

Contents

| | | |
|----------|---|-----------|
| 1 | List of Abbreviations | 3 |
| 2 | List of Figures | 4 |
| 3 | List of Tables | 5 |
| 4 | Management Abstract: Digital Entrepreneurship in Higher Education in the EAC | 6 |
| 5 | Overview on Results (Narratives and Observations) and Related Suggestions and Recommendations | 8 |
| 5.1 | Six Narratives and Twenty general observations for action(s) | 8 |
| 5.2 | Thirty suggestions and recommendations for actions derived from research | 12 |
| 5.3. | Specific suggestions and recommendations for each state of the EAC | 16 |
| 6 | Introduction | 18 |
| 6.1 | Research question(s), methodology | 19 |
| 7 | The EAC Digital Entrepreneurship Ecosystem | 21 |
| 7.1 | Preliminary consideration A: What does “tech and digital entrepreneurship” mean? | 22 |
| 7.2 | Preliminary consideration B: An Afro-centric model of being an entrepreneur and teaching entrepreneurship | 24 |
| 7.3 | Brief country overview on key factors with regard to the research question in the EAC | 24 |
| 7.4 | Economy and talent: A 2017 forecast | 27 |
| 7.5 | Entrepreneurship education in the EAC, in general and in specific | 29 |
| 7.6 | Qualifications and environment of the up and coming digital entrepreneur | 35 |
| 7.7 | Culture: The water the entrepreneur is born into and has to swim in | 40 |
| 7.8 | On Social Entrepreneurship | 42 |
| 7.9 | Focus on women | 43 |
| 7.10 | Creative economy, the Cultural and Creative Industries | 45 |
| 7.11 | Selected observations and recommendations from secondary sources research on skillset, women and social entrepreneurship, Creative Industries | 48 |
| 8 | Case Reports and Case Studies on (Digital) Entrepreneurship in the EAC / Africa | 50 |
| 8.1 | Eric Muthomi from Kenya | 50 |
| 8.2 | Andrew Mapuya from Uganda | 51 |
| 8.3 | Dorothy Gehttuba from Kenya | 52 |
| 8.4 | Denyse Uwineza from Rwanda | 53 |
| 8.5. | Further data from case reports of EAC countries and other African countries | 54 |

| | | |
|-----------|--|-----------|
| 9 | A first Resumée: A Specific Ecosystem Model and some preliminary conclusions | 58 |
| 9.1 | Patterns and themes emerging from case report research | 59 |
| 10 | Qualitative Interviews: Towards an Up-to-date Picture of the Entrepreneurial Ecosystem in the EAC | 62 |
| 10.1 | General questions to all interviewees | 64 |
| 10.2 | Questions to specific subgroups of interviewees | 69 |
| 10.3 | Evaluation and interpretation of findings | 70 |
| 11 | Quantitative Survey: Insights from the Digital Entrepreneurship Ecosystem in the EAC | 75 |
| 11.1 | Demographical factors | 75 |
| 11.2 | Questions, Observations, and interpretations | 76 |
| 11.3 | Summary of survey findings | 90 |
| | Bibliography / Sources | 93 |
| | Appendix | 97 |
| A | Qualitative Interview Guidelines and Questions | 97 |
| B | Quantitative Survey questionnaire | 98 |
| C | The Authors | 101 |

1. List of Abbreviations

| | |
|----------|---|
| CENIT@EA | Center for Excellence for ICT in East Africa |
| CUE | Commission for University Education (Kenya) |
| CCI | Cultural and Creative Industries |
| EAC | East African Community |
| DAAD | Deutscher Akademischer Austauschdienst, German Academic Exchange Service |
| GIZ | Gesellschaft für Internationale Zusammenarbeit, German Development Agency |
| ICT | Information and Communication Technology |
| IUCEA | Inter-University Council for East Africa |
| MSME | Micro, Small and Medium Enterprise |
| NM-AIST | Nelson Mandela African Institute for Science and Technology |
| OECD | Organisation for Cooperation and Development |
| SME | Small and Medium Enterprise |
| TVET | Technical and Vocational Education and Training |
| UNCHE | Uganda National Council of Higher Education |

2. List of Figures

| | |
|---|----|
| Figure 1: Six Central Narratives of the research. | 8 |
| Figure 2: The ecosystem a university with their administration, lecturer body, and digital entrepreneurship programs is embedded in. | 12 |
| Figure 3: Country overview for Rwanda, South Sudan, and Tanzania..... | 25 |
| Figure 4: Country overview for Uganda, Kenya, and Burundi..... | 26 |
| Figure 5: Origin of Andela developer recruits 07/2018-09/2019..... | 29 |
| Figure 6: Domains of the Entrepreneurship Ecosystem..... | 39 |
| Figure 7: Country Dimensions for Tanzania by Hofstede..... | 41 |
| Figure 8: Country Dimensions for Kenya by Hofstede..... | 41 |
| Figure 9: The different layers and factors determining the success of entrepreneurs in East Africa..... | 49 |
| Figure 10: Four Level Ecosystem Model..... | 58 |
| Figure 11: SWOT analysis..... | 59 |
| Figure 12: Number of Interview participants by country..... | 62 |
| Figure 13: Word-cloud of the whole texts of all qualitative interviews..... | 63 |
| Figure 14: Central narratives obtained from the interviews..... | 70 |
| Figure 15: Word-cloud of qualitative interviews after condensation and evaluation of the document..... | 71 |
| Figure 16: Survey participant country distribution..... | 75 |
| Figure 17: Gender distribution of survey participants..... | 75 |
| Figure 18: Age brackets of survey participants..... | 75 |
| Figure 19: Professional background of survey participants..... | 75 |
| Figure 20: Answers of all participants for Question 1: “At university, a student can obtain all relevant skills needed to start his/her own enterprise.” | 76 |
| Figure 21: Answers for Q1 from Companies..... | 76 |
| Figure 22: Answers for Q1 from Universities..... | 76 |
| Figure 23: All 193 answers of all participants for Question 2: “A student has easy access to the following relevant entrepreneurship support at university (please tick a maximum of 3).” | 77 |
| Figure 24: All answers for Question 3: “University lecturers have the skills to support the successful creation of student ventures”..... | 78 |
| Figure 25: Answers for Q3 from universities..... | 79 |
| Figure 26: Answers for Q3 from companies..... | 79 |
| Figure 27: All answers for Question 4: “Women do have a harder time than men to start an enterprise.” | 79 |
| Figure 28: Answers of women regarding Q4..... | 80 |
| Figure 29: Answers of men regarding Q4..... | 80 |
| Figure 30: Answers of Universities regarding Q4..... | 80 |
| Figure 31: Answers of Companies regarding Q4..... | 80 |
| Figure 32: Answers for Q4 from Hubs..... | 80 |
| Figure 33: All answers for Question 5: “At university, students can learn how to come up with viable digital business models”..... | 81 |
| Figure 34: Answers for Q5 from Universities..... | 81 |
| Figure 35: Answers for Q5 from Hubs..... | 81 |
| Figure 36: Answers for Q5 from Companies..... | 82 |

| | |
|---|----|
| Figure 37: All answers for Question 6: “At university, students can learn coding well enough to build software products for a digital enterprise” | 82 |
| Figure 38: Answers of all participants for Question 7: “Rank the following methods to improve learning outcomes in entrepreneurship education from 1 (best) to 5 (least good).” | 83 |
| Figure 39: Answers for Question 7 given by participants from the companies..... | 84 |
| Figure 40: Answers for Question 7 given by participants from Universities..... | 84 |
| Figure 41: Answers for Question 7 given by participants from Hubs..... | 85 |
| Figure 42: All answers for Question 8: “You, personally, learned most of your financial management skills at...” | 86 |
| Figure 43: All answers of Question 9: “Please rank the following items according to what will make digital student ventures more successful from 1 (most impactful) to 7 (least impactful)”..... | 87 |
| Figure 44: Most impactful interventions voted by women. | 88 |
| Figure 45: Most impactful interventions voted by men..... | 88 |
| Figure 46: All answers for Q10: “Please rank the following items according to what will hinder you the most in becoming a digital entrepreneur after university from 1 (biggest hindrance) to 7 (smallest hindrance)” | 89 |
| Figure 47: All answers for Question 11: “Please rank the following items according to why companies in the ICT sector do not offer student internships from 1 (biggest) to 6 (smallest)” | 90 |

3. List of Tables

| | |
|--|----|
| Table 1: Google Search keywords for different countries..... | 21 |
| Table 2: Competency areas of entrepreneurs..... | 36 |

4. Management Abstract: Digital Entrepreneurship in Higher Education in the EAC

The research and study on the digital entrepreneurship ecosystem in higher education in the East African Community (EAC) was commissioned by CENIT@EA to provide insights into the status quo concerning digital entrepreneurship in higher education across East Africa. It was undertaken in 2020.

It aims to provide an assessment of the scenario at hand and recommendations on how to sustain functional educational programs that serve their communities, their students, their private sector, their nation. The observations and recommendations necessarily are of a general nature as they are related to the EAC as a whole. They would then have to be adapted to the specific national and local context. Outline and sources as well as methodology and a first brief overview of the study are to be found in the next chapters. Detailed observations and recommendations as well as data are presented in the long read of this document.

Central narratives regarding digital entrepreneurship and the education thereof emerged from research:

- (1) Tech and entrepreneurship are regarded as a path to a beneficial and profitable future
- (2) Universities do not provide the knowledge and skills needed to thrive as an entrepreneur
- (3) Actors are regarded as heroes, game-changers - women are of importance in the tech-mix
- (4) A change in the mindset of the actors and stakeholders is direly need – the “African way” needs to be put on the map within a globalised field
- (5) Social entrepreneurs are problem-solvers for their communities – and should be at the heart of the “African way”
- (6) Local structures often represented by small and medium enterprises are a relevant set – the creativity of a connected community is a gift, a network of diverse players a bonus.

The university, being at the heart of the study is being valued yet is being seen as needing reform, focus, vigour and close direct relations with the private sector. This will help educate digital entrepreneurs in a thriving entrepreneurship ecosystem being nourished by a participatory, reciprocal mindset and spirit.

Central recommendations for actions and actors derived from the evaluation of various sources:

Education & Content

- Integrate experiential learning into the curricula (field trips, varied and tailor-made internships, projects, non-academic experts from various areas, interdisciplinary courses, design thinking courses, summer schools, etc.)
- Provide specific knowledge and skills students lack: business model creation, market knowledge, tech skills
- Focus on valid methods: project- and practise-based teaching / integration of practise via hubs
- Focus on successful interventions to create student ventures: curriculum-integration of entrepreneurship trainings / mentorship by (local) entrepreneurs / practical coding courses
- Implement tandem-teaching (an academic lecturer in one class with an entrepreneur)
- Design and implement entrepreneurial mindset courses; allow for a culture of open feedback and tolerance of failure; use a semester-wise evaluation system
- Promote social entrepreneurship ideas and models and integrate them into curricula

Networks & Awards

- Create and fund competitions and challenges including an online-platform to showcase results to grow awareness and funding
- Award specific academic titles and honours; offer certificates, micro-skills courses, life-long learning
- Create “women only” networks, meetings, challenges and disseminate success stories
- Integrate stakeholders into a (local) network: specifically connect with local hubs or incubators and financing opportunities as well as setting up an alumni network
- Create and fund a student-run platform for digital entrepreneurship networking; design and fund a supranational online “entrepreneurship support desk”

Awareness

- Create content in local languages and disseminate information in rural communities
- Involve media in all steps of a successful build-up; create on-campus awareness
- Showcase the network and its benefits in cooperating with various media; disseminate success-stories of a resourceful “entrepreneurial journey”.

In general, it can be said that a development of digital entrepreneurship in higher education should focus on integrating experiential learning into the curricula but also the mindset of all actors and stakeholders involved. This would be supported via growing an entrepreneurial ecosystem on several (interlinked) levels: in the program, at university, local, regional, national, separations. Involving media to relate success-stories and create awareness and pride seems mandatory. Globalisation needs the local ground and implementation of local culture; only then, a digital entrepreneur can be a problem-solver, especially in the social arena. The wealth of diversity and the power and skills of women are an asset to be leveraged. A brief overview with more elaborate and specific yet concentrated details including actors and addressees is found in the next two chapters.

5. Overview of results, observations, suggestions, and recommendations

The research on the digital entrepreneurship ecosystem in higher education in the East African Community (EAC) was undertaken in 2020. It aims to provide an assessment of the scenario at hand and recommendations on how to sustain functional educational programs that serve their communities, their students, their private sector, their nation. The observations and recommendations necessarily are of a general nature as they are related to the EAC as a whole. They would then have to be adapted to the specific national and local context.

The following presents ideas and results achieved by researching and evaluating secondary and primary resources. Data and derivations thereof are presented in the long read of this document.

5.1 Six narratives and twenty general observations for action(s)¹



Figure 1: Six Central Narratives of the research

Main actors and addressees of those narratives are Academia, the Private Sector including entrepreneurs, companies and hubs, the Government, the Public sector, and the Media. They are all necessary through their various responsibilities such as education policies by Governments.

¹ The items above are set in a random order.



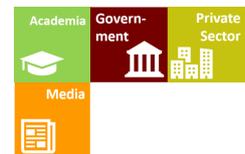
There is a general agreement among sources consulted, that:

- a) **Universities do not provide the relevant skills** needed to start an enterprise (71% of survey participants)
- b) Entrepreneurs and digital entrepreneurship are and should be **problem solvers** for the people, the community, the society, the country – social entrepreneurship can be a complimentary motivating force.
- c) **Technology (ICT)** is an **enabler** for digital transformation which is the task of the digital entrepreneur, his or her raison d'être, in order to be a game changer – solutions often have local roots.
- d) The role of the **university** in an entrepreneurship ecosystem would be to **identify entrepreneurial talents**, to train the talent with the needed skills, to build a local entrepreneurial culture, to create opportunities for exchange and networking, to showcase entrepreneurship as a career option – moreover, universities should offer lifelong learning opportunities beyond degree programs, create human capital for the private sector, help to identify and build market-relevant ventures, should hold campus competitions and award money, as well as connecting to (the) other stakeholders as one of the central strongholds in an entrepreneurship network.
- e) A more **practice-oriented curriculum** in (digital) entrepreneurship is still needed – integrating case studies, field trips, expert lecturers (i.e. founders, practitioners, entrepreneurs,), networking in the entrepreneurship ecosystem.
- f) A close linkage between university leadership, university curricula, university lecturers and the private sector is needed to foster the entrepreneurial ecosystem (to which universities belong) – through this, a **change in the mindset** of students and society could be achieved.
- g) Experiential learning is mandatory for core skill learning in becoming and being a (digital) entrepreneur – **capacity building needs specific settings and didactics**.

