **overview** of the entrepreneurship education institutions. IP is an international NGO with a specific goal of empowering entrepreneurs. The entrepreneurship program targets university students and young entrepreneurs. The entrepreneurship program was started recently, and the findings discussed are only of the incubator part of the entrepreneurship program. It would be interesting to conduct follow-up research once the connector and accelerator phases have been completed. MMU is a state-accredited public university offering various diploma, bachelor, and postgraduate courses. For this research, the focus was on the bachelor level of education. MCF is a local humanitarian NGO with institutions offering different levels of education, such as primary, secondary, and tertiary levels. MCF offers care, rehabilitation, and education to kids from impoverished backgrounds, homeless, child mums etc. The study focused on MCF's Technical and Vocational

Education Training (TVET) institute offering diploma, certificate, and craft courses. The programs from MCF and IP are free, while students at MMU must pay a tuition fee of at least 200 Euros per semester.

The findings on the **educational curriculum** show that MMU was relying on university guidelines, and the courses were structured into four academic years with two semesters per year. Each semester had 13 weeks for teaching and two weeks for examinations. The findings are similar to Mbila (2021) research that found written examination as the primary assessment form. The tests were also largely theoretical and easy for the learner to quickly memorize. This type of education is what was described by Mbila (2021) as "education about entrepreneurship" (Mbila, 2021).

MCF's curriculum was based on the government stipulated regulations for TVET institutions. However, MCF went a step further to complement the curriculum with well-structured programs such as practical work, work-study programs etc. The program was designed so that by the time the students graduate, they have prepared business plans and are offered support in starting their businesses. MCF's approach to entrepreneurial education is an example of "education for entrepreneurship". The study finds MCF's approach to be holistic and practical. Rempel and Mully (2019) reported that the Mully Model of entrepreneurship education created over 6400 enterprises and almost 18000 jobs (Rempel & Mully, 2019).

While the study found the Mully Model of entrepreneurship education most effective, its replicability in other institutions or environments cannot be ascertained. MCF is a controlled environment where the learners live, study, and work. The institution is the only place most learners consider as their home. On the other hand, the learners of the other institutions such as MMU and IP have more diverse backgrounds and have a home outside the institutions.

Lastly, IP's curriculum was innovative and displayed flexibility to adapt to the target group needs. The curriculum was co-created with the target group before the program's start. The co-creation concept shifts the focus of the education program from the teacher to the learner. This corresponds to the innovative pedagogy model of entrepreneurship education described by Mbila (2021). The incubator part of the program takes two months to complete, and at the end, all the participants submit a business or business idea pitch to a juror of experts. The study finds the business pitch to be a more effective assessment method than the written examinations.

The **learning content** between the three programs also varied, with MMU focusing more on general business skills, MCF on the business plan development, and IP on entrepreneurship leadership and business idea pitches. IP also included behavioral assessment and business models, which Mbila (2021) recommended. IP displayed the most flexibility as the learning contents were co-created with the participants before the start of the program. The researcher argues that the co-creation of learning contents effectively addresses the learner's needs but might be difficult and costly to be implemented on a larger scale, such as the universities.

The **teaching methodologies** were slightly different, with MMU reporting majority of their curriculum was taught through class lectures, thus heavily theoretical. IP utilized the Pomodoro principle to teach its contents and combining it with coaching sessions. MCF, on the other hand, was primarily practical training. IP's teaching

methodology is again fascinating for two reasons. One is the short cycles of teachings according to the Pomodoro Principle, and two is the follow-up coaching after every teaching session. Both approaches could be applied to tertiary institutions in Kenya.

The findings show that the nature of MMU entrepreneurship education was mostly traditional compared to IP and MCF. Therefore, it is no surprise MCF, and IP reported higher means in the didactic education capital than MMU. The findings concur with Mbila (2021), whose study showed that entrepreneurship education curriculum in tertiary institutions lacked flexibility and followed the traditional and less effective teaching methods (Mbila, 2021).

The study believes entrepreneurship education delivered by MCF is an effective way of teaching entrepreneurship in vocational training institutions. The argument is supported by Rempel and Mully (2019) findings, whose study showed that the Mully Model of entrepreneurship education effectively imparts skills necessary for successful enterprise and employment creation (Rempel & Mully, 2019).

The researcher also argues IP's nature of entrepreneurial education is an effective but complimentary way of teaching entrepreneurship education. It is complimentary as it can be easily incorporated into Kenya's existing formal entrepreneurship education models. This is facilitated by the virtual nature of the program and the shorter times required to complete the program. Previous research shows that incorporating innovative methodologies to institutions of higher learning in Kenya can be very expensive and may not fit into the rigid education curricula (Mbila, 2021). Therefore, the study recommends that institutions of higher learning can partner with IP and have IP's entrepreneurial program parallel to its entrepreneurship programs. For example, MMU and MCF can have Identity Projects as short-term courses done within entrepreneurship clubs or societies in their institutions. This arrangement will also ensure all students, regardless of the study program, have an opportunity to gain entrepreneurial skills besides their degree program.

RQ2 - How are the three entrepreneurship education programs creating a systemic environment that supports their learners' entrepreneurial education?

Ziegler and Baker (2013) stated that the Actiotope is usually stable but requires additional resources to ensure the continuous development of excellence (Ziegler et al., 2013). The study looks at the presence of the Actiotope Model's five exogenous capitals to answer RQ2,

Starting with IP, the program's base model was the growth mindset. The growth mindset challenges individuals to adopt an open attitude to learn and grow regardless of personal or entrepreneurial success. Ziegler and Baker (2013) stated that "at some point, most people will cease with learning and seldom fully challenge all the individual development possibilities. It is at such points that intervention from educators could assist." While the argument by Ziegler and Baker seems reasonable, it assumes that individuals do not possess a growth mindset as proposed by IP, and they need an external influence to achieve their learning potential. The researcher challenges the assertion by Ziegler and Baker by proposing that entrepreneurs should be taught how to develop and sustain a growth mindset to attain their potential development possibilities. Nevertheless, educators, mentors, or coaches still play an essential role in the entrepreneurial development of the individual.