Main actors and addressees:



- h) **Mentorship and coaching**, direct exposure to active entrepreneurs, peer to peer learning, and stakeholder perspectives (finance, tech, user,) are mandatory for a valid (digital) entrepreneurship education – guidance and topical exchange at eye-level nourish the up-and-coming entrepreneur.
- i) **Women have a harder time starting an enterprise** (49% of all survey participants agree, 72% of women say so)
- j) **Women and girls** need to be integrated and represented more and better in digital entrepreneurship (courses as well as ownership of process, content, business) – the enormous potential and the relevant contribution of women yet has to be tapped more and better via specific programs and offers.
- k) Women and girls as well as **diversity in general** (age, background, gender, level in power) are key to a sustainable and flourishing network – good decision making and resilient systems need input from all stages and corners of life.
- l) A recognition of the **needs and structures of rural areas** have to be integrated and represented more and better in (digital) entrepreneurship (courses as well as ownership of process, content, business) and its curricula – untapped potential in rural areas can and should be recognized and made visible via specific programs tailored to the specific situation on site.
- m) The **global perspective** on ICT and (digital) entrepreneurship as well as education is needed to complete the curricula and the perspectives of being an entrepreneur – international solutions and jobs need international knowledge portrayed in curricula and expert exchange.
- n) **Good governance** measures (such as a reliable legal system, clear taxation, transparent decision making at governmental levels, copyright security, consultation of stakeholders,) support the entrepreneurial ecosystem.
- o) Further **ICT-infrastructure improvement** (connectivity, internet speed, availability of hardware and software,) will support the entrepreneurial ecosystem – this would be an achievement of and for the whole entrepreneurial ecosystem.
- p) **Access to differentiated financing tools and funding** is mandatory for further growth and nourishment of the entrepreneurial ecosystem – a broad mix of finance tools and funding scenarios that cater to local needs is of help, integrating micro-finance and SME-related tools.



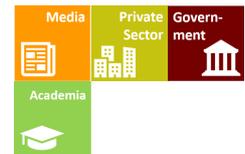
q) An **African and East African context** needs to be integrated into curricula of (digital) entrepreneurship and the definition of what an entrepreneur and an entrepreneurial ecosystem is – “glocalization” and local (African) market driven solutions are key.



r) The role of self-employed **micro-entrepreneurs** and the role of **SMEs** has to be validated and recognized as of importance for local structure building taking into account the “gig economy” being significant for a globalized digital economy.



s) **Media coverage and exposure** (via the appropriate media from print of all forms, to radio, TV, and social media/internet) to create and disseminate a motivating narrative beyond pure rational information is needed to develop the full potential of an entrepreneurial ecosystem.



t) A **“realistic” approach** towards (digital) entrepreneurship is of value and motivating in the end: Not over-expanding expectations, taking the actual situations and environments into account, staying flexible, and especially sustaining women and youth.



5.2 Thirty suggestions and recommendations for actions derived from research²

The recommendations for action are presented from the perspective of the university at the centre of the (digital) entrepreneurship ecosystem and its programs. Those actors are: **University** (*integrating students, lecturers, administration and programs*), **private sector** (*with its companies, hubs, entrepreneurs, finance systems, and related infrastructure*), **government** (*including politics, legal system, and related infrastructure*), **public sector** (*integrating society with its communities*), and **media** (*touching most fields and actors*).

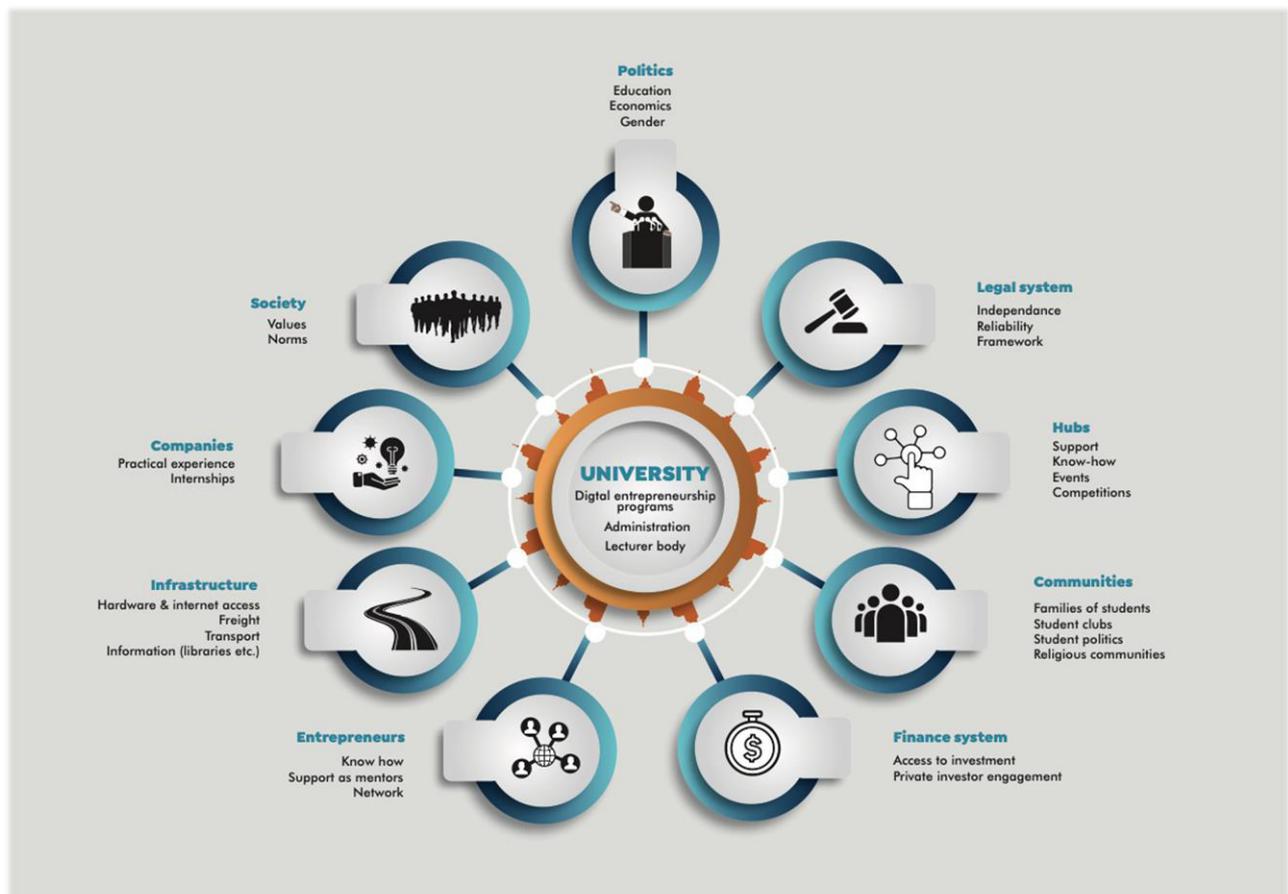


Figure 2: The ecosystem a university with their administration, lecturer body, and digital entrepreneurship programs is embedded in

The suggestions and recommendations all are addressed at the university with a background in (digital) entrepreneurship education and ecosystem. They are **clustered** in regard to their focus on **A. structure of programs, B. didactics and running of programs, C. networking and connecting stakeholders** with regard to programs and the related entrepreneurship ecosystem. The five following related actors and addressees (see above) are mentioned within the recommendation as before.



² The following items are set in a random order, it is not intended to provide a ranking of efficacy or any other determination.

A. Structure of programs

- 1) Create and offer **content** not only in English or French but in **regional languages** and disseminate the content online and to rural communities
- 2) Create **summer schools** taking place in **rural areas** as a starter for interest in digital entrepreneurship
- 3) Use the **top ranked methods for entrepreneurship education**: Project-based teaching such as setting up a student enterprise / Integration of entrepreneurship hubs into university entrepreneurship promotion offers / Practice oriented teaching by people from the private sector as lecturers
- 4) Integrate learning and training about the **knowledge and skills students lack most**: digital business models / technical skills to build a great product / market knowledge for digital products
- 5) Integrate **experiential learning** in curricula; invite active entrepreneurs into university; go on field trips to start-ups, SMEs, and larger businesses
- 6) Integrate **internships and externships** in the curricula, thus strengthening the entrepreneurial ecosystem
- 7) Integrate **alumni** into entrepreneurship course teaching and networks, offering them lifelong learning opportunities and further certificates
- 8) Create and fund “**women only**” networks, meetings, and institutions (for exchange on IT, coding, entrepreneurship, mentoring,); integrate **circles of girls**; offer “women only” competitions; support equal pay and equal rights initiatives in tech and entrepreneurship.
- 9) Allow for a **culture of open feedback** and allowance of failures; learning from mistakes is as important as success story learning
- 10) Create a semester-wise **evaluation system** for the execution of the entrepreneurship education and the status of the entrepreneurship network that is independent, transparent and neutral



11) **Award titles and honours**, these being important means of recognition and visibility as in university degrees, in competition prizes, in certificates of training and micro learning



12) Integrate – **varied and tailor-made (short-term and longer-term, skill-focussed and benefit-for-all-focussed) internships** – into the curricula



13) Create open **classes for mindset building** focussing on an entrepreneurial mindset and culture change



B. Didactics and running of programs

14) Create and fund **competitions and challenges** (hackathons, ideation labs, innovation labs,) with the winner(s) being funded on various levels of an entrepreneurial journey



15) Create and offer **interdisciplinary courses** on (digital) entrepreneurship at university for other departments as part of non-entrepreneurship study programs beyond business schools



16) Create and offer **micro-degree courses** (online / offline) to attract entrepreneurs or others that want to enhance special skills; develop a lifelong learning journey for entrepreneurship



17) Use the **top ranked interventions to impact the success of student ventures** in digital entrepreneurship: Curriculum-integration of entrepreneurship trainings / Mentorship through successful local entrepreneurs / Practical coding courses



18) Develop **tandem-teaching** solutions of a university lecturer connected to an entrepreneur in the field teaching together



19) Create courses that focus on stimulating an **entrepreneurial mindset** (curious, solution focused, business oriented, user centred, failure resilient,)



C. Networking and connecting in and for programs

20) Create and fund a **student-moderated platform** for the student body at university (local, country-related but EAC-wide too) to interact and network on their own, as well as a physical student club and community run by students not by university



- 21) Create and fund a platform at university (local, country-related but EAC-wide too) to **showcase results** (solutions, ideas, successes) of digital entrepreneurship incubated at or in connection with university to the “outside world”
- 22) Create and sustain an online “**entrepreneurship support desk**” presenting information and good practise examples in digital entrepreneurship and digital entrepreneurship education (curricula, ideas, start-up models, addresses of hubs and incubators, data bases, personal profiles of mentors, blue prints, white papers, motivational bits,) to connect on a local level, at a national level and across the EAC
- 23) Create **specific cooperation systems among universities** in the EAC and nationally with regard to their specific profiles and strengths
- 24) Promote **social entrepreneurship** models, ideas and successes and integrate them into curricula as an inspirational, practical, and motivational factor
- 25) Integrate and showcase players, stakeholders, and offers along an “**entrepreneurial journey or cycle**” to connect universities and hubs, incubators, financial institutions, and business angels, NGOs, government, foreign stakeholders
- 26) Create and run a network that relies on **local partners**; connect to hubs and incubators; integrate finance institutions and business angels
- 27) **Integrate local hubs** into the university entrepreneurial education providing project-based and case-study related training
- 28) Develop a **matchmaking process** to connect students (would be entrepreneurs) with coaches and mentors focussing on expectation management and personality
- 29) Connect strongly to various **media**, disseminate relevant **stories**, create a campus radio, podcast, YouTube channels, etc.
- 30) Network with organisations of the primary and secondary educational sector to **educate and motivate early on** about digital entrepreneurship



Further ideas, elaborations and recommendations can be found within the chapters.

5.3 Specific suggestions and recommendations for each state of the EAC

The following suggestions and recommendations stem from the research performed and are based on the insight of the clusters named in the chapter before. They are formulated with the university as the centre of (digital) entrepreneurship education and its ecosystem in mind. In general, focussing on the state as a place and stakeholder, it can be stated that the countries of the EAC to a variable degree should focus (in the long-term strategic view) on:

Country focus across the EAC

- Going for a glocal / local approach on forming entrepreneurship education and ecosystem specifically, investing in an “(East) African way” keeping ideas such as “Afrofuturism” in mind
- Acknowledging the vast difference between city, town and country and invest in talent and resources in the rural areas as well
- Investing in solutions for the key industries of each state yet have an eye on applications in the field of agriculture, health, tourism, finance, the creative industries
- Relating to the idea of “social entrepreneurship” as a foremost topic of the 21st century for a purpose-driven new economy and mindset
- Taking into account climate change and related solutions in various societal and industrial fields as a driver of change in global and local economic systems and approaches on how to do business.

Burundi



- Start-up and form a relevant (digital) entrepreneurship ecosystem supporting local innovation hubs with
- Support startups and the use of digitization especially in the agricultural sector where much of the export potential for the economy lies.

Kenya



- connect globally using the story of rift valley as a driver of solutions and pride attracting talent from all over, becoming a centre of excellence for the EAC
- sustain the business-mindedness of the Kenyan people and their hunger for success
- sustain and forge a thriving, flexible and responsive digital entrepreneurship ecosystem.

Rwanda



- build on the strong women-networks and knowledge in Rwanda in setting examples for the whole EAC and beyond
- point to the stability of the state and the energy and reconciliation of its people in telling specific and resonant success stories of and in Rwanda
- support surging entrepreneurship infrastructure that is commencing to grow in the university ecosystem through high-quality interventions and content.

South Sudan



- recognize the potential of vocational training in entrepreneurship not only focussing io university education
- invest in infrastructure in special centres/hubs accessible for not only university students and provide hardware, software and fast, stable internet-access there
- recognize the immense potential of the young, especially girls and women in creating a diverse entrepreneurial ecosystem.

Tanzania



- make connections between the bet and most entrepreneurial students and high-quality mentors
- focus on the thriving rural areas and the will to leave no one behind in specialising in social entrepreneurship solution
- support the formation of a congruent entrepreneurial mindset of the younger generation
- build a stable network of start-ups, hubs, finance, small and medium enterprises to relate to universities and entrepreneurship centres all over the country.

Uganda



- invest in special areas of the creative industries for digital solutions (as in music, fashion, media, digital agencies, etc.)
- Support relevant pitch competitions, even if small, to form a sense of opportunity thorough entrepreneurship among students
- support innovation centers at universities that have started to take the stage in professionalization.

Further ideas, elaborations, and recommendations can be found within the chapters and general recommendations that cut across countries.

6. Introduction

This study was commissioned by CENIT@EA to provide insights into the status quo concerning digital entrepreneurship in higher education across East Africa for the program itself, its stakeholders, universities in the region, innovation hubs, and other entities working to promote digital entrepreneurship. CENIT@EA is a regional Innovation Hub strong with strong focus on technology, innovation, and entrepreneurship to provide skills for digital transformation in East Africa. CENIT@EA and its various partners and contributors, under which IUCEA, the Secretariat of the EAC, GIZ, and DAAD are to mention specifically, are dedicated to promote the regional digital transformation based on scientific evidence.

The bigger picture in 2020: Digitalisation as in spread of software and hardware for enterprises and consumers, as well as a reliable internet connectivity are in demand and prove to be helpful. Investments of the last decade in infrastructure pay out, and an underwater cable of high capacity around the African continent, securing a reliable connection to the globe, is underway. All in all, it could be assumed that in times of speedy changes, of a repetition of economic crisis³ some attitudes connected to an entrepreneur or an entrepreneurial mindset might be of value and use: creativity or the ability to innovate, stamina, and flexibility. The promotion and education of entrepreneurship then could be seen as mandatory at various levels of societal activity.

Having researched and written this study from April to August 2020, some assumptions might need to be reviewed in times of rapid change just after the completion and hand in of the document. The final report, having been handed over in November 2020, contains assumptions and outlooks which, under the then given circumstances of a rapidly evolving Covid-19 pandemic situation, might be blurred or even wrong in the month to come. The Covid-19 pandemic lingered in the background of the primary research yet was not mentioned by the interviewees as a driving force in the context of this evaluation.

Looking at the specific societal and economic situation and the educational system in the EAC, beyond all similarities some differences have to be stated. Considering the EAC countries by looking at statistics, literature, and interviews it can be seen that, to no big surprise, all nations and countries deal with their own specific situation. The differences might show at some items, at some level, for some issues. The same goes for similarities. One country has to be singled out considering some aspects: South Sudan. Being a very young country on the road to nationhood and structure it cannot be expected to show a developed university system or entrepreneurship ecosystem. In South Sudan the informal educational sector (as mentioned before) and the strong position of Technical and Vocational Trainings (TVET) besides university education, play an important role⁴. Furthermore, the data level is not as rich as for the other countries. Thus, South Sudan is sometimes included in the generalisations concerning the EAC, sometimes it has to be thought of as excluded; specifics are given where needed.

³ As described by the acronym of a VUCA-world consisting of volatility, uncertainty, complexity, ambiguity.

⁴ Dominic Odwa Atari et al.: Technical, Vocational, and Entrepreneurial Capacities in Southern Sudan: Assessment and Opportunities. Centre for Refugee Studies, York University, Toronto, 2009.

6.1 Research question(s), methodology

The research question underlying the whole of this document needs to be phrased:

“How do universities in the East African Community (EAC) currently promote entrepreneurship and the transfer of technologies to the market and what are the challenges, opportunities, chances and threats of digital entrepreneurship programs in higher education, especially in cooperation with the private sector?”

Adding on to this, the researchers, drawing upon their pre-existing knowledge, research, and expertise tried to formulate basic assumptions and hypothesis’ guiding their research. Especially the GIZ Entrepreneurship Ecosystem Guide with its methodology and insight was used as a guiding tool in this research.

The acquisition of secondary data via desktop research in order to formulate a basis for primary data research and gain a broader picture of the situation, was done in accessing the following:

- Desk research sources**
- (1) General documents (books, articles, online-publications) on the topics being covered by the general research question
 - (2) General studies on countries of the EAC and aspects of these
 - (3) Specific studies on specific fields related to digital entrepreneurship in EAC countries
 - (4) Individual case reports and case studies highlighting a special aspect related to the general research question.

Conducting the research mainly and predominantly “African” sources (as in written by an African author or relating to specifics of the African continent) were consulted. Among them, beyond purely scientific literature, were African online-Journals, relevant blog articles, newspapers within EA as well as non-scientific African publications in general on entrepreneurship in Africa and the EAC and government policy papers. Those, among others, did benefit and shape the desktop research.

Secondary data interpretation used a multi-methodological approach. A variety of methods from social sciences and qualitative social research was integrated⁵ based on theoretical assumptions of symbolic interactionism, ethnomethodology, phenomenology and hermeneutics as well as linguistics and grounded theory. Explaining, and via the circular approach of evaluating meanings by and by, creating an understanding of written text utterances form the body of the interpretation. A triangulation – using a variety of methods to tackle the research question – was conducted where possible and useful. Semi-structured qualitative interviews were undertaken (those, due to being conducted online, more in the form of problem-centred interviews than more free narrative interviews), statistical text analysis applied (as a quantitative approach), qualitative content analysis undertaken, and participant observation by the researchers related to their own practise as independent entrepreneurship trainers at university level in Uganda.

During this research first networks and correlations appeared, so that aspects and hypotheses were formulated to be integrated into the second phase of primary data gathering.

⁵ For a reliable overview of methods and a qualified source of practical adaption Siegfried Lamnek: Qualitative Sozialforschung, 4., vollständig überarbeitete Auflage, Weinheim, Basel 2005 was used.

Leading over to primary data accumulation via questionnaires and interviews were already interpreted interviews documented in collections on showcasing African entrepreneurs⁶ being interpreted as case reports and scenario studies on cases.

Primary data were accumulated via an online questionnaire. Statistical analysis was used to generate reliable interpretations.

⁶ Such as in Sangu Delle's collection „Making Futures“.

7. The EAC Digital Entrepreneurship Ecosystem

Proposing that the Google search engine represents or mirrors the intelligence and information the world has about requested topics, a look into various search requests provides a first image of different aspects of entrepreneurship promotion in the EAC.

A Google search⁷ on “entrepreneurship+higher+education+Africa” delivers 244.000.000 hits; there seems to be a public interest in the topic. The same search query now including “East” before “Africa” still provides 130.000.000 entries. Asserting that this research is looking for qualified data, the search is being narrowed down to entries in the data base on “scientific articles”. This search still results in 336.000 entries.

A prominent research database of university research papers delivers 67,459 entries that include “entrepreneurship+education+Africa” in their full-text. A randomly chosen set has been sampled due to keywords matches (regarding EAC, tertiary education, entrepreneurship, women, creativity). This signifies that the given topic is of interest and that aspects of it attract academic curiosity.

Narrowing down the search on the country level, we do get more manageable results.

Putting “Rwanda+entrepreneurship+education” into the same search query frame, the search provides 315 results, of which 19 were labelled by Google as “relevant”. Omitting “Rwanda” and inserting “South+Sudan”, the search provides 3 entries. For “Tanzania” the search provides 213 results, of which 24 were displayed. For “Uganda” it is 28 relevant entries of 283 hits on Google. For “Kenya” it is 60 relevant entries of 1240 hits on Google. “Burundi” triggers no hits at all. “Education” not only covers the tertiary sector but involved vocational training or secondary school training as well.



| Google Search Keywords | BURUNDI | KENYA | RWANDA | SOUTH SUDAN | TANZANIA | UGANDA |
|---------------------------------------|---------|-----------|---------|-------------|----------|---------|
| "country+entrepreneurship+education" | 0 | 1140 | 306 | 3 | 335 | 289 |
| "country+digital+entrepreneurship" | 288 | 423 | 105 | 0 | 5 | 0 |
| "country+university+entrepreneurship" | 0 | 652 | 1 | 0 | 4 | 0 |
| "country+Innovation+Hub" | 2360 | 569 | 6 | 0 | 1210 | 370 |
| "country+Innovation+Hubs" | 0 | 9750 | 4 | 0 | 2 | 8 |
| "country+innovation" | 39200 | 12900 | 23000 | 575 | 9960 | 10800 |
| "country+entrepreneurship" | 1070 | 5550 | 1750 | 314 | 5410 | 3180 |
| "country+digital" | 2,780 | 187,000 | 8,930 | 3,680 | 39,300 | 57,400 |
| "country+tech" | 2,730 | 50,600 | 6,400 | 1,200 | 57,000 | 10,100 |
| "country+ICT" | 589 | 197,000 | 25,300 | 4,720 | 24,600 | 46,200 |
| "country+digital+innovation" | 0 | 683 | 577 | 0 | 7090 | 345 |
| country+hub+startup | 881,000 | 2,490,000 | 526,000 | 149,000 | 723,000 | 921,000 |

Table 1: Google Search keywords for different countries

“Digital entrepreneurship” seems to be a phenomenon of only three countries, namely Burundi, Kenya, and Rwanda. Whereas “university+entrepreneurship” triggers a response for Kenya only. “Innovation hub” produces a solely Burundian response, the rest of EAC is lagging behind. Yet

⁷ All Google search undertaken on April 11th, 2020.

“innovation+hubs” brings Kenya to the forefront. If we connect “country” to “innovation” again it is Burundi being way up front. Whereas “entrepreneurship” shows a rather “normal” distribution of hits and differences: Kenya and Tanzania in the lead with Uganda, Rwanda behind, then followed by Burundi and South Sudan. The erratic results continue for other combinations as well. All in all, the data show a reality that is dominated by a search algorithm, that does not answer a neutral, evenly weighed stance, but to marketing money and erratic connections. Nevertheless, relevant links are among those provided by Google and an evaluation of the first 20 entries provided was done.

These documents – beyond other secondary data sources such as magazines, qualified organizations’ research publications as mentioned by the GIZ or UKaid in their concerning publications and guidelines⁸, governmental documents – have been assessed and evaluated.

7.1 Preliminary consideration A: What does “tech and digital entrepreneurship” mean?

“The digital” has widely changed social and economic interrelations worldwide through altering information flows, communication, computation and is picking up pace as well as gaining global attention in the African context⁹. Visits of global digital giant CEO’s have gained big media attention in Africa and worldwide: Microsoft (2015), Facebook (2016), Google (2017), Alibaba (various) visits¹⁰ have been topped by Twitter CEO Jack Dorsey’s announcement in 2019 to move to the continent for several months a year as it “is decisive for the future”. Whereas the reasons for such visits are diverse, they state: Africa has appeared on the global digital landscape. Technology companies everywhere engage in dedicated programs for the continent: “Google Digital Skills for Africa”, “4Afrika” (Microsoft), “Skills for Africa” (SAP), “Digital Nation Africa” (IBM) –big international corporates are building both footholds and engagements with Africa’s digital future while the potential of the young and fast-growing continent seems limitless. Through enormous internet and smartphone device adaptation rates, the necessary platforms for digital business models arises. The steadily growing lower and upper middle classes promise a fast-growing market.

A recent publication on digital entrepreneurship in sub-Saharan Africa¹¹ states, that “digital technologies act as enablers of positive change within education systems, social mindsets, institutional governance structures, and most importantly business and self-employment practices—in other words, across all facets of the entrepreneurial ecosystem. Digital technologies, (...) are means to express “aspirations and senses of being in the world.”¹²

Though, statistics and critical voices also paint an alternative version of this story. Researchers of the “Geonet” program at the Oxford Internet Institute for example state that “in any imaginable measure for digital economies, Africa does far worse than any other continent, and global divides

⁸ GIZ: Guide for Mapping the Entrepreneurial Ecosystem, 2018 / UKaid, Aspen Network of Development Entrepreneurs: Entrepreneurial Ecosystem Diagnostic Toolkit, 2013.

⁹ See exemplary: https://books.google.de/books?hl=en&lr=&id=dpf2hL6E-GcC&oi=fnd&pg=PA1&dq=digital+economic+change&ots=sVyI3iUhbl&sig=v12CKQosdoekGFir1byjPWqk9_0#v=onepage&q=digital%20economic%20change&f=false.

¹⁰ <https://qz.com/africa/1763757/twitters-jack-dorsey-jack-ma-visit-nigeria-ethiopia/>.

¹¹ Nasiru D. Taura, Elvira Bolat, Nnamdi O. Madichie (editors): Digital Entrepreneurship in Sub-Saharan Africa, Challenges, Opportunities and Prospects, London, 2019.

¹² Ibid, p. 223.

seem to be widening.”¹³ Moreover, a digital divide is also manifested on much smaller scales and along lines such as geographic (urban/rural), economic, ethnic, language, and others.¹⁴ The digital economy is changing Africa profoundly and bring further opportunities as well as acceleration of such divides. At the same time, both international and African start-ups and companies are fighting for a place on the screens of the growing number of smartphones. Who, then, are the ones building digital solutions in Africa? In 2017, only 10% of investment in East Africa was absorbed by start-ups without expat Co-Founders.¹⁵ Of disclosed Venture Capital deals of at least one Million US Dollars in 2019 in Kenya, only 6% were raised by a start-up with only Kenyan Founders.¹⁶ Money made from digital entrepreneurship ventures does not necessarily stay within the country, it has been made. This goes for African countries as well: corporations with headquarters and research and development centres outside of Africa make a lot of deals as global operators. Research on this shows: “Hence, at this point in time, it is safe to say that adoption of digital products originating from the Global North has expanded into vast swaths of Africa’s user base and geography, while we have few use cases of technologies created by African digital entrepreneurs that are used by large numbers of people (within Africa or beyond). So far, the reach of digital software and applications created by African software developers and enterprises appears to be limited in scope and scale, at least when compared with solutions from the Global North. (...) enterprises from second-tier cities, such as Accra, Cairo, Kigali, or Kampala, usually remain confined to domestic markets.”¹⁷

This study will look at a limited cut-out of the entrepreneurship ecosystem. It will focus on universities and their programs as a place of learning and starting innovative digital solutions but always in connection to the private sector relations. The specific angle within the wide term “digital entrepreneurship” for this study is narrowed down to:

Digital Entrepreneurship in this study means:

- Opportunity entrepreneurship in comparison to necessity entrepreneurship
- Digital technology-based solutions to problems of an individual, a community, a company, an organisation, or to a certain need and want still being developed.

Wherein the former refers to spotting and leveraging market opportunities and technology as the core motivation of starting a business. Here, digital technology entrepreneurs are defined as those where software is at the core of an entrepreneur’s business model, including digital hardware solutions and going beyond businesses using digital tools as an enabling function such as using digital marketing and digital management tools in their operations, administration and similar. Furthermore, this study specifically looks at those entrepreneurs wanting to build ventures that go beyond micro-enterprises, meaning SME’s or start-up ventures of more than 10 employees.

¹³ Nicolas Friederici et al.: Digital Entrepreneurship in Africa, Oxford, to be published (note taken from the call for chapters).

¹⁴ <http://fuchs.uti.at/wp-content/uploads/divide.pdf>.

¹⁵ <https://medium.com/village-capital/why-do-investors-continue-to-shortchange-entrepreneurs-in-emerging-markets-f57a8bf4a7d8>.

¹⁶ <https://vc4a.com/village-capital/blog/bridging-the-gap-between-local-and-expat-founder-funding/>.

¹⁷ Nasiru D. Taura, Elvira Bolat, Nnamdi O. Madichie (editors): Digital Entrepreneurship in Sub-Saharan Africa, Challenges, Opportunities and Prospects, London, 2019., p. 11.

7.2 Preliminary consideration B: An Afro-centric model of being an entrepreneur and teaching entrepreneurship

It is recognized in the world of didactics and learning theories that the culture of the student's environment (and the culture of entrepreneur's environment) are strong determinants for the outcomes of a learning and entrepreneurial journey, i.e. its success¹⁸. Context defines text; he cultural environment the actions of an individual. We don't want to discuss the topic further, rather acknowledge that the cultural factor is valued, demanded and integrated in the research demands of GIZ and IUEAC, as well as integrated in the CENIT@EA / Msc EMoS) curriculum of NM-AIST.

Some randomly chosen insights might be reported briefly: Nigerian banker and economist Tony O. Elumelu coined the term "Africapitalism" to signify an economic philosophy that embodies the private sector's commitment to the economic transformation of Africa through investments that generate both economic prosperity and social wealth¹⁹. Felwine Sarr in his book "Afrotopia" argues that certain African values need to be revitalized; such as dignity, community/communitarism, hospitality, modesty, thoroughness, sense of honour to showcase the deeply rooted African humanism of the African cultures. A spiritual revolution is needed, he writes.²⁰

The researches answer to the preliminary question is: Yes, an Afro-centric model and understanding is needed. Thus, sources from African organizations and sources with African authors (solely or represented) are predominantly being chose for desktop research. Under 6.1 it is pointed out that African digital solutions are usually confined to the local market and do not reach globally. That can be considered a weakness, looking only into a Northern model of globalisation and digital economy. In relation to the acute climate crisis this seems to be an outdated model of doing business thus the local reach and relation could be seen as a strength as well.