The three value systems of IP are, learn, grow, and lead. Mr Strauss stated the values were sequential, thus creating a systemic nature to the value system. The findings also showed that IP had the highest cultural capital mean among the three organizations. The study argues that the sequential value system contributed to IP having the highest cultural capital mean. However, the study examined only one of three parts of IP creates a limitation as the development of entrepreneurial excellence needs to be observed over an extended period. Therefore, the two-month incubator program could be insufficient to examine the individual learning pathways. Further research should follow up on the participants after going through the other phases.

The questionnaire findings showed that MCF had the highest mean in social, infrastructural, and didactic exogenous capitals. As already explained in RQ1, MCF had the most effective form of entrepreneurial teaching and thus the highest didactic capital mean. The interview findings can explain the high social capital mean. The interview findings showed that MCF had the most well-established social networks. These networks can be compared to Toutain et al. (2019) connections. Toutain described the connections as an essential component of an effective EEE (Toutain et al., 2019).

MMU had the highest economic capital mean, but MCF had more comprehensive financial support and incentives. The financial support and incentives could explain why MCF had a higher average economic capital than IP, yet IP had more respondents with higher income levels.

All the institutions had the presence of exogenous capitals but to varying intensities. The exogenous capitals are not solely responsible for developing entrepreneurial excellence, but they create an enabling environment for an individual to thrive. The study concludes that MCF has the most systemic environment that supported the learner's entrepreneurial education. This assertion is supported by the findings of Rempel and Mully (2019). On the other hand, MMU continues to foster an environment that lacks innovation by Mbila 2020.

The researcher could not correctly assess the IP entrepreneurial environment as the research only analyzed one of three program parts. However, the thesis asserts that IP presented the most innovative way to teaching entrepreneurship education. The program utilized online tools and leveraged collaborations to deliver the program at no cost for the participant. Also, the program ensured knowledge transfer across borders.

RQ3 - Is there a personalization of content and learning styles in the individual programs?

The findings observe personalization of contents and learning styles in IP and MCF but lacking in MMU. Starting with IP, personalization is achieved through co-creation of the program, categorization of the program participants, behavioral assessment test, preparation of individual business models and individual project pitch. At MCF, personalization is achieved through preparing the business plan and considering the student's aspirations upon graduation. The researcher argues that the personalized nature of IP and MCF programs also contributed to the higher didactic capital means compared to MMU.

However, Dr Rukaria from MMU stated an interesting and important factor to consider when looking at the personalization of entrepreneurial education content at universities in Kenya. In his opinion, he mentioned that the university entrepreneurship program should be differentiated from start-up programs. The university programs are

in nature generic and follow the set university or government guidelines. The argument concurs with Mbila (2021) findings that 92% of teachers reported they could not incorporate additional aspects to the curriculum as the university instructed them on what to teach. Therefore, the lack of personalization and rigidity is common at MMU and across other universities in Kenya.

CONCLUSION AND RECOMMENDATIONS

The study attempted to conduct a systemic analysis of the Kenyan entrepreneurship education ecosystem by comparing three entrepreneurial education programs. Since its formal introduction in the 1990s, the findings show that entrepreneurship education in the country has neither evolved enough to meet the learner's needs nor transition from the traditional forms of entrepreneurship teaching. While there is an applaudable effort from the government and other stakeholders to increase the number of entrepreneurship programs being offered in tertiary education institutions, the main challenge lies with the curriculum and teaching methodologies of the programs. The curriculum and teaching methodologies exhibit rigidity and fail to impart the skills necessary to run and maintain enterprises successfully.

The Mully Children's Family model of entrepreneurship education stood out as a systemic and innovative way of approaching entrepreneurship education. Entrepreneurship education at MCF is intentionally geared towards producing graduates who set up their own enterprises. MCF has been so successful over the past years that other institutions in the region use it as a benchmark. The study asserts that such practical entrepreneurship teaching can be one of the solutions to the country's growing challenges of unemployment and poverty.

The study acknowledges the difficulty in implementing all the needed changes to the entrepreneurship education ecosystem. For example, MCF has created a systemic environment for the learners through the founder and team's sustained and consistent effort for more than 30 years. Such changes on the country level would even be more complicated and require much more time. While previous studies propose radical changes to the curriculum or redesigning the entrepreneurship education system, this study finds such recommendations necessary but complicated and only offer long-term solutions. The proposals fail to provide solutions to entrepreneurship learners' growing and urgent short-term needs.

The findings from the systemic analysis of the Identity Projects entrepreneurship program shows that such a low-cost and systemic approach offers an immediate and complementary solution to the current gaps in the ecosystem. Therefore, the study proposes partnerships and cooperation of tertiary education institutions with the Identity Projects. Identity Projects will provide personalized and innovative practical ways to teaching entrepreneurship which complements the theoretical and lecture-based teaching methodologies present at the tertiary institutions. Additionally, the Actiotope Model's systemic perspective contains the social capital as an essential exogenous resource for the development of excellence. The collaboration of Identity Projects and tertiary institutions in Kenya will also increase the available social capital for the learners.

Recommended Actions

1. There should be a shift from theoretical learning content and traditional teaching methodologies to hands-on practical teaching such as developing a business plan, new venture strategies, opportunity recognition and integration of ICT and computer. Additionally, entrepreneurial education should be taught from the primary education level and be included in all learning areas at the tertiary education level
2. The focus of entrepreneurial education should be expanded to include teachings on the entrepreneur's personal development. This might consist of growth mindset, emotional intelligence, health, and well-being etc. So far, no study has shown that these topics are included in entrepreneurship education in Kenya.
3. The study proposes the establishment of Identity Project entrepreneurship clubs or societies across higher education institutions in Kenya. The findings show that entrepreneurial education, especially at universities, need radical changes. However, these changes will be costly and take time. Partnership with the Identity Project presents a cost-effective solution to teach entrepreneurship skills to the learners and expose them to networks outside their immediate communities.

   Similar partnerships with institutions such as IP might introduce innovative teaching methodologies such as gamification to the students at higher learning institutions in Kenya.
4. Another alternative would be setting up incubation centers at all higher education learning centers, which will also be capital intensive.
5. There should be more business community involvement in the entrepreneurship education ecosystem. The businesspeople could come in as mentors, coaches, role models or guest lecturers.
6. Entrepreneurship education should shift from the teacher-centred type of learning to learner-focused. Innovative ways of working, such as design thinking which places the end-user at the center of the process, has witnessed massive and rapid success in other sectors. The researcher proposes that a similar entrepreneurial education concept tailored around the learner might yield similarly positive outcomes.