7.3 Brief country overview on key factors with regard to the research question in the EAC

The indicators chosen²¹ aim to provide a selected yet informed picture regarding the narrowed down scope of the countries' entrepreneurship environment and ecosystem in the EAC and its members. Where other sources are included, those are cited accordingly.

¹⁸ An Afrocentric model of teaching and learning for example is proposed by Professor Peter Akinsola Okebukola of Nigeria's Lagos State University via a Cultural-Techno-Contextual Approach (see: <http://ctcapproach.com/>, assessed April 20, 2020).

¹⁹ Tony Elumelu Foundation (see: <https://www.tonyelumelufoundation.org/news/what-is-africapitalism>, assessed April 20, 2020).

²⁰ Felwine Sarr, *Afrotopia*, Berlin 2019 (Paris 2016), page 156.

²¹ Sources: CIA: The World Factbook, <https://www.cia.gov/library/publications/the-world-factbook/> accessed May 5, 2020 / OECD Data Collection, <https://www.oecd.org/statistics/data-collection> accessed May 5, /2020 / Internet World Stats, <https://www.internetworldstats.com> , accessed on May 5, 2020 / The World Bank: Open Data; <https://data.worldbank.org/indicator/IC.BUS.DFRN.XQ?locations=KE-UG-RW-TZ-SS-BI>, accessed May 15, 2020 / UNCHE: Institutions, website accessed on May 10, 2020 / Louis Kasekende: Remarks at the Public Dialogue on Higher Education in Uganda (Bank of Uganda), 2017 / uniRank: 2020 Burundi University Ranking, accessed May 9, 2020 / Charles Wolhuter et al.: *Education in East and Central Africa*, 2014.

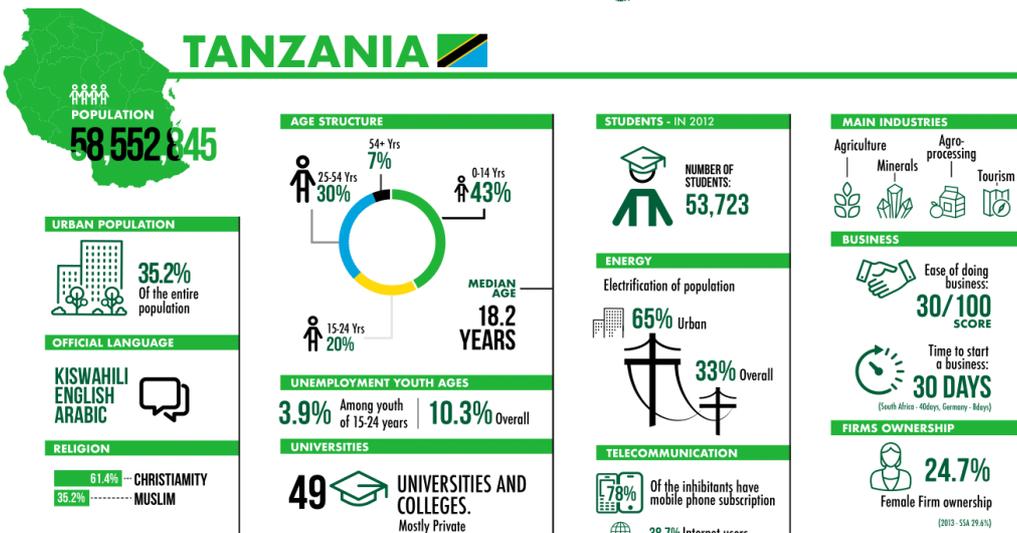
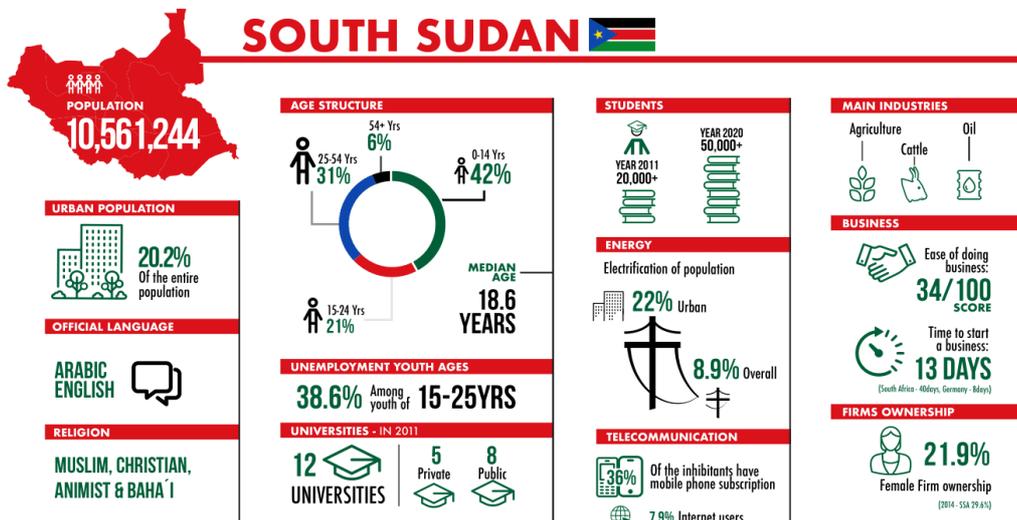
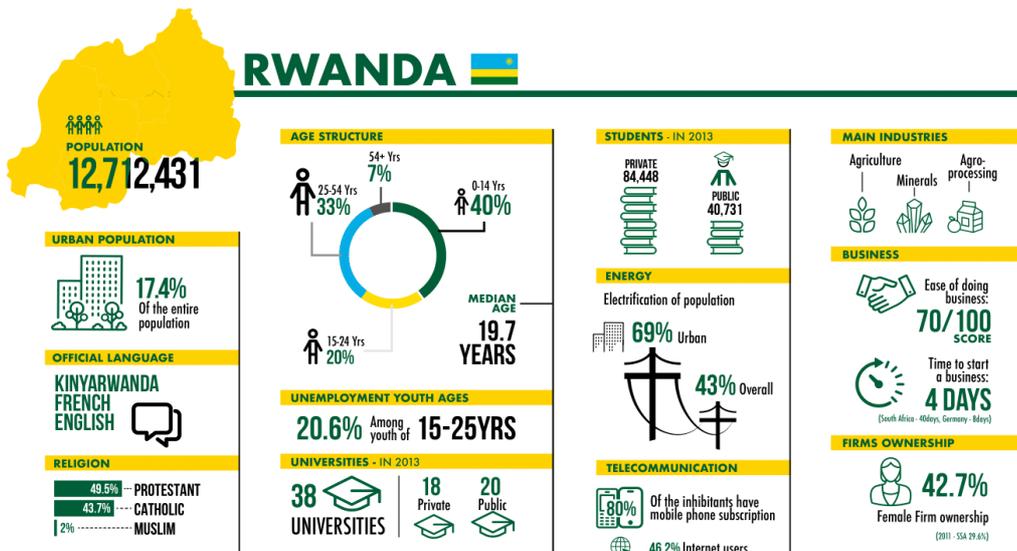


Figure 3: Country overview for Rwanda, South Sudan, and Tanzania

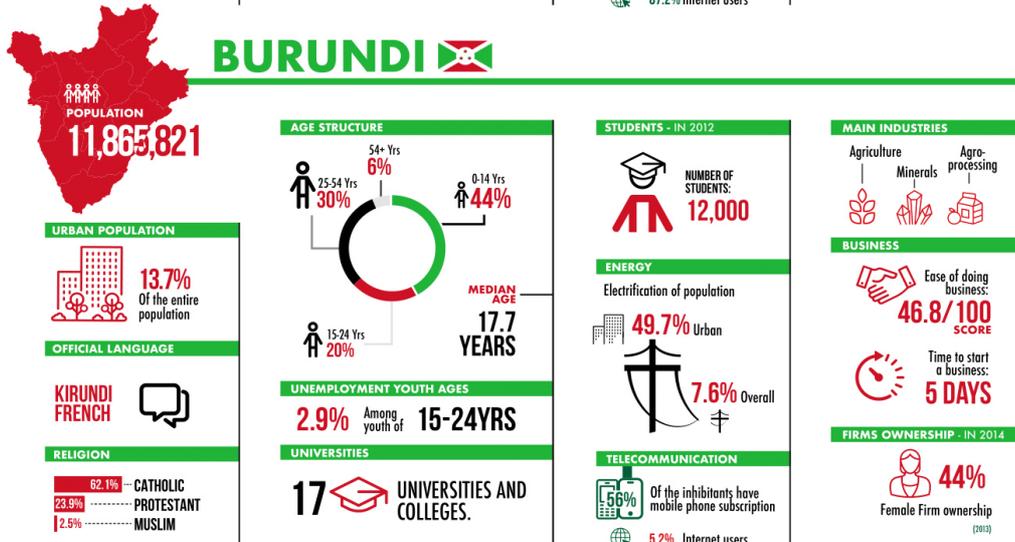
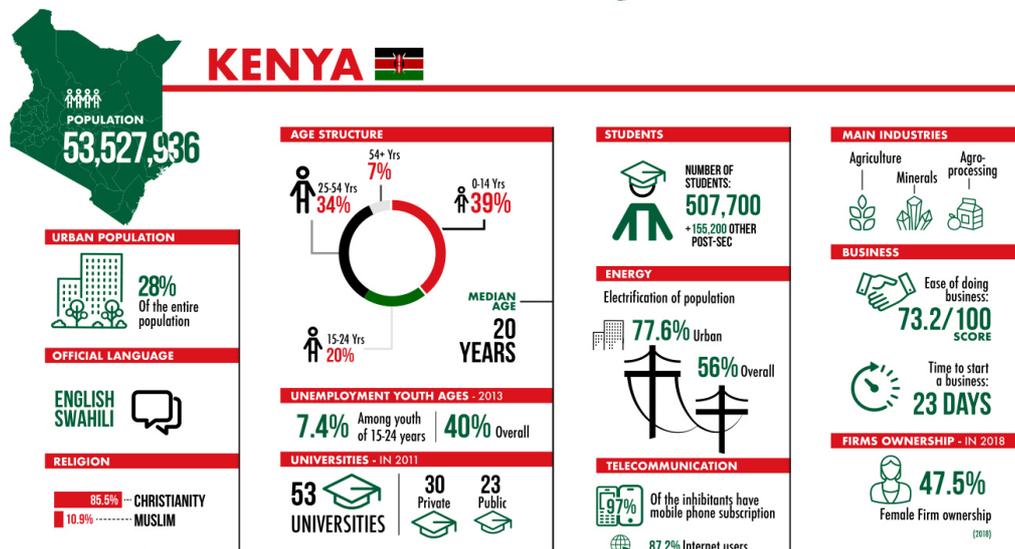
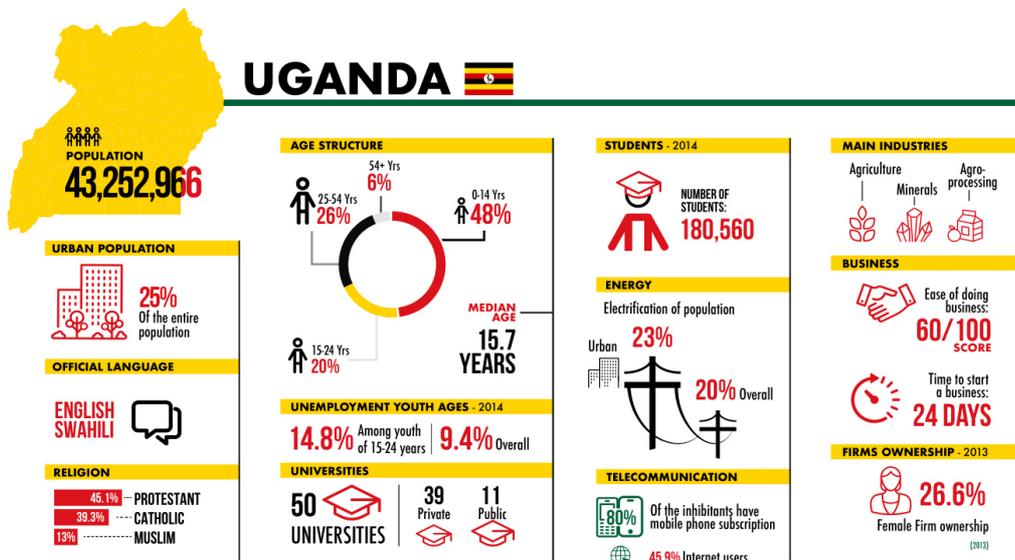


Figure 4: Country overview for Uganda, Kenya, and Burundi

Regarding this first set of indicators understood in the context of entrepreneurial activity, some differences and some similarities catch the eye:

- The median age of all countries is similar, revolving around 16-20 years of age
- Youth (student age) unemployment rate is high in South-Sudan and Rwanda, low in Tanzania, Kenya and Burundi and in between in Uganda
- Internet penetration rates are very high in Kenya (above Austria for example), comparably quite below that in Rwanda, Uganda, and Tanzania as well as very low in Burundi and South Sudan.
- Urban population is highest in Tanzania, Kenya and Uganda and comparatively low in the rest of the set.
- The percentage of students in comparison to the population is at around 0.1% in Burundi and Tanzania, twice that in South Sudan and significantly higher in Uganda (0.6%), Rwanda (0.7%) and Kenya (1.0%).
- Percentage of households with electricity is comparable in Kenya, Rwanda, and Tanzania (in cities as well as in urban areas), quite below that in Uganda and lowest in Burundi and South Sudan. Burundi shows a notable rural-urban difference.
- Mobile phone subscription coverage is almost perfect in Kenya, at very high still in Tanzania and Rwanda, with Uganda and Burundi at around 60% and just above half that in South-Sudan
- The “ease of doing business”-factor is highest in Rwanda and Kenya, comparably quite good in Uganda with Burundi, Tanzania, and South Sudan being far behind (and in that order).
- This is reflected in the time it needs to start a new business: in Rwanda an entrepreneur needs 4 days, in Burundi 5 days (in Germany this is 8 days, South Africa 40 days), 13 days in South Sudan, just above 20 days in Uganda and Kenya and 29.5 days in Tanzania.
- Female ownership of companies is high in Kenya, Burundi and Rwanda, and around half those values in Uganda, Tanzania and South Sudan.

To gain a better picture, it would have been valuable to get data on the number of newly registered corporations or the density of new business entry per 1,000 working-age people, to acquire a better picture of women in tech, yet for most of the countries no data was available.

7.4 Economy and talent: A 2017 forecast

The African Business Outlook Survey undertaken and provided by The Economist in 2017 shows a region on the rise and moving at a pace with differentiated prospects for its members²². “Kenya is one of the countries forecast to be among the fastest-growing economies globally in 2017. The country forms part of the East African Community, a regional grouping of countries, excluding Ethiopia, whose economies are forecast to grow significantly faster than the Sub-Saharan Africa average. Respondents’ firms with operations in the East Africa region benefit from regional integration, a growing middle class, and growth supported by investments in the build-out of infrastructure. Nonetheless, challenging issues include regulatory uncertainty (for example, in Tanzania) and interest-rate caps (for example, in Kenya), infrastructure gaps (for example,

²² The Economist: 2017 African Business Outlook Survey, London, 2017.