Study Limitations

A few limitations were observed while carrying out the research and can be improved in future research.

1. The sample size was small and cannot be claimed to be representative of the EEE in Kenya. However, the study was exploratory and provided a first and general impression of the EEE in Kenya.
2. Identity Project's program was still new at the research time, and two program phases were still incomplete. This might lead to a skewed comparison with the other two programs that are established and in existence for several years.
3. The researcher could not ascertain the quality of the social structures mentioned by the interview partners. For example, the interviewees stated the presence of alumni networks, but the researcher could not establish the effectiveness of such arrangements.

Further Research

For future research purposes, only three institutions were used to collect data because of resource constraints. Future researchers may want to analyze more institutions than the current research. Additionally, this

research focused on one phase of the Identity Projects, which was completed at the research time. Further research may also be done after the completion of the three phases. Furthermore, research may be done to compare the number of people from each institution who start their own enterprises

Furthermore, more research on the Mully Model of entrepreneurship education could be conducted to determine which aspects could be replicated in other institutions. Studies may also be done to analyze the influence of the social support structures identified by the organizations.

Additional research should investigate entrepreneurial education in Kenya's new curriculum. A researcher may want to compare the existing and new curriculum and highlight any improvements in the entrepreneurial education approach.

Finally, the research introduced the Actiotope Model as an analysis framework for the EEE. However, the study focused only on the exogenous capitals, but the model is more robust than presented in this research. Therefore, future researchers may expand the analysis framework to include the model's modifiability belief, goal setting, component, and dynamic perspectives.

Valorization

The primary target audience of the research are the entrepreneurial education stakeholders such as educational institutions, governmental agencies, and researchers. For educational institutions, implementing the recommended actions would produce more graduates with the required skills to set up and run their own enterprises. These entrepreneurial graduates would then form part of the university alumni body and increase the social capital available to the learners in the institution. Incorporating the Identity Projects program as a student entrepreneurial learning club or society would also result in increased exposure and opportunities for the learners because of the interaction between the learners and the Identity Projects' facilitators and partners outside Kenya.

More interaction and collaboration between institutions and learners would facilitate more efficient knowledge transfer for the general entrepreneurship education ecosystem. The partnerships would create a vast cumulative pool of resources that a single institution might not otherwise achieve. Increased participation from the business community would also lead to increased social capital and a favourable entrepreneurial culture.

Poverty and unemployment are two of Kenya's major challenges. The thesis' proposed entrepreneurship education approach could serve as a conduit for developing skills required to create enterprises that create job opportunities to alleviate poverty. Furthermore, incorporating personal development and responsibility teachings would result in graduates who engage in ethical business practices. This would help to reduce the high level of corruption and financial waste. Lastly, the researcher believes that the nature of EEE is nearly identical across Sub-Saharan Africa. Similarly, most of the recommendations apply to other African countries. Increased cooperation among African governments would result in knowledge transfer and exchange for economic development and empowerment of the nations and their residents.

References

Belitski, M., & Heron, K. (2017). Expanding entrepreneurship education ecosystems. Journal of Management Development, 36(2), 163–177. https://doi.org/10.1108/JMD-06-2016-0121

Bonaccorsi, A., Colombo, M. G., Guerini, M., & Rossi-Lamastra, C. (2013). University specialization and new firm creation across industries. Small Business Economics, 41(4), 837–863. https://doi.org/10.1007/s11187-013-9509-5

Brush, C. G. (2014). Exploring the concept of an entrepreneurship education ecosystem. In S. Hoskinson (Ed.), Advances in the study of entrepreneurship, innovation and economic growth: Vol. 24. Innovative pathways for university entrepreneurship in the 21st century (Vol. 24, pp. 25–39). Emerald. https://doi.org/10.1108/S1048-473620140000024000

Cherryholmes, C. H. (1992). Notes on pragmatism and scientific realism. Educational Researcher, 21(6), 13–17. https://doi.org/10.2307/1176502

Gachugia, T. M., Mulu-Mutuku, M., & & Odero-Wanga, D. (2014). Role of youth enterprise development fund in curbing youth unemployment in Kenya. European Journal of Social Sciences, Arts and Humanities Vol. 2, No. 2 2014. https://www.oecd.org/greengrowth/green-development/43514554.pdf

Kuckartz, U. (2019). Qualitative text analysis: A systematic approach. In G. Kaiser & N. Presmeg (Eds.), Compendium for early career researchers in mathematics education (pp. 181–197). Springer International Publishing. https://doi.org/10.1007/978-3-030-15636-7_8

Mbila, A. M. (2021). Contents, Curricula, and Teaching Methodologies of Entrepreneurship Education in Kenya. Universities Entrepreneurship and Enterprise Development in Africa International Conference. Proceedings Paper. http://search.ebscohost.com.pxz.iubh.de:8080/login.aspx?direct=true&db=edsrep&AN=edsrep.h.sau.ueedcc.08091.109&site=eds-live&scope=site

Nafukho, F., & Muyia, H. M. (2010). Entrepreneurship and socioeconomic development in Africa: A reality or myth? Journal of European Industrial Training, 34(2), 96–109. https://doi.org/10.1108/03090591011023961

Oxford Business Group. (2018). Changes to Kenya's education system seek to expand access and raise standards. https://oxfordbusinessgroup.com/overview/making-grade-curriculum-changes-seek-increase-access-and-standards

Opiyo, V. (2021). Expert interview with Vincent Opiyo on the entrepreneurship education ecosystem in Kenya. Conducted on 15.07.2021. Appendix 7.

Paz-Baruch, N. (2015). Validation study of the questionnaire of educational and learning capital (qelc) in Israel. Psychological Test and Assessment Modeling, 57, 222–235.

Rempel, D. (2017). Factors of success of gifted and talented Kenyan children and young adults from marginalized and impoverished backgrounds, from Mully children's family [Dissertation]. GBV Gemeinsamer Bibliotheksverbund.

Rempel, D., & Mully, C. M. (2019). An applied approach of teaching entrepreneurship – "Mully Model of Applied Entrepreneurship Teaching". Universities Entrepreneurship and Enterprise Development in Africa International Conference. Proceedings Paper. http://search.ebscohost.com.pxz.iubh.de:8080/login.aspx?direct=true&db=edsrep&AN=edsrep.h.sau.ueedcc.07078.097&site=eds-live&scope=site

Rukaria, G. K. (2021). Expert interview with Dr George K. Rukaria on the entrepreneurship education ecosystem in Kenya. Conducted on 07.07.2021. Appendix 6.

Strauss, P. (2021). Expert interview with Pascal Strauss on the entrepreneurship education ecosystem in Kenya. Conducted on 29.06.2021. Appendix 5.

Toutain, O., MUELLER, S., & BORNARD, F. (2019). Decoding entrepreneurship education ecosystems (eee): A cross-European study in primary, secondary schools and vocational training. Decodificación De Los Ecosistemas De Educación Empresarial (EEE): Un Estudio Transeuropeo Sobre La Enseñanza Primaria, Secundaria Y Formación Profesional, 23(5), 47–65. http://search.ebscohost.com.pxz.iubh.de:8080/login.aspx?direct=true&db=bsu&AN=140327907&site=ehost-live&scope=site

Vladut, A., Liu, Q., Leana-Tascila, M., Vialle, W., & Ziegler, A. (2013). A cross-cultural validation study of the questionnaire of educational and learning capital (qelc) in China, Germany and Turkey. Faculty of Social Sciences - Papers (Archive), 462–478. https://ro.uow.edu.au/sspapers/1697

Vladut, A., Vialle, W., & Ziegler, A. (2015). Learning resources within the actiotope: A validation study of the qelc (questionnaire of educational and learning capital). Psychological Test and Assessment Modeling, 57(1), 40–56.

World Bank. (2010). Stepping Up Skills for More Jobs and Higher Productivity. Washington, DC. https://www.oecd.org/cfe/leed/BGP_Entrepreneurship-in-Education.pdf

World Bank 1a. (2021). Kenya overview. https://www.worldbank.org/en/country/kenya/overview#1

World Bank 1b. (2014). Kenya Economic Update, June 2011, Edition No. 4. Washington, DC; Washington, DC. https://openknowledge.worldbank.org/handle/10986/27254

Ziegler, A., Vialle, W., & Wimmer, B. (2013). The actiotope model of giftedness: A short introduction to some central theoretical assumptions. Faculty of Social Sciences - Papers (Archive), 1–17. https://ro.uow.edu.au/sspapers/526

Dual Engineering Study Program with Focus on Sustainability in Cote d'Ivoire

Charlotte Newiadomsky, Lukas Saars, Arne Graßmann
Hochschule Niederrhein, University of Applied Sciences
Germany
email: charlotte.newiadomsky@hs-niederrhein.de

Ahoutou Paul KOUAKOU
University NANGUI
ABROGOUA, Côte d'Ivoire
email: kouakoupaul.sfa@univ-na.ci

Abstract

The access to electricity and water in rural areas in Côte d'Ivoire as well as in large parts of Africa is limited. According to Ivorian government sources, the national coverage rate of drinkable water and electricity was about 80% in 2020, whereas there are differences between rural and urban regions. The coverages are lower in rural areas that are situated far from the governmental infrastructures.

The poor supply of electricity also hinders education, since petroleum lamps are often the only source of light for learning after sunset. Besides, increasing demand for electricity is predicted in Côte d'Ivoire due to economic growth. The economic power is also affected by the poor supply of electricity, so only a limited production of goods is possible.

A further big concern in Côte d'Ivoire is the employability of graduate students, as the educational system has a strong theoretic character, not yet taking enough into account practice orientation. Scientific public universities in Côte d'Ivoire often offer only subjects such as mathematics, physics, or chemistry but hardly any engineering.

Although the unemployment rate of the total labor force with advanced education was only about 12% in 2017, the labor market cannot provide enough skilled jobs in several economic sectors (e.g., renewable energies) (World

https://doi.org/10.18418/978-3-96043-104-6_231

Bank Group 2017). As a result, graduates often start to work in sectors that do not require the special knowledge of their former studies.

This paper presents some solutions to tackle these problematics in Côte d'Ivoire by implementing a dual study program that combines practical and theoretical teaching modules with a focus on renewable energies and water supply. It can make an important contribution to combating the high unemployment rate among graduates and at the same time can accelerate the expansion of renewable energies and water supply infrastructure and increase the security of supply in Côte d'Ivoire.

Introduction

Africa is a priority region in the World Energy Outlook 2019 to provide a robust, evidence-based platform for energy decision-makers (International Energy Agency 2019). The "Sustainable Africa Scenario" of the African Energy Outlook 2022 wants to achieve universal access to affordable electricity by 2030, although 43% of the total population lacks access to electricity at present (International Energy Agency 2022).

Many studies have already concluded that access to electricity and water in rural areas in Côte d'Ivoire as well as in large parts of Africa is limited. As an example, in 2020 around 70% of the total population in Côte d'Ivoire had access to electricity, whereas it was nearly 95% of the urban and only 43% of the rural population (The World Bank 2022).

In 2020, around 71 % of the total population was using at least basic drinking water services, of which 85% of the urban and 56% of the rural population. In contrast, only 35% of the total population (55% urban and 15% rural) could use safely managed drinking water services (The World Bank 2022). One of the main causes of this disparity is the lack of infrastructure in rural areas.

The supply of electricity and clean water are closely intertwined and leads to direct interdependencies and impacts (Newiadomsky and Tietze 2017). This conflict can be complemented by other areas, such as education.

The sometimes long and time-consuming supply chain for potable water, which is largely handled by adolescents, especially girls, severely limits the educational and training opportunities of those affected (Noubactep 2016; Mitsubishi UFJ Research and Consulting Co., Ltd. 2013). The poor supply of electricity also hinders education, since petroleum lamps are often the only source of light for learning after sunset.

The economic power is also affected by the poor supply of electricity, so that only a limited production of goods (e.g., with the help of electrical tools) is possible. Besides, increasing demand for electricity is predicted in Côte d'Ivoire due to economic growth (International Energy Agency 2019).