Uganda), inadequate access to foreign exchange (for example, in Ethiopia) and a rapidly evolving competitive landscape.”²³. Placement of top African markets in 2022 (query among companies globally) would be: 3. Kenya, 7. Tanzania, 13. Rwanda, 20. Uganda. As top challenges the following are named: Regulatory (uncertainty) / currency (volatility) / talent (sourcing quality talent). Especially the quest for the right talent shows that entrepreneurship education is in high demand and that a close cooperation with the stakeholders from the industry is a path to take, if not taken already. The talent’s profile needed for the 21st century can be related to that for example proposed by the OECD, thus finding people with appropriate skills, retaining talent, getting the balance right between local and expatriate staff, reinforcing a culture that is client-focused, and promoting innovation and flexibility. Nevertheless, the profiles need to be adapted specifically to the local markets meaning that local talent is ideal and needs to be employed. An observation regarding talent distribution shows the global interconnectedness of education and skill sets: “The flow of talent is not just in one direction, from developed markets to developing markets. For example, given how software applications leveraging mobile networks and phones have taken off in Africa, some skillsets honed in Africa are in high demand in other parts of the world.”²⁴.

A valid spotlight has been shed at the beginning of 2020 on the attitudes and opinions on African youth through a survey: “Was denkt Afrikas Jugend?” (What African youth’ are believing?)²⁵. 82% are hopeful, that the future of the continent will be bright and it is getting better. 51% derive their identity from their country, not their tribe or family. When getting 100 Dollar US, 49% would invest in their education, 16% would save the money, and 13% would invest in an own business. An own business would be opened in the following areas or industries: 17% in retail trade, technology in general 10%, agriculture 10%, finance 8%, and telecommunication 7%. The obstacles in doing business and creating their own business named, were: no working capital 53%, governmental regulations 11% and restrictions, corruption 10%, education 6%, and economic uncertainty 6%.

Looking at digital entrepreneurship in particular evokes the question of the status-quo regarding ICT talent in the EAC. Africa-wide software talent acceleration startup “Andela” sources software developer talent and connects them to companies worldwide leveraging remote work. They are active in three EAC countries, Kenya, Uganda, and Rwanda. In 2019, Andela laid off 400 junior software developers due to a lack of placement opportunities and instead hired more mid- and senior level talent.²⁶ This shows that there is an existing market available, but the skillset of eagerly selected and additionally trained junior talent was not yet sufficient for their job placements.

²³ Ibid.

²⁴ Ibid.

²⁵ Die Süddeutsche: Was denkt Afrikas Jugend?, Wochenchronik, 14.-20. March 2020.

²⁶ Techcrunch; <https://techcrunch.com/2019/09/17/africa-focused-andela-cuts-400-staff-as-it-confirms-50m-in-revenue>, assessed May 28, 2020.

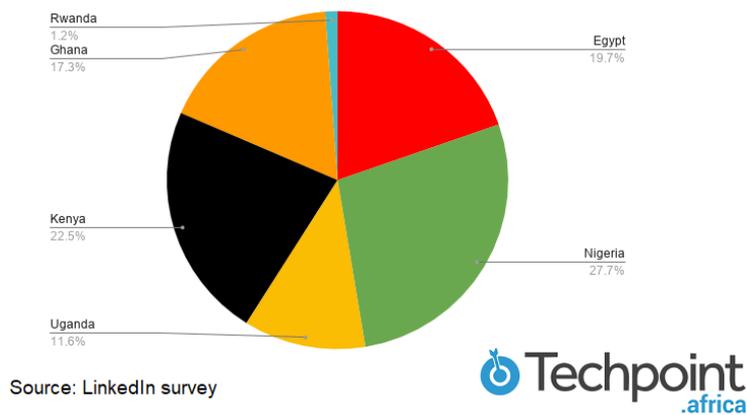


Figure 5: Origin of Andela developer recruits 07/2018-09/2019

Another insight about software and ICT talent in the EAC can be obtained looking at the Kenya-founded job platform Fuzu. They offer jobs in 10 African countries, Kenya and Uganda the only ones in the EAC at time of research. Under the category “ICT & software”, which also includes job offers for graphics design and innovation, Kenya showed 22 open positions and Uganda one, including internships.²⁷

Thus, we are presented with a mixed picture: One of exceptional economic growth and one of lack of job opportunities in ICT for beginners.

7.5 Entrepreneurship education in the EAC, in general and in specific

Moving on from macro level data (country profiles) towards meso and micro level desktop descriptions, the following represents the findings of the desktop research in those fields. Sources, mainly from African authors, African institutions or institutions in which African professionals or institutions are represented were consulted. The key terms of the research question were used to reframe them with supporting and differentiating questions. These are presented in the headline to the chapter.

In order to assess the promotion of digital entrepreneurship education, one would have to briefly look at education systems in general and education policy, including a focus on entrepreneurship. This will be done in regard to the EAC and its members. The data presented are from a cursory research not aiming at a completion of data.

At first a brief assessment of the situation in the EAC regarding collaboration on various levels. The German Academic Exchange Service (DAAD) concludes that South-South knowledge transfer gains momentum, proposing: “African universities that are more advanced in promoting entrepreneurship can support less advanced universities through South-South knowledge transfer. In fact, some universities already practice such activities.”²⁸.

Collaboration of the Public Services and the Private Sector and the integration of structures and networks for the promotion of entrepreneurial culture is needed and implemented in different ways and at varied stages. In a successful modelling entrepreneurship programs cater to the local needs on varying levels of locality. The US Department of Commerce, looking at the factors of and for a successful entrepreneurial education system, concludes: “Most people are familiar with the traditional centres of university-based innovation and entrepreneurship such as the Massachusetts Institute of Technology (MIT) and its connection to the Greater Boston

²⁷ Fuzu; www.fuzu.com/jobs/search?utf8=%E2%9C%93&searchTerm=Software+development, assessed June 15, 2020.

²⁸ Stefan Lilishkis, Brigitte Halbfass, Verena Liszt for DAAD: Case studies and recommendations for action on the "Practice Partnerships" programme, 2017.

entrepreneurship ecosystem. But over the last decade, more universities, community colleges, Historically Black Colleges and Universities (HBCU), and regional state colleges have embraced innovation and entrepreneurship as critical to their mission and role in their communities.”²⁹. An interesting aspect mentioned in this paper is the focus on the encouragement of the faculty entrepreneur, an external expert integrating entrepreneurship into the faculty tenure and selection process, supporting an increasing faculty connection to outside partners - through externships, engagement with business, and targeted resources for start-up creation.

With regard to the challenges, young entrepreneurs and intrapreneurs (a rising demand and skill-set in major companies) face entering the complex business world, Ashoka (Social Entrepreneurship Network, supported by McKinsey) states, that “business education that is too theoretical and out of sync with companies’ day-to-day needs.”³⁰. Asking for changes in education, a concentration and integration on the real world of business outside of classrooms and university systems is proposed, including: More focus on Case Studies; Linking curricula to real-world business challenges and contests; Inviting business executives to deliver lectures; Encouraging student-in-residence programs³¹. A survey among British universities draws similar conclusions³²: “University courses are too often limited to the theoretical. While this may develop students’ problem-solving skills, most students have no idea how to actually implement a real solution to a problem they have written about in an essay or thesis.” As a remedy, the internship at companies or start-ups during the study program is recommended, especially in up and coming sectors like Artificial Intelligence and FinTech.

The already cited study by DAAD does name some of the above-mentioned challenges as well and advocates cooperation among universities³³. At the project and project implementation level at universities challenges would be countered via combining the entrepreneurship competencies of all participants: “ (1) Network projects more intensively – among each other and; (2) Strengthen investments in business start-ups; (3) Combine the entrepreneurial-educational skills of all participants; (4) Strengthen project financing; (5) Organize support for projects.”³⁴. This could be a model for EAC cooperation via pooling resources, students and lecturers exchange, networking via various platforms, communal workshops and academies, creating design thinking centres, showcasing wind-breaker products as initiators of future business ideas communally, student market research for companies in all EAC countries.

A study on Zimbabwean Entrepreneurship Education at universities delivers similar results³⁵: “the lack of a practical component was the missing link in fully addressing socio-economic needs”. The author points out that the lack of job opportunities fuels the rise of entrepreneurship classes and topics, as entrepreneurship is seen as a path to self-employment and job creation for others later on. Especially, there “is need to usher in young entrepreneurs with a technical mind-set. University technological hubs should be used as springboards for students’ business ideas.”³⁶. A

²⁹ U.S. Department of Commerce, The Office of Innovation and Entrepreneurship at the Economic Development Administration: The Innovative and Entrepreneurial University: Higher Education, Innovation & Entrepreneurship in Focus, 2013.

³⁰ Ashoka Contributor Group: 10 Ways Universities Can Improve Entrepreneurship Education, New York, 2014.

³¹ Ibid.

³² Loris Raimo: What more might universities do to promote entrepreneurship in the UK?, London, 2017.

³³ Stefan Lilishkis, Brigitte Halbfass, Verena Liszt for DAAD: Case studies and recommendations for action on the "Practice Partnerships" programme, 2017.

³⁴ Ibid.

³⁵ Gwendoline Vusumuzi Nani: Entrepreneurship Intervention: Towards Transforming Education in Institutions of Higher Learning: A Case of One Public University in Zimbabwe, Journal of Education and Practice Vol.10, No.35, 2019.

³⁶ Ibid.

paper on South African entrepreneurship education signifies similar constraints and hopes and points to action based teaching methods or experiential learning and start-up hubs and incubators as agents of change³⁷.

In the EAC, in 2009 a study was conducted on the Tanzanian entrepreneurship education³⁸. The lack of experiential learning, as well as the lack of business experience of the lecturers themselves, is discussed and change is recommended: “Educational institutions are expected to encourage students, graduates and researchers with commercially viable business ideas to develop them into companies, by providing a range of support services within the institution (incubators, financing, mentorship, etc.), thus facilitating the creation of academic spin-off companies.”³⁹. The measures proposed include training programs for entrepreneurship lecturers; project teaching, linkage to local businesses and communities.

The Rwandan government developed a vision for growth and evaluated it in 2019, considering entrepreneurship education alternatives in and for Rwanda⁴⁰. The issue of culture and cultural change with regard to an entrepreneurial mindset was mentioned beyond the above-named challenges addressing dome restraints and hopes: “The perception that young Rwandans are not sufficiently interested in putting effort into earning money and gaining a profit; therefore, they wanted to increase young people’s sense of competition and appreciation of the value of money. The hope that entrepreneurship education will convince Rwandans to be more willing to take on debt in order to grow their businesses, as well as teach potential entrepreneurs how to manage debt responsibly. The need to educate young people about obeying laws, respecting contracts, and paying taxes, although otherwise they saw economic activity as essentially an individual matter of an entrepreneur exploiting opportunities to earn a profit.” A supportive environment and entrepreneurial ecosystem is of great relevance, especially the financial side is regarded as being crucial: “Entrepreneurs need access to resources in order to put their ideas into action – without those resources, “entrepreneurship” may really mean “barely surviving”. Loans also have to be approached with great caution, since those living in precarious conditions are often confronted with emergencies that can cause them to fall behind on their debts.”⁴¹.

The Republic of South Sudan in formulating its education strategic plan 2017-2022⁴² recognizes the importance of the countries unique Alternative Education System (AES), which will continue to play a central part in the education system for years to come. A focus on TVET (vocational education) for the ICT segment will feed into the university education system along the way. The AES (reaching 200,000 individuals in 2012) offers learning opportunities to children and adults who either have never attended formal education or have attended school but dropped out and are not likely to re-enrol. Facing the challenges of infrastructures demolished by 21 years civil war, the government states that to increase employability of graduates for national development and the demand of the global market special attention will be given to appropriate education systems.

³⁷ Fawzy Basardien, Chris Friedrich, Michael Twum-Darko: Evidence-Based Practices of Promoting Entrepreneurship Education in Higher Education Institutions in Africa, *Journal of Economics and Behavioral Studies*, Vol. 8, No. 5, 2016.

³⁸ Donath. R. Olomi, Deo Sabokwigina: Entrepreneurship Education in Tanzanian Business Schools: A Nationwide Survey (Given at the 12 International Conference on African Entrepreneurship and Small Business Development UDES), Dar es Salaam, 2010.

³⁹ Ibid.

⁴⁰ Government of Rwanda, World Bank Group: Future Drivers of Growth in Rwanda; Innovation, Integration, Agglomeration, and Competition, Washington, 2019.

⁴¹ Ibid.

⁴² The Republic of South Sudan, Ministry of General Education and Instruction: General education strategic plan South Sudan 2017-2022, Juba, 2017 / The World Bank (in response to a request of the government of South Sudan): Education in the Republic of South Sudan – Status and Challenges for a New System, Washington-Juba, 2012.

The resources found regarding the state and focus on entrepreneurship education in Burundi are scarce, especially from African sources and the governmental side. The International Monetary Fund states that “the government aims to usher in an entrepreneurial culture and prepare young candidates for entrepreneurship through vocational and professional education and higher education. Entrepreneurial preparation should be integrated into university curricula. Also, given the rise in unemployment among women and the young, special efforts should be made to increase awareness and interest among target groups. Among the specific measures to support future entrepreneurs, the principal effort will be the implementation of a reliable statistics system on the key sectors of economic activity, which will enable future investors to better identify investment opportunities and prepare projects.”⁴³

Kenya pioneered on the continent in starting a master’s degree in entrepreneurship in the 1990s at its Jomo Kenyatta University of Agriculture and Technology.⁴⁴

In Kenya, the Commission for University Education (CUE) now reports 33 Bachelor (22), Master (9), PhD (1) and Postgraduate (1) programs including the term “entrepreneurship” at universities.⁴⁵ In 2013, this number stood at 18 with more PHD and postgraduate diplomas, the same amount of master’s programs but significantly less Bachelor programs. The same report states that in 2013, eight universities had established entrepreneurship centres with Strathmore university and Kenyatta University being mentioned as best practices.⁴⁶ Lastly, it states that the concept of “Integrated Entrepreneurship Education” (IEE) “has been a compulsory and examinable subject at all levels of school-based vocational training where the emphasis has been much stronger since the early 1990s”.

A study discussing entrepreneurship education in Kenya proposes to shift the approach towards “creative application of knowledge and skills, the start-up and survival of business, and growth-related entrepreneurship education.” Those three, respectively, refer to idea generation through practical methods, business model development and start of execution, and learning about growth strategies through case study approaches and similar.⁴⁷

Both on the policy and implementation side, numerous activities in regards to entrepreneurship education in Kenya have been put in place and are ongoing. For instance, CUE is driving efforts for more application-based curricula, which had culminated in a requirement in the “Universities Act 2012” that all curriculum development and reviews must include private sector input. While some research suggests that the rate of self-employed entrepreneurship graduates is still low⁴⁸, there are various programs and initiatives working to deliver quality entrepreneurship education. One of them is through the UN program “Education for Sustainable Development in Africa” (ESDA), implemented at University of Nairobi and Kenyatta University, focusses on field-work to spur problem-solving skills.⁴⁹

For Uganda, literature shows engagement in university-based entrepreneurship education already in the early 2000s. Universities in both rural and urban areas alike have entrepreneurship programs of various types and specializations, and already since the early 2000’s.^{50 51} On the website of the National Council of Higher education in Uganda has seven documents with

⁴³ IMF Country Report No. 12/224, Burundi: Poverty Reduction Strategy Paper II, 2012.