In most of the public universities in Côte d'Ivoire, learning is more theoretical than practical. The courses given are certainly very complete but the laboratories for practicing physics or other scientific subjects are not equipped. The collaboration between universities and companies is almost inexistant. This makes it difficult to find a job after studying.

According to Yapo (2018), the integration rate of graduates in Côte d'Ivoire was only 14.43% in 2016, which means that almost 86% of these graduates were unemployed. Interestingly, the average overqualification rate in Côte d'Ivoire is 29.69%, whereas workers with secondary and higher general education are more affected by overqualification (38.15% and 30.68%) and especially women are more exposed than men (30.97% versus 29.25%).

As it is shown, many graduates in Côte d'Ivoire are not able to work in their original profession. One main problem is, that the labor market cannot provide enough skilled jobs in several economic sectors (e.g. renewable energies). As a result, graduates often start to work in sectors that do not require the special knowledge and skills of their former studies, so a quick adaption to the field of work is necessary.

Human resources managers at Ivorian companies are often convinced that the knowledge of university graduates is based on a purely theoretical foundation. Therefore, it is believed in industrial human resources management that graduates are not ready to enter the industry because their practical experience is still lacking. In general, graduates start to work as a trainee in industrial companies for around two years after graduation, in order to be considered full employees. As a result, universities and companies in Côte d'Ivoire very rarely work together or enter into long-term collaborations.

The practical relevance is the biggest advantage of dual study programs. The main goal is to enable students to simultaneously gain theoretical knowledge and learn from practical work in a local company in the field of e.g. energy or water supply. Students who study in dual programs already gain a lot of work experience during their studies and are prepared for professional life in terms of working experience. Currently, there are no dual study programs in Côte d'Ivoire, although they have great potential to strengthen cooperation between universities and companies and

reduce unemployment rates among graduates. This and the fact that the Ivorian government has issued optimistic targets for the expansion of renewable energies were decisive for the development of the project idea and concept.

2. Project Concept

The main goal of the project is to set up a dual master's study program with a jointly developed curriculum between the University NANGUI ABROGOUA (Côte d'Ivoire), the Hochschule Niederrhein (Germany) and companies, which enables its graduates to build, modify, install and operate systems in the fields of "renewable energies" and "water supply". The first generation of students is expected to develop, build and commission a prototype for an electricity and water supply system as part of practical teaching modules in the study program. Together, teaching modules (involving external expertise, partner universities and business partners) are to be developed on the basis of a set of specifications in which the following questions, among others, are to be answered:

- What general knowledge is required for planning and implementing a power and water supply station?
- What knowledge is typically available on completion of a study course at the University NANGUI ABROGOUA?
- What relevant knowledge is present from the lecturers?
- What are the lecturers' didactic strengths? In which areas might they need further support? Which knowledge gaps need to be managed and is it possible to get help from the Hochschule Niederrhein or from company representatives?
- Which competencies must be available to the students after completion of the study course?

In order to overcome lacking knowledge in terms of didactical knowledge, each workshop meeting reserves time to focus on changing didactic topics. Several milestones have been formulated and linked to either workshops or project modules/works during the study course:

1. Curriculum approved by the partner universities.
2. Suitable group of students selected with a desired equal composition of both genders.
3. Detailed planning of prototype 1 for a plant for electricity and water supply completed
4. Prototype 1 for a plant for electricity and water supply put into operation
5. Detailed design of prototype 2 completed.
6. Prototype 2 put into operation at university for testing purposes.
7. Prototype 2 sent and put into operation in the model village.

8. Partners for new projects and a new group of students won

A four-semester continuing education course, based on a Master's programme will take place at the University NANGUI ABROGOUA in Côte d'Ivoire. A semester abroad at the Hochschule Niederrhein is firmly anchored in the curriculum (third semester of the study course). The study in Germany is to be structured with a duration of one semester including the practical part (50%). For this purpose, teaching and learning materials and workplaces are to be prepared for the practical part of the study.

The first two practice-oriented project modules of the study course are intended for concept development and detailed planning of a prototype by the Ivorian students. During the third semester, the students travel to the Hochschule Niederrhein to build-up and operate prototype 1. After completion of the semester abroad, the training material and facilities are to be transferred to the University NANGUI ABROGOUA in Côte d'Ivoire. Subsequently, students from the Hochschule Niederrhein (of existing study courses, which fit thematically into the topic of the study course in Côte d'Ivoire) visit the University NANGUI ABROGOUA, to work together with the Ivorian students on prototype 2.

The mixed student group has to consider their experiences during the build-up of prototype 1, as well as local sourcing for components and necessary works to be done, i.e. hole drilling. Furthermore, possible additional project partners from industry will be addressed, a model village to set up prototype 2 is selected and business models for a small series of the system will be developed. The best business model will be selected in the course of a competition, involving local financiers and industry partners. Afterwards, the German students travel back to Germany. Simultaneously, the procurement for prototype 2 starts and the workplace for it is prepared, while prototype 1 is set up at the campus in Abidjan and put into operation.

Further German students (not necessarily from the mentioned group before) travel to Côte d'Ivoire during the fourth project year and write their thesis about the project from technical and economical perspectives. At the same time, the Ivorian students build prototype 2 on-campus and put it into operation. After the successful installation and operation of prototype 2 at the University NANGUI ABROGOUA, prototype 2 is brought to the selected model village and put into operation. The last practice-oriented task during the study course is the evaluation of the operation experience and an improvement of the planning steps, in order to enhance the existing plans from prototypes 1 and 2 as a basis for a small series.

3. Methodology

One of the most important components of the project is the curriculum for the dual engineering program with focus on energy and water. For the development of the study program, the European understanding of a dual study programs has to be transferred to the Ivorian academy. The first step is the creation of a rough draft of the curriculum by the Hochschule Niederrhein in Germany. It lists all the possible teaching modules required for the development of a prototype for an electricity and water supply system in remote areas. The next step is matching the rough draft with the academic framework at the University NANGUI ABROGOUA. Since this is a dual master's program, it is particularly important that the level of knowledge of an Ivorian bachelor's graduate is defined in advance, so that missing competencies can be identified. For this, a workshop is prepared in advance of the first face-to-face meeting in Côte d'Ivoire by project members, which can be divided into four main work packages (see Figure 1).

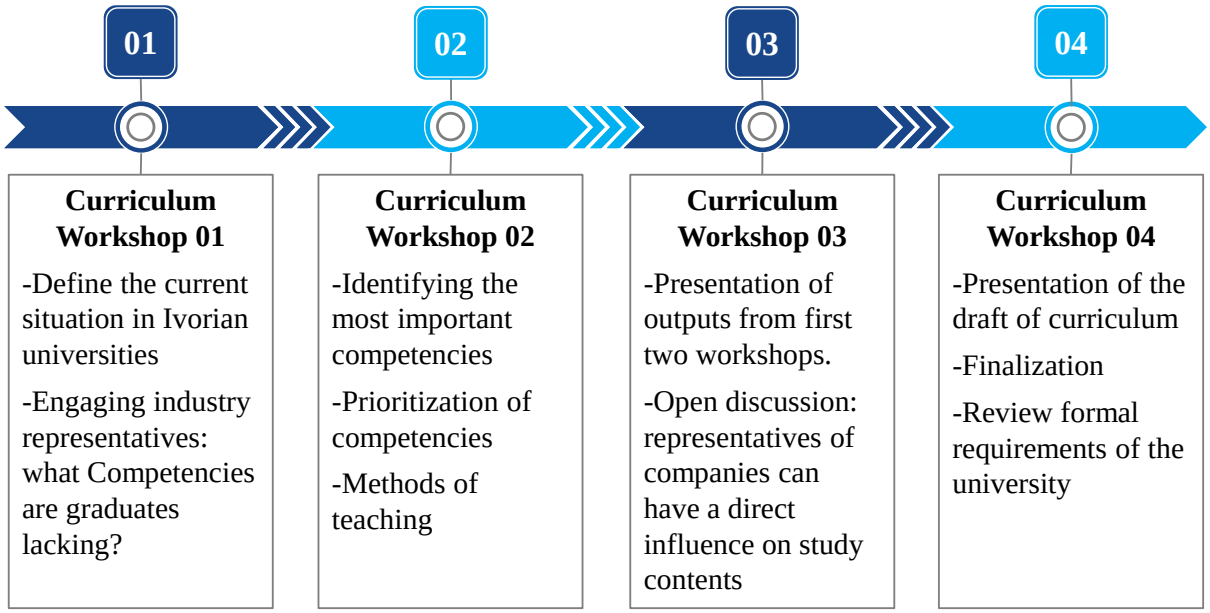


Figure 3: Work Packages of the First Workshop in Côte d'Ivoire for Curriculum Development (Chronological Order)

In order to integrate companies and their interests into the curriculum, several representatives of interested companies and ministries were invited to the workshops. They were part of the working groups, gathering ideas and concepts for the curriculum. The results from the workshops were processed in such a way that a curriculum with the most important study contents can be developed and thus, meets the requirements of the Ivorian companies.

After the official implementation of the curriculum for the dual master's program at the university, another major challenge followed with the selection of the ten best students to start the first group. By aiming an equal number of

five female and five male students for the course of study, the student group ensures gender parity. Local procedures for the recruitment of interested parties have been taken up, such as

1. Advertising banners at the universities and local hotspots
2. Publications on universities and project websites
3. Publications on various social media channels (i.e., Facebook, German embassy Facebook, LinkedIn) and private statuses (e.g. WhatsApp)
4. Word-of-mouth.

For the selection process of the best students, conducting an assessment center is a very good option for a large number of applications (385 registered, 166 completed applications). It is decided to do a first pre-selection in order to limit the number of student participants for the assessment center to 41 - a number of participants that is well suited for conducting this kind of an assessment center. For this, all applicants were invited (onsite and online for candidates abroad) to take a written test that assessed important competencies for completing the developed dual master's program (e.g., logical thinking, basic scientific knowledge, etc.). In order to conduct an assessment center, it is first necessary to determine which competencies are to be tested in which disciplines. Following this, it is still necessary to determine which tasks and instruments will be used to test these competencies in an objective way. This all can be used to create an assessment center evaluation matrix. Within the described project, the following matrix is developed (see Figure 2). Each column represents an assessment task to be done by the applicants (partly as group work), while each row represents a competency to be evaluated at different tasks. In the end, each task is used to evaluate several competencies, which are shown in detail as colored fields in blue, red, and green and their corresponding abbreviations (e.g., A1).

In detail, the first selection of applicants is divided into groups and each group has to work on the following tasks (as a group or individually):

1. Group work case study: Applicants are divided into groups and randomly distributed case studies. A presentation on the case studies is to be prepared in the assigned group.
2. Second written exam: Students have to make a written exam with questions covering (1) thermodynamics (2) engineering fundamentals, (3) mathematics, (4) energy management, (5) design/construction, (6) data analysis, (7) business administration fundamentals.

3. Individual presentation: Each student is randomly assigned a current topic in the energy industry and has to present it in a few minutes.
4. Personal interview: Each student is interviewed in a five-minute personal interview so that specific questions about the individual resumes can be asked.

Following the analysis of the results, radar charts are compiled for each individual, in order to select the final group of ten students, covering as many important competencies as possible. Figure 3 shows exemplary radar charts of applicants.

4. Results

As part of the project "Industry Integrated Dual Engineering Studies in a North-South Collaboration" (IIDES-NSC) and as one of the first steps, we organized a workshop in Côte d'Ivoire in October 2021, in order to receive inputs for the planned dual study program. The workshop was meant to involve company CEOs, students, lecturers, university administrators, government actors such as the higher education ministry, the ministry of hydraulic, the ministry of energy members. One goal of this workshop was to establish a permanent collaboration between the local industry and universities in order to consistently get feedback on the needs of industry on the skills and competencies of the graduates of the dual study program.