⁴⁴ Bwisa: Towards the improvement of entrepreneurship education in Africa, 2019.

⁴⁵ Kaijage et al.: Supporting Entrepreneurship Education in East Africa – Report for presentation to Stakeholders, 2013.

⁴⁶ Kaijage et al., 2013.

⁴⁷ Otuya et al.: A Proposed Approach for Teaching Entrepreneurship Education in Kenya, 2013.

⁴⁸ Bwisa, 2019.

⁴⁹ Kapfudzaruwa et al: Youth Entrepreneurship and Africa’s Sustainable Industrialization, 2018.

⁵⁰ Magda Hewitt: Entrepreneurship, Training, Education and Job Creation, 2010.

⁵¹ A.B.K. Kasozi: The National Council for Higher Education and the Growth of the University Subsector in Uganda, 2002-2012, 2016.

accredited higher education programs. If those are indeed all accredited tertiary entrepreneurship programs in the country, they sum up to 43 results searching each document for “entrepreneurship” (2008: 8, 2010: 8, 2011: 8, 2014: 4, 2015: 4, 2018: 9, 2019: 2). Counting entries under the word “entrepreneurship” on the Council’s online program list⁵² gives 37 results, 20 for Bachelor level and 2 for Masters level with the rest being postgraduate and graduate diploma as well as certificate courses.

Despite the offer of entrepreneurship programs across the country, formal education seems to not have equipped most young entrepreneurs to set up their businesses, identify profitable and growth-oriented sectors, to choose innovative product lines or widen their activities into employment-creating expansion.⁵³

The most common arguments on entrepreneurship education seem to be that is mostly academic and lacks the practical component. The book “Entrepreneurship, Training, Education and Job Creation” confirms this and states that in Uganda, “most lecturers do not seem to know enough about aims, contents and work methods of entrepreneurship education”.⁵⁴

Despite this, there seems to be a continuous effort towards improving the state of entrepreneurship education in Uganda. The National Council of Higher education in Uganda outlines in the 2017/2018–2019/2020 Strategic Plan⁵⁵ states that it is one of five strategic directions of the council to “encourage entrepreneurship in Higher Education Institutions”.

6.5.1 A brief look at former recommendations for entrepreneurship education in the EAC

In 2012 a study on the state of programs for entrepreneurship education and the support given in the ecosystem in the EAC was conducted by the University of Nairobi together with Plymouth University⁵⁶. In 2012 the conclusions and critique from this report based on focus-group discussions with multiple stakeholders were:

- “There is general agreement that entrepreneurial education needs to be very significantly enhanced in East Africa and that this is not just a matter for business schools. (...)
- There is general agreement that entrepreneurial education needs to feature at all levels of education. (...)
- There is general agreement that future initiatives in East Africa should feature integrated, multi-sectoral approaches involving the development of context specific learning materials, programmes and curricula.
- There is a high level of congruence between universally recognised definitions of entrepreneurship and what drives entrepreneurial success e.g. opportunity recognition and exploitation, and the views of stakeholders in East Africa.
- There is a high level of congruence between universally recognised approaches to support for entrepreneurial learning e.g. the importance of experiential learning over theoretical learning and the recognition of the importance of core skill-building and the views of stakeholders in East Africa.

⁵² UNCHE: Program list, website accessed on 10 May 2020.

⁵³ GEM: Supporting Africa’s Young Entrepreneurs: an investment in job creation and future prosperity for all, 2012.

⁵⁴ Ibid.

⁵⁵ National Council for Higher Education: 2017/2018–2019/2020 Strategic Plan, 2017.

⁵⁶ E. Kaijage, D. Wheeler, Dr R. Nebery: Supporting entrepreneurship education in East Africa, final report for presentation to stakeholders, University of Nairobi, Plymouth University, 2013.

- There is a high level of congruence between universally recognised approaches to the provision of direct support for entrepreneurial action e.g. mentoring, peer to peer learning and coaching, and the perceptions of stakeholders in East Africa.
- Notwithstanding the congruence in perceptions noted above there may be cultural and social differences that prevail in different countries e.g. with respect to the relative importance and roles of different actors and the way in which entrepreneurship education may develop.
- Stakeholders in the East African context perceive the broader societal and developmental merits of entrepreneurship and entrepreneurship education, and thus in the context of East African entrepreneurship there is support for a definition of entrepreneurship that embraces broader societal and developmental goals.”

These findings correlate with the findings of the desktop research undertaken here, focussing on networks, culture, ecosystems, narratives, didactics, inclusion, local spirit. Adding on to this from a 2020-perspective are the issues of:

- Digitalisation as such
- ICT and new technologies
- Social entrepreneurship
- Women entrepreneurship
- Role models of and in the CCI
- Social media
- Informal sector structures and prospects
- Lifelong learning in capacity building.

At the same time, the above-mentioned study was undertaken, another research highlights the reality of alumni from graduate programs in entrepreneurship in becoming an entrepreneur⁵⁷. The rates of self-employment, aka founding a company, were falling in 2012. The ten lengthy interviews and case studies conducted suggest a mixed picture of the ecosystem, the entrepreneurs-to-be act in. On the one hand a favourable global economic upturn, a positive political climate, improving taxation and banking systems, strong family ties. On the other hand, lack of start-up capital, inhibitive banking and taxation, issues of trust, poor technology, corruption, and cheap imports from countries such as China. The authors state, criticising universities and their structure: “Amidst inflexible higher learning institutions, educators are challenged to innovate ways in which entrepreneurship courses will address issues that entrepreneurs face in Tanzania.”⁵⁸.

Looking at the state of the education system in the EAC, differences have to be considered. For example, in South Sudan the informal educational sector (as mentioned before) and the strong position of Technical and Vocational Trainings (TVET) besides university education, play an important role⁵⁹. Here – as in university programs – qualified teachers and trainers are in demand,

⁵⁷ Ernest Mwasalwiba; Heidi Dahles; Ingrid Wakkee: Graduate Entrepreneurship in Tanzania: Contextual Enablers and Hindrances, European Journal of Scientific Research Vol.76 No.3, pp.386-402, 2012.

⁵⁸ Ibid, p. 387.

⁵⁹ Dominic Odwa Atari et al.: Technical, Vocational, and Entrepreneurial Capacities in Southern Sudan: Assessment and Opportunities. Centre for Refugee Studies, York University, Toronto, 2009.

role models are looked for, financial support and access to financing is weak, partnerships and networks evolve too slow, improvement and ongoing evaluation is needed – among other issues. All in all, it can be said, that in 2020 entrepreneurship education at university level and in ICT has gained momentum. Being exposed to the various and differently mixed expectations of government, parents, industry, youth, donors, the institutions and programs struggle hard to keep up with current affairs and trends, with changing environments for education and entrepreneurship. In that, the institutions and programs in the EAC are dealing with challenges, universities worldwide are facing.

7.6 Qualifications and environment of the up and coming digital entrepreneur

What does society and economy look for, what are companies and entrepreneurs looking for in the way of relevant skills and mindsets for the rising young entrepreneur? In general, some ideas have been formulated by OECD, the UN, governmental bodies, university bodies and other institutions, researching industry demand. Beyond knowledge creation, main areas and skills on demand for the 21st century are: Creativity, critical thinking, communication, collaboration, character formation, metacognition, agile working, data literacy, problem solving strategies. All of these can be seen as part of an entrepreneurial formation and mindset.

7.6.1 The entrepreneurial mindset

The entrepreneur is burdened with a difficult task: Effecting hope via creating jobs and prosperity from scratch via his or her extraordinary creativity and stamina in order to transform the African continent as described in the “Agenda 2063: The Africa We Want” blueprint by the African Union⁶⁰. A popular vision of an Africa to come has been displayed in the blockbuster movie “Black Panther”, showing a proud and powerful image of things to come thus motivating young people. The talk is of an education with a purpose, as the New African magazine writes: “Good university programmes should integrate entrepreneurship and leadership training in their curriculum, so that they produce graduates who have the soft-skills to play an impactful role in Africa’s economic transformation, and who come out not as job- seekers but as job creators.”⁶¹. Demands, universities and their offers have to acknowledge, to cope with, to fulfil even.

The OECD as an international body dealing with the evaluation of education and underwriting the importance of an economic liberal mindset, has looked into the entrepreneurial values, systemic factors, a skillset, and education as well⁶². The importance of the individual with its needs and motivation, with its specific environment as of the cultural and social set up, the belief system and values as important as the financial and technical environment is stressed. “Very often becoming an entrepreneur is the result of a personal decision-making process in which one assesses opportunities and their costs (being employed, being unemployed, being one’s own boss) and risk-reward relationships (what is at stake). Values, beliefs and behaviours, embedded in the culture of a country and a place, influence this decision as do the individual’s knowledge, skills, competences and experience.”⁶³. This points towards the value of the personal experience in learning and the active competency acquisition approach.

⁶⁰ African Union: Agenda 2063: The Africa we want; <https://au.int/en/agenda2063/overview>, assessed March 9, 2020.

⁶¹ New African Magazine: African Universities, Education with a Purpose, 21/09/2017, <https://newafricanmagazine.com/15789/>, assessed April.4., 2020.

⁶² Andrea-Rosalinde Hofer, Jonathan Potter: University Entrepreneurship Support: Policy Issues, Good Practices and Recommendations (OECD, LEED document), 2010 - <http://www.oecd.org/education/imhe/46588578.pdf>, assessed April 4, 2020.

⁶³ Ibid.

Values, emotions and the ethical component of being an entrepreneur are addressed and related to later curricula creators and developers: “The dominance of business planning and venture creation modules leaves little room for addressing values, emotions and the ethical component of being an entrepreneur. In business planning courses, students are often exposed to a very sequential and functional based approach to understanding and learning about venture development, which leaves little room for creativity, values, emotions and the ethical component of being an entrepreneur.”⁶⁴.

The conceptual framework of competencies of OECD relies on Man et. al.⁶⁵ as shown below (taken from OECD report).

| Competency area | Behavioural focus |
|------------------------|--|
| Opportunity | Skills and competencies related to recognizing and developing market opportunities through various means. |
| Relationship | Skills and competencies related to person-to-person or individual-to-group-based interactions, e.g., building a context of cooperation and trust, using contacts and connections, persuasive ability, communication and interpersonal skill. |
| Conceptual | Skills and competencies related to different conceptual abilities, which are reflected in the behaviors of the entrepreneur, e.g., decision skills, absorbing and understanding complex information, and risk-taking, and innovativeness. |
| Organising | Skills and competencies related to the organization of different internal and external human, physical, financial and technological resources, including team-building, leading employees, training, and controlling |
| Strategic | Skills and competencies related to setting, evaluating and implementing the strategies of the firm |
| Commitment | Skills and competencies that drive the entrepreneur to move ahead with the business |

Source: Man et. al. (2002), adapted.

Table 2: Competency areas of entrepreneurs

Stressing the context of entrepreneurship education and entrepreneurial activities, authors of the London Business School state that among the relevant and various stakeholders of the entrepreneurial ecosystem “awareness about government entrepreneurship programs and initiatives is often low among the target group. It is important to use diverse information channels, including government web portals, one-stop support centres, SMS campaigns and interaction with representative bodies, to promote awareness and increase take-up of small business support initiatives.”⁶⁶. Especially women and youth lack access to or knowledge of valid information or contact to professional networks or mentors. Advocacy of internships and experiential learning plus mentoring at different stages and ages, as seen before, is at the centre of the UK researchers’ findings. Taking into account national cultures approach to risk taking being a predominant factor in becoming an entrepreneur, the researchers advise on addressing and mentioning failure as something that is not to be ashamed of. “In economies where entrepreneurship is booming, failure is seen as part of the process – in fact, the feeling is that if you never experience failure, you are not being innovative enough.”⁶⁷ is the somewhat short-sighted finding. Failure would need to be discussed on a broader and deeper basis beyond stating an Anglo-American paradigm, which, as research might show, not always has produced optimal results.

⁶⁴ Hofer, Potter – *ibid*.

⁶⁵ Man Th. W.Y., Theresa Lau, K.F. Chan: The competitiveness of small and medium enterprises. A conceptualization with focus on entrepreneurial competencies, *Journal of Business Venturing* 17, 200s – taken from Hofer, Potter.

⁶⁶ Global Entrepreneurship Monitor, Report 2016/17, Babson College, London Business School.

⁶⁷ *Ibid*.

A focus on micro, small and medium enterprises (MSME) being one of the predominant forms of enterprise and entrepreneurial activities in EAC would show that these are the drivers of economic growth and employment not to mention women with their own culture of risk taking. As Nobel prize winners Banerjee and Duflo have shown⁶⁸, SMEs do have their own reasoning in countries not belonging to the global North. OECD in a 2017 report⁶⁹ reflects on the importance of the “gig economy” (flexible employment arrangements, that complement or substitute for full-time jobs) for self-employed micro-entrepreneurs, this being triggered and supported by digitalization and globalization. This might generate digital entrepreneurship education need, with information and hands-on experience of globally demanded skills being supplied.

7.6.2 The entrepreneurial ecosystem

To ‘grow’ and ‘nurture’ the successful entrepreneur the right environment, the fitting ecosystem is needed – to stay within the metaphorical realm of nature. The paradigm of the entrepreneurship ecosystem gained momentum over the last decade (especially with regard to start-up success and failure) acknowledging the complexity of our world describing the workings of it as ‘systems’ that are interconnected via various feedback-mechanism influencing the state of affairs in unforeseen ways.

Some models have been created to describe the ecosystem and its functions. All of them identify the following ‘players’ or factors or domains or constituents influencing such an ecosystem: Market / Need for Human Capital / Education / Finance / Culture / Policy / Networks, Support Systems.

The biological metaphors are being taken further as in the discussion, again especially about high growth start-ups, two models emerged, that of the ‘plantation’ versus that of the ‘rainforest’⁷⁰. The idea behind modelling is to replicate the favourable conditions of such a high innovation output place like Silicon Valley elsewhere on this planet. For this, not the ingredients (those constituents named above) but the recipe (the combination of the ingredients) is said to be important. Yet even though the author recognizes the importance of emotions and culture, the American Way of doing or understanding business predominates, proposing that the entrepreneur (or creative disruptor as described by Peter Schumpeter in the 1920ies already) of that nature is a universal human being or role model.

The rules of the rainforest accordingly are rules of US-American cultural origin (which does not imply or mean, that those are wrong) yet they might have to be adapted to other cultural sets or mixed – see the metaphor of the recipe – in a different a new way. Those rules are: “Rule #1: Break rules and dream. / Rule #2: Open doors and listen. / Rule #3: Trust and be trusted. / Rule #4: Experiment and iterate together. / Rule #5: Seek fairness, not advantage. / Rule #6: Err, fail, and persist. Rule #7: Pay it forward.”⁷¹.

A more differentiated approach to analysing the ecosystem has led to the conclusion that each ecosystem is different (besides sharing similar characteristics) and a process-oriented approach is needed: “Efforts to create or, more realistically, cultivate entrepreneurial ecosystems need to develop an individualised approach that works sympathetically with a region’s existing entrepreneurial assets.”⁷². The process-oriented approach looks for the systemic interconnection

⁶⁸ Abhijit V. Banerjee, Esther Duflo: Poor Economics: A Radical Rethinking of the New Way to Fight Global Poverty, New York City, 2011.