The curriculum has been successfully developed and implemented at the University NANGUI ABROGOUA, using the methodology described above. The model of the dual study program at the Department of Mechanical Engineering at the Hochschule Niederrhein was used as a basis and adapted to the Ivorian academic framework. The most interesting part is the simultaneous theoretical study at the university combined with practice work in local companies during the whole study program. The students will work at companies dealing with the topics of energy or water supply or adjacent fields, so that knowledge from practical work and theoretical study can mix and leads to benefits for both, academia, and industry, in Côte d'Ivoire. The basic structure of the Ivorian dual study program is shown in Figure 4.

Within the workshop for curriculum development, topics out of the three main subjects "technical studies", "economical studies" and "social studies" are covered. The additional project work deals with the applied use of newly gained knowledge in order to plan, construct, set up, and calculate the economic feasibility of solar-powered electricity and water supply system for remote areas in Côte d'Ivoire.

Within a short application period of only two weeks, 166 applications have been received from people interested in the newly developed study program. The structured approach of the pre-selection process and the following assessment center successfully identified the ten best students among the applicants.

Since the share of female students in science study programs in Côte d'Ivoire is even lower than at German universities, it is quite remarkable that more than 35 applications also came from female students. The original goal of selecting five female and five male students who, as a team, cover all the mandatory competencies, was thus achieved.

5. Discussion and Outlook

An important framework condition supporting the project can be built by interested business partners with the willingness to participate in the dual study program. These companies can draw a benefit from the project, e.g. the possibility to employ a graduate from the study program, because of the additional interdisciplinary and practice-oriented skills.

In order to allow students of the dual study program to work in local companies during the study program, it is mandatory to find suitable business partners in Côte d'Ivoire, preferably working in the field of electricity or water supply or adjacent areas (i.e. circular economy, wastewater treatment, waste management, etc.).

For this, it is mandatory to get into contact with local companies and business networks to explain and show them (their) benefits of hiring the students of the dual study program. Discussions and exchanges that have already taken place with experts of Rwanda and NGOs have shown, that the universities have to actively invite companies to information events at the universities, allow bilateral meetings or open up platforms for the specific exchange between academia and industry. Disseminators, such as Chambers of Industry and Commerce should also be taken into account as well as already known networkers in universities or industries. Further possibilities to get into contact with local industry still have to be found out and tested as soon as possible, so that the first group of students can find a hosting company during their studies.

Future projects within the curriculum (e.g., new types of prototypes) could be tested and implemented in those villages and areas to be connected to the electric grid (see the Ivorian Program 'Programme National d'Électrification Rurale'), to support the aims of the Ivorian government.

For the next group of the dual study program, a new main focus can be chosen, depending on the interest of possible industrial partners, arising economic necessity or the government development plan. Additional financial funds may be used to finance the supplies for future prototype projects.

The possibility to expand the dual study program into other topics of interest should be taken into account and be discussed internally at the University NANGUI ABROGOUA as well as with industrial and governmental partners.

Bibliography

International Energy Agency (2019) "Africa Energy Outlook 2019: World Energy Outlook Special Edition." Accessed September 03, 2020. www.iea.org/africa2019.

International Energy Agency. (2022). "Africa Energy Outlook 2022 - English Version." World Energy Outlook Special Report. Accessed July 27, 2022. https://iea.blob.core.windows.net/assets/6fa5a6c0-ca73-4a7f-a243-fb5e83ecfb94/AfricaEnergyOutlook2022.pdf.

Mitsubishi UFJ Research and Consulting Co., Ltd. (2013) "Country Gender Profile: Côte D'Ivoire." Accessed September 04, 2020. https://www.jica.go.jp/english/our_work/thematic_issues/gender/background/c8h0vm0000anjqj6-att/cotedivoire_2013.pdf.

Newiadomsky, Charlotte, and Ingela Tietze (2017). Beitrag Erneuerbarer Energien Zur Verfügbarkeit Von Elektrizität Und Wasser in Afrika: Ansätze Für Eine Nachhaltige Entwicklung?. In Filho, W.L. (ed), Innovation in Der Nachhaltigkeitsforschung: Ein Beitrag Zur Umsetzung Der UNO Nachhaltigkeitsziele, Berlin: Springer Spektrum ,pp. 39–59.

Noubactep, Chicgoua, ed. (2016) Approvisionnement En Eau Potable En Afrique: Une Technologie Appropriée Pour Relever Le Défi. Afrika & Wissenschaft / Africa & Science / Afrique & Science 2. Frankfurt/Main: Africa & Science.

The World Bank (2022). "World Development Indicators." Accessed July 27, 2022. https://databank.worldbank.org/reports.aspx?source=2&country=CIV.

The World Bank (2017). "Unemployment with advanced education (% of total labor force with advanced education) - Cote d'Ivoire." Accessed July 23, 2022. https://data.worldbank.org/indicator/SL.UEM.ADVN.ZS?locations=CI.

Yapo, Andoh Regis (2018). "Les origines du problème de surqualification en Côte d'Ivoire". Accessed April 4, 2022. https://theconversation.com/les-origines-du-probleme-de-surqualification-en-cote-divoire-99004.

	Individual Assessment (From Questionnaire)							Group Assessment	Individual Assessment	
	Thermodynamics	Fundamentals in engineering	Mathematics	Energy management	Design / Construction	Data Analysis & Modelling	Business fundamentals	Group Exercise or Case study	Project Presentation	Interview
Analytical thinking	A1	B1	C1	D1	E1	F1	G1	GE1	PP1	
Communication				D2			G2	GE2	PP2	INT2
Cultural sensitivity								GE3		INT3
Team work								GE4		INT4
Creative thinking					E5			GE5	PP5	
Problem solving	A6	B6	C6	D6	E6	F6	G6	GE6	PP6	
Scientific / technical credibility	A7	B7	C7	D7	E7	F7	G7	GE7	PP7	INT7

Figure 4: Assessment Center Evaluation Matrix

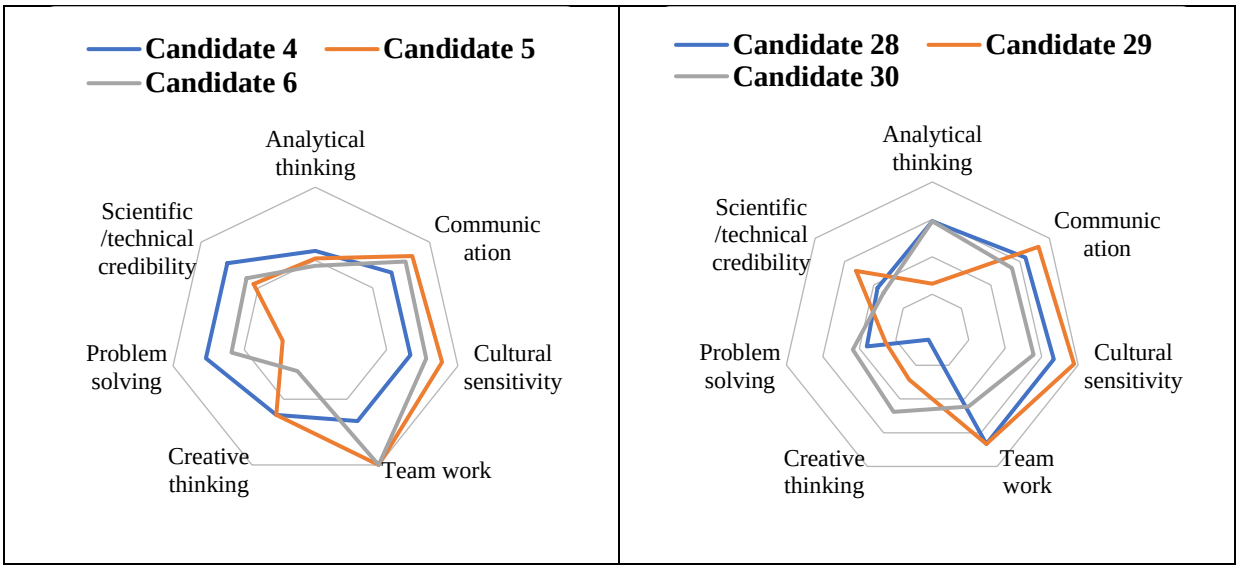


Figure 5: Exemplary Radar Charts for Candidate Competencies

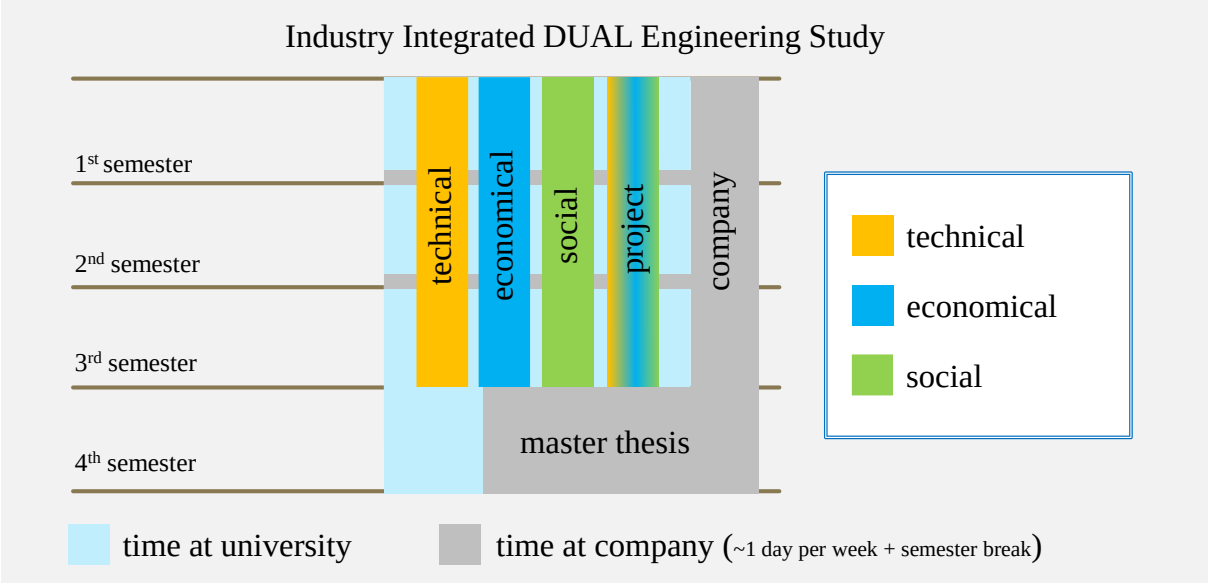


Figure 6: Basic Structure of the Dual Study Program


UEED
Universities, Entrepreneurship & Enterprise Development in Africa
INTERNATIONAL CONFERENCE:
UNIVERSITIES, ENTREPRENEURSHIP AND ENTERPRISE DEVELOPMENT IN AFRICA

BET Ghana – Building Expertise and Training for growth in consumer goods and food processing industries in Ghana.

BET Ghana
Building Expertise and Training for growth in the consumer goods and food processing industry in Ghana

Overview

The labour markets in Africa provide graduates who have sufficient theoretical skills but exhibit a lack of practical experience. The project's overall goal is to enhance employability and (self-) employment opportunity of students and graduates specifically in the Ghanaian consumer goods and food processing industry. In addition, awareness of the potential of the African markets among German SMEs should be raised and they should be given the opportunity to get involved by exploiting the advantages of a university partnership platform.

Corporate partners played a crucial role in the project as they provide universities with knowledge, requirements and needs to help them to improve the academic practice-oriented teaching and research and increase the employability of their graduates. At this juncture, the project conceptualized "win-win" cooperation models which led to direct benefits for companies and universities.

The project activities included the Enhancing knowledge, research capacities and professional skills among researchers, lecturers and students, as well as entrepreneurs in the Ghanaian consumer goods and food processing industries. In addition, the exchange of students and staff, and annual conferences aims to increase knowledge transfer between the private sector and academia especially regarding entrepreneurship in Africa

The project started in July 2019 as part of the "University-Business-Partnership programme" funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and the German Academic Exchange Service (DAAD). The project is being carried out by the Bonn-Rhein-Sieg University of Applied Sciences (H-BRS) in Germany, the University of Cape Coast (UCC) in Ghana. Various corporate partners contributed to the project.

Funded by

DAAD Deutscher Akademischer Austauschdienst
German Academic Exchange Service

Federal Ministry
for Economic Cooperation
and Development

Hochschule
Bonn-Rhein-Sieg
University of Applied Sciences