⁶⁹ OECD: Entrepreneurship at a Glance 2017, OECD Publishing; https://www.oecd-ilibrary.org/employment/entrepreneurship-at-a-glance-2017_entrepreneur_aag-2017-en, assessed April 11, 2020.

⁷⁰ Victor W. Hwang: The Rainforest: How „Chicago Thinking“ explains Silicon Valley, Chicago, 2012.

⁷¹ Ibid.

⁷² Colin Mason, Ross Brown: Entrepreneurial Ecosystems and Growth Oriented Entrepreneurship, Background paper prepared for the workshop organised by the OECD LEED Programme and the Dutch Ministry of Economic Affairs, 2014.

of the constituents of the ecosystem, understanding them as processes or systems not as stable actors: “It recognises that HGFs (High Growth Firms) flourish in distinctive types of supportive environment. Distinguishing features of entrepreneurial ecosystems include the following: a core of large established businesses, including some that have been entrepreneur-led (entrepreneurial blockbusters); entrepreneurial recycling – whereby successful cashed out entrepreneurs reinvest their time, money and expertise in supporting new entrepreneurial activity; and an information-rich environment in which this information is both accessible and shared. A key player in this context is the deal-maker who is involved in a fiduciary capacity in several entrepreneurial ventures. Other important aspects of an entrepreneurial ecosystem include its culture, the availability of start-up and growth capital, the presence of large firms, universities and service providers.”⁷³.

Thus, the education system is playing an important role in this interconnected environment reaching out to (and being part of) every corner and level or playing field of the ecosystem, especially in working with the regions’ existing assets. The ecosystem of education nevertheless not only consists of tertiary level education. This level is dependant of its forerunners and as such, entrepreneurship education at university level feeds form qualified pupils and students of the other two levels. Or, being an adaptable system, form vocational trainings institutions of various kinds or other practise related education institutions. Here the interconnectivity of an ecosystem is clearly visible and measure to promote digital entrepreneurship should take promotions in those levels into account.

The promotion of entrepreneurship and the positive public reception is of high priority in the creation of a favourable ecosystem. Especially the ‘spill-overs’ of successful entrepreneurial activities (such as job and wealth creation), yet even more so the activities of the successful entrepreneur as an angel investor, as a mentor, a venture capitalist, a board member or even a lobbyist with the government should be recognized and publicized⁷⁴.

Entrepreneurship ecosystems are an important concept because they acknowledge that a multitude of actors and support functions are necessary for effective venture creation. Ecosystems are widely looked at as interlinked between actors, roles and functions that are geared towards promoting entrepreneurship. Isenberg’s widely used framework names six core functions and their descriptions as displayed in Figure 6.

To come up with relevant recommendations for support provided by a university, it should be acknowledged that entrepreneurs and universities are embedded in ecosystems of different sizes and stages – recommendations should consider these contexts.

“Size” refers to ecosystems that can be looked at on city, national, and even regional (EAC) level. Some functions such as entrepreneurial culture or provision of skills need to happen on a city level. Others such as an enabling policy environment also happen on national levels, while some such as financing can be tapped into on multiple levels such as city, nation, or even region as investors potentially invest beyond their geographical location.

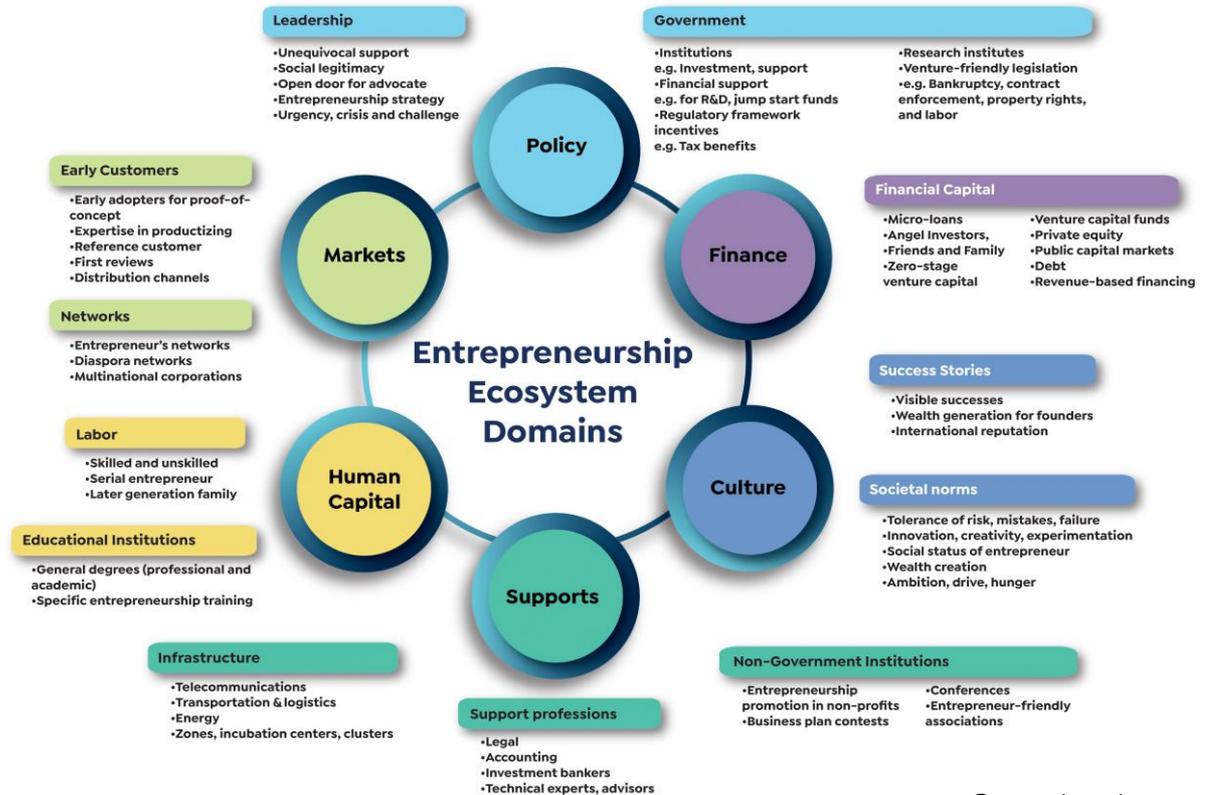
“Stages” refers to how dense, well connected, and specialized an ecosystem is⁷⁵. Other factors such as fluidity are mentioned in literature but omitted here as they seem to be necessary and are referred to as necessary in ecosystems such as the Silicon Valley.

⁷³ Ibid.

⁷⁴ Daniel Isenberg (Babson Global): The Entrepreneurship Ecosystem Strategy as a New Paradigm for Economic Policy: Principles for Cultivating Entrepreneurship, Dublin, 2011.

⁷⁵ Kauffman Foundation: Measuring an entrepreneurial ecosystem, 2019.

Domains of the Entrepreneurship Ecosystem



© Daniel Isenberg 2009

Figure 6: Domains of the Entrepreneurship Ecosystem

Furthermore “density” is a qualifying factor and means density of employment in young SME’s and start-ups and especially in the digital sector as well as density of formal support networks such as hubs and incubators.

Addressing “connectivity” does focus on better flows of information, resources, and talent and can be looked at is relevant as a measure of entrepreneurs finding and getting what they need fast.⁷⁶ Finally, the degree of “specialization” measures the way in which entrepreneurs receive support. It is relevant in the East African context in comparison to well-developed ecosystems because in early stages of ecosystems, the first actors need to render the full stack of support to start-ups. As more support agents emerge, specialization on different stages of start-up journeys and sectors happens.

Ecosystems are a systemic approach to enable venture creation through the law of probability, i.e. the better the ecosystem, the more quality ventures emerge in a certain region. To consider the situation of rural universities as well as countries with earliest stage ecosystems, a statement by Mason and Brown (2014) is worth considering: Ecosystems often “are discussed as if they emerged fully formed”, not appreciating the pathway there. Isenberg’s⁷⁷ first two of nine principles to create ecosystems are to “stop emulating Silicon Valley”⁷⁸ and instead to “shape the ecosystem around local conditions” underlining the importance of universities and entrepreneurship initiatives to strategically build based on local conditions instead of blueprints

⁷⁶ Kauffman Foundation: Entrepreneurial Ecosystem Building Playbook 3.0, accessed May 11, 2020.

⁷⁷ Daniel Isenberg: How to start an Entrepreneurial Revolution, 2010.

⁷⁸ Ibid.

working elsewhere. As research shows, there is no one-size-fits-all approach to building an ecosystem. It is a multi-stakeholder process in which especially the needs and perspectives of entrepreneurs, NGOs, investors, foundations, government, corporates, and academia should be included⁷⁹.

Steven Koltai, who has formerly been engaged in ecosystem analyses e.g. in Ghana and Uganda, provides a way to think of necessary activities that need to be fulfilled in such ecosystems through his “six + six entrepreneurship ecosystem model”⁸⁰. The six core activities needed in ecosystems are (i) identification, (ii) training, (iii) connecting & sustaining, (iv) funding, (v) policy enablement, and (vi) celebration of entrepreneurs. Identifying talented students that are best placed to be successful in digital entrepreneurship in a certain context, providing useful training to them and celebrating successes even this locally are certainly core activities that can be readily done at universities. The other functions are not core activities of universities and need external collaboration and connections. To enable those, an entrepreneurship promotion initiative must develop a theory of how entrepreneurs can be best supported through the available resources. Learning from other universities and ecosystems slightly more advanced and tapping into research such as by Argidius Foundation on effective enterprise development support⁸¹ with focus on Central America and Africa⁸² will best guide strategic action without the necessity of reinventing something that is already there.

Combining Isenberg’s and Koltai’s insights on entrepreneurship ecosystems, the role of a university can be to identify entrepreneurial talents who are trained to acquire the necessary human capital to identify and build market-relevant ventures. Furthermore, universities can build a local entrepreneurial culture by celebrating local success stories and thus showing that entrepreneurship is a career option. Universities can have an active stake in other functions as well, be it directly through campus competitions and award money, by connecting to other stakeholders, and more.

7.7 Culture: The water the entrepreneur is born into and has to swim in

It has been argued and shown, that ‘culture’ or socio-cultural factors do play a decisive role in the formation of the entrepreneur. Pointing to the widely accepted research and models of Trompenaars, Hampden-Turner, and Hofstede with their dimensions rotating around time, power, gender, proximity, hierarchy, control, rationality, we want to briefly show two EAC country profiles on the Hofstede dimensions⁸³ considering promotional activities accordingly.

The examples shown below do show similarities, and especially on “uncertainty avoidance”, the “power distance”, and the “individualism” dimension. Considering the scheme, one might think about how to avoid the dilemma of presenting a stereotyped “American type entrepreneur” putting his individuality loudly upfront thus forgetting his embeddedness in a societal system to a community focussed on social cohesion. Along those lines promotion of entrepreneurship needs to be discussed individually for each country.

⁷⁹ Nadgrodkiewicz: Building Entrepreneurship Ecosystems, 2014.

⁸⁰ Koltai Co: Website Steven Koltai, accessed May 8, 2020.

⁸¹ Argidius Foundation: Learning to SCALE effective enterprise development (YouTube playlist), accessed April 28, 2020.

⁸² Argidius Foundation: What We Do (Website), accessed April 28, 2020.

⁸³ <https://www.hofstede-insights.com/country-comparison>, accessed April 19, 2020 – the numbers in the charts showing the percentage (0 to 100 scale) of dominance of the dimension (100 = very dominant).

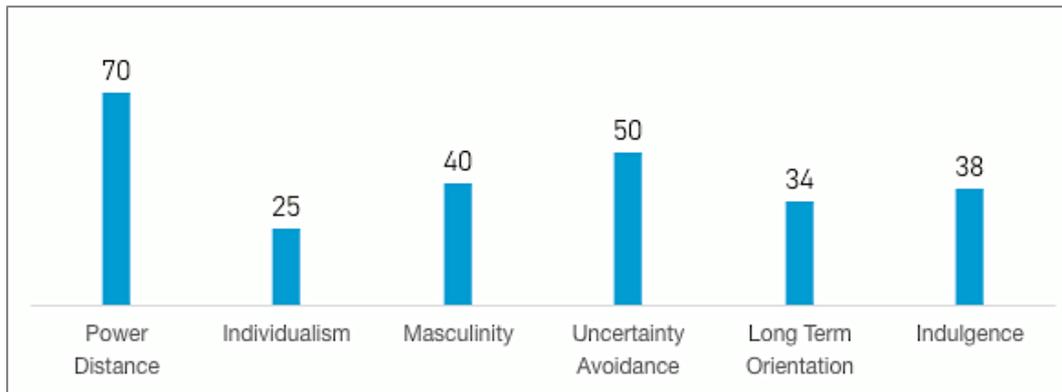


Figure 8: Country Dimensions for Tanzania by Hofstede

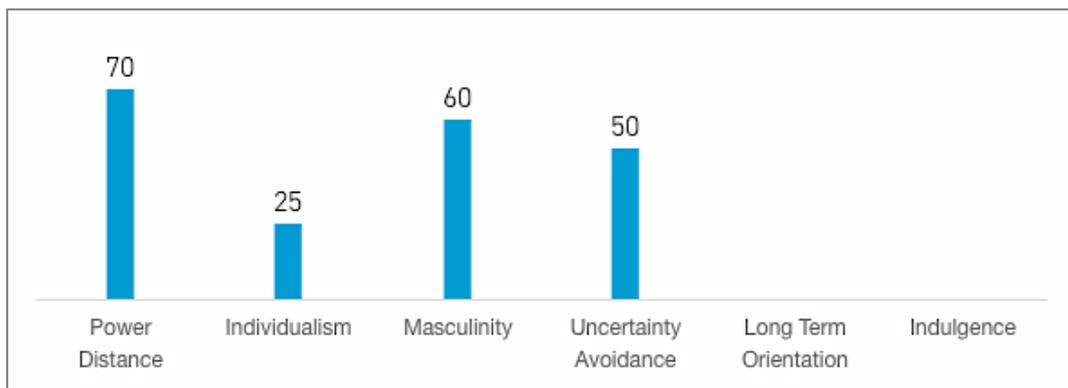


Figure 7: Country Dimensions for Kenya by Hofstede

Further insights can be gained by the research of Richard D Lewis⁸⁴ who postulates, that Sub-Saharan African cultures are “multi-active – warm, emotional, loquacious, impulsive”⁸⁵ – a rather broad geographical approach. These cultures attach great importance to family, feelings, relationships, and people in general, liking to do many things at the same time with a poor following up on agendas. In business, relationships (best face-to-face) and connections are seen as more important than products. Late on delivery dates, little interest in schedules and deadlines, a nonlinear understanding of time and not recognizing the importance to timetables for those linear cultures, flexible, frequently changing plans, strong in improvisation, charismatic and diplomatic, tactfully circumventing regulations, entertaining lavishly: all these are traits Lewis attributes to a multi-linear culture⁸⁶.

Even though the picture painted is broad, generalised, and stereotypical, it provides a framework and some ideas on promoting entrepreneurship. Taking this into account in order to avoid failure might prove useful. Especially in regard to storytelling and creating a locally accepted narrative of entrepreneurship, media resonance and individual resonance, the above-mentioned factors might provide some guidance for thought. The same is true for framing entrepreneurial interventions especially when addressing the entrepreneurship mindset.

A brief media and cultural narratives research, covering the years 2018 to 2020 produces pop-cultural loudly acclaimed stories of success, role models, big money, zest, and self-esteem. Randomly selected headlines on topics and people as well as companies read⁸⁷: Kenya’s Twiga Foods Closes €10.3M Series A Investment Round / Heidi Lovett of Swerve Robotics on plans to ignite enthusiasm for STEM in Botswana’s youth / My 9-to5 made me too comfortable, so I

⁸⁴ Richard D. Lewis: The Cultural Imperative, Global Trends in the 21st Century, New York 2003.

⁸⁵ Ibid.

⁸⁶ Ibid.

⁸⁷ Research in: New African, The Africa Report, and Ayiba Magazine (articles or posts or podcasts).

became an entrepreneur / Sangu Delle, Defying the odds / Eddie Ndopu: Positively able and pushing boundaries / Rebecca Gyumi (Tanzania): Education activist saying “Girls” not “Brides” / Nextgen: Introducing PUBLISEER a digital publishing platform for African creatives / South-Sudan: Micro-Finance Diaries with Yenig Lokule of Rural Finance Initiative (RUFII) / Ngozi Okonjo-Iweala: The way forward: Resource mobilization is key / Our Future made in Africa / Ozwald Boateng: I am passionate about where Africa goes, and should go / Acha Leke: Africa’s \$300 billion opportunity: Tax revenue / Dr. Carlos Lopes: Africa is ready for a big revolution ... but we need a new narrative / What role for women in Africa’s future / “Africapitalists” hold the key to Africa’s Future / Kenya, the world’s fintech lab / 50 Trailblazers under 50: Made in Africa! / 50 influential women in business / Tech Hubs not Hype / David Adjaye: I’d like to see future African cities that have lessons of our history / Start-up stories: Exposure robotics academy.

The fact is: The topic of entrepreneurship draws media attention and public interest everywhere. A limited search of the stories in African magazines does provide some proof that success stories, portraits of able individuals, stories of problems being solved, and interviews with people having something to say seem to find the interest of readers and journalists alike, thus bearing chances for the promotion of digital entrepreneurship.

7.8 On Social Entrepreneurship

In his book “A World of Three Zeros – The New Economics of Zero Poverty, Zero Unemployment, and Zero Net Carbon Emissions”⁸⁸, Nobel laureate Muhammad Yunus argues the case for the social entrepreneur as an agent of change. He proposes an end to inequality and a sustainable economy as well as a change from job-seekers to job-creators through an entrepreneurial mindset. Key to this change is the young generation, technology and good governance including a balanced, resilient and just legal and financial infrastructure plus business in the sense of a company as a tool mainly to solve an urgent problem, not to make money solely. Yunus is convinced that the human being is a social being striving for a communal benefit of mankind: “Social business isn’t just an essential tool for resolving the crisis that humankind faces. It also represents a wonderful expression of human creativity – perhaps the highest form of creativity that humans are capable of.”⁸⁹ The idea of social business resonates. Young people strive to create a better world to live in and don’t mind making money on the way towards it. Telling the stories of successful social entrepreneurs might motivate and stimulate in countries where social values are geared towards the community without neglecting the individuals’ desire to be financially well off. Similarly, the financial tool of crowdfunding resonates with likeminded people, providing a different way to jumpstart projects.

Examples from the EAC show that social business is underway in its member states using modern technology and the global market. Sharon Adongo, a women entrepreneur from Kenya and founder of UWAZI technology consulting states: “Our mission is to amplify social change in the Eastern African region. We believe that to be truly successful, non-profit organisations need appropriate technology and actionable data to successfully collaborate with their constituents, scale their programs, and unlock opportunities through insightful data. We provide thoughtful solutions that align to our partners’ mission, thereby amplifying social change.”⁹⁰ Her advice to would be social entrepreneurs wanting to start a business is the same any entrepreneur would

⁸⁸ Muhammad Yunus: A World of Three Zeros – The New Economics of Zero Poverty, Zero Unemployment, and Zero Net Carbon Emissions, New York, 2017.

⁸⁹ Ibid.

⁹⁰ Amplifying social change in Eastern Africa through technology – Ayiba Magazine, on UWAZI, interview with Sharon Adongo, founder, 2015.

hear: “Go ahead and start, then don’t stop. If there is a problem that bugs you enough, then by all means, provide a solution to that problem through your business. There is no amount of reading or research that will get you to a place where you feel completely confident that you should start the business, but research anyway and be willing to learn and tweak your ideas as you go along.”

Two randomly chosen examples of small or even micro social businesses from Tanzania, run by women, briefly demonstrate the profound and solid basis of social entrepreneurship. They thrive on real problems and are driven by necessity, thus gaining momentum and acquiring stamina. Number one is the “Arusha Women Entrepreneurs Ltd”: A social enterprise established by David Mjuni based in Arusha city in Northern Tanzania. Established in 2008 but officially registered in 2010, it provides employment opportunities for disadvantaged and deprived communities. This organisation employs low-income women to process groundnuts that are slowly roasted/ground with no artificial sweeteners or preservatives. Number two is the “Diana Women Empowerment Organisation (DIWEO)”: An organisation established by Mama Farido in 1998 with 17 women. Its goal is to serve orphans, vulnerable children, youth, widows living with HIV/AIDS and older people. The headquarters are based in Dar Es Salam with branches in various other cities and regions in Tanzania. DIWEO. It started by looking after 20 orphans; meanwhile the number has reached 254. DIWEO has two orphanage centres, one in Tanga and another in Dar Es Salaam. Here real-life choices needed to be made to combat inequalities and to care for the needy. Whether the impulse to act is or was driven by religion, ethics, social instinct, a caring side is not important. Important is the fact, that change was the result of direct social entrepreneurial action. These stories can be related, the result be shown and communicated.

Furthermore, it could be argued, that promoting social business and role models of social and business success might support promoting entrepreneurship and digital entrepreneurship as such in EAC. The same goes for a focus on women in tech and the creative industries as a heaven of small and medium enterprises, which will be briefly discussed in the next paragraphs. Another aspect to be mentioned is the expectation, that via practical problem solving, supported by social entrepreneurship and a creative solution focused and societal mindset, negative effects of climate change for Africa could be limited.

7.9 Focus on women

The struggle for gender equality, women’s rights and an attitude towards women in tech continues⁹¹. Even though legal systems might propose gender equality, the reality in most of the countries on this planet is different. Another important aspect of the discussion on equality is recognizing diversity as a driver of innovation. Diverse teams representing a variety of approaches and insights and application of skills are far more successful in business than non-diverse ones. Women’s entrepreneurship is vital for economic and social development and there is potential for high growth and change for the better.

In 2014 Dr. Nkosazana Dlamini Zuma, being the chairperson of the African Union Commission, outlined her vision of Africa in 50 years’ time, through “an email from the future” with regard to the “Agenda 2063 set by the AUC⁹². There she noted: “If I have to single out one issue that made peace happened, it was our commitment to invest in our people, especially the empowerment of young people and women. (...) As our societies developed, as our working and middle classes grew, as women took their rightful place in our societies, our recreational, heritage and leisure

⁹¹ See: OECD, Week 2012 – Gender Equality in Education, Employment and Entrepreneurship: Final Report to the MCM Paris, 2012.

⁹² https://au.int/sites/default/files/documents/33126-doc-02_email_from_the_future.pdf - assessed May 1, 2020.

industries grew: arts and culture, literature, media, languages, music and film.”⁹³ pointing to the importance to women’s rights and the value of the creative industries.

Underlying entrepreneurship ecosystems is the implicit assumption that all entrepreneurs have equal access to resources, participation, and support, as well as an equal chance of a successful outcome (venture start-up). However, in practice, this is very often not the case. When it comes to many aspects of the entrepreneurship ecosystem, women are at a disadvantage: “... when women do start businesses, they do it on a smaller scale than men and in a limited range of sectors. Self-employed women frequently earn 30 to 40% less than their male counterparts. Two key differences between male and female entrepreneurs help explain these relatively low returns: women start their enterprises with limited management experience and devote much less time to their businesses than men. (...) Women are also less likely than men to borrow money to finance their business. There are several reasons. Women might be charged higher interest rates and asked for more guarantees, as they often have shorter credit histories, less operating capacity, and less collateral. It may also be that women do not apply because they are afraid of refusal or lack confidence in the growth potential of their business.”⁹⁴. On the regulatory level, Interactions between the regulatory and the financial systems seem to deserve attention. African customary laws and the social system have strongly restricted women’s access to resources⁹⁵.

Especially the informal sector and MSMEs are a domain of female entrepreneurship. There issues of family and cultural values, access to information and finance, involvement in learning form barriers that are hard to overcome. Women do experience the entrepreneurship ecosystem differently⁹⁶: Their approach to networking, their support systems, their approach to management and running an organisation, their handling of capital and customers, all can be or are distinctively different to attitudes seen with males⁹⁷.

Small enterprises of women not rarely evolve out of informal local networks. An example is the “Mshikamano women group milk value addition initiative” that was established initially as a non-economic social safety net⁹⁸. This initiative “is contributing positively into the improvement of households, through asset accumulation, sending children to school but also complementing the traditional economic activity which is agriculture.”⁹⁹. Through their entrepreneurial approach the women became economically independent and empowered. As a side effect, contributing to the discussion of cultural values in the entrepreneurial ecosystem, women entrepreneurship has also caused some conflict within the households which is caused by men feeling threatened. The International Labour Office looked into data for female entrepreneurship in Tanzania in general and concluded: “The majority of women entrepreneurs are aged between 25 and 40 years, and have a low level of education. (...) Although many women have an untapped potential for entrepreneurial development, they are often impeded by a lack of the necessary capacities, skills and resources. They face more disadvantages than men due to legal impediments, cultural

⁹³ Ibid.

⁹⁴ OECD, Closing the Gender Gap. Act Now, 2012 - <https://www.oecd.org/gender/Executive%20Summary.pdf>, assessed May 1, 2020

⁹⁵ See: The 2014 African Prosperity Report, Legatum Institute, Women entrepreneurs drive prosperity, what hinders them?, London, 2014.

⁹⁶ Candida Brush & Linda F. Edelman & Tatiana Manolova & Friederike Welter: "A gendered look at entrepreneurship ecosystems," Small Business Economics, Springer, vol. 53(2), pages 393-408, August 2019.

⁹⁷ See: Zuzana Brixiová, Thierry Kangoye: Networks, start-up capital and women’s entrepreneurial performance in Africa: evidence from Eswatini 13, in: High-growth Women’s Entrepreneurship - Programs, Policies and Practices, edited by Amanda Bullough, Diana M. Hechavarría, Candida G. Brush, Linda F. Edelman, 2019.

⁹⁸ See: Doto Balele Mgasa: Women entrepreneurship in Tanzania: A case study of dairy production and marketing in Babati, Wageningen, 2014.

⁹⁹ Ibid, page 3.

attitudes, less mobility and their businesses tend to be younger and smaller than men's. (...) A key barrier is the cultural environment that makes it more difficult for women to start and run enterprises based on traditional reproductive roles and power relations. Gender-related impediments also include challenges in claiming rights to property and assets which could be pledged as collateral for loans and inequality in inheritance rights.”¹⁰⁰. The Tanzanian Ministry of Industry, Trade and Marketing's "Small and Medium Enterprise Policy" recognizes that women have less access to productive resources such as land, credit and education¹⁰¹. Recommendations on change include: Ease of registration needed / access to site and land registration needed / access to finance needs to be reformed / taxation laws should be reformed to be understood by less educated) / local level taxes make entry difficult and need reform / infrastructure reliability is lacking / access to day care is in dire need / interacting with justice needs to be on eye level / access to international trade is in demand / intellectual property rights need to be guarded and enforced. The already mentioned obstacles again are being stated, researched for one country of the EAC. They can be expected to be seen in the other countries as well¹⁰². Visibility of women entrepreneurs and organisations of women should support long awaited change. In Rwanda, for example, a chamber of women entrepreneurs does exist, the FEMCOM COMESA, and voices of women entrepreneurs are being heard¹⁰³. Role models that encourage others to step into their shoes can support as well forming positive narratives¹⁰⁴. Stories, that show an early start on the career path, a local solution to problems, individual stamina, success at competitions and yearning for learning and reinventing oneself, are likely to be heard. In its May 2013 issue, the New African Magazine noted: "We must dare to imagine a future where leadership is as automatically linked to women as to men.", recognizing the issues around gender equality that hinder economic and social development. As we have seen, stories and role models do play a role in promoting entrepreneurship. Therefore, magazine portraits and case study interviews with female entrepreneurs such as Sharon Adongo of UWAZI or Juliana Rotich of Ushahidi or Patricia Nzolantima from CommunicArt/EXP or Chinny Ogurna from AHH or Abai Schulze from ZAAF or Dana Khater from Coterique or Denyse Uwineza from URU Technology¹⁰⁵ light the way to counterbalance a lack of confidence and support and will motivate women and girls.

7.10 Creative economy, the Cultural and Creative Industries

The African Union has recognized and acknowledged the economic, but also the social and innovative power of the Cultural and Creative Industries (CCI) and a need plus a vision for the Creative Economy (CE). The sectors of the CCI include the traditional art forms such as painting, publishing books, theatre, but the media forms such as film as well, and furthermore the modern industries related to entertainment and ICT: games industry and advertising. Beyond this, the drive for innovation in a knowledge economy, based on the creativity of its entrepreneurs, led to a close connection of the start-up and entrepreneurial mindset with that of the artist, the agent of the CCI.

¹⁰⁰ Neema Mori: Women's entrepreneurship development in Tanzania: insights and recommendations, International Labour Office, Geneva, 2014 .

¹⁰¹ See: Voices of Women Entrepreneurs in *Tanzania*, International Finance Corporation, Washington, DC, 2007.

¹⁰² See: ElKhider Ali Musa: Emerging Women Entrepreneurs in Sudan: Individual Characteristics, Obstacles and Empowerment, Dakar, 2012.

¹⁰³ See publication: Voices of Women Entrepreneurs in Rwanda - <https://www.care.org.rw/resources/case-studies/item/317-women-entrepreneurs-in-rwanda>.

¹⁰⁴ GIZ publishes positive examples. In: Digital Innovation Made in Africa for Sustainable and Inclusive Development, Volume 3, Female Entrepreneurs 2019; or volume 4, Local Champions.

¹⁰⁵ See: Sangu Delle: Making Futures: Young Entrepreneurs in a Dynamic Africa, Abuja-London, 2019.

In 2013, UN/UNESCO published a report on the situation in the creative economy, stating “There is an urgent need to find new development pathways that encourage creativity and innovation in the pursuit of inclusive, equitable and sustainable growth and development.”¹⁰⁶.

Worldwide the CCI generated 454 billion \$ in value in goods and services in 2015¹⁰⁷. The EAC harbours untouched riches in the field of talent and services and goods in the CCI. Music styles such as Bongo Flava from Tanzania, fashion from Kenya among others provide an idea of what enterprises can be built. Here the pan-African trade is of importance. Looking to the gaming industry and ICT, African themed computer games will be of value. Kenya for example in 2013 exports CCI goods and services amounting to 40,92 million \$. In Rwanda, the CCI create 1,28 million \$ export value in 2014, mainly in the field of design, arts, crafts, and mainly to African countries (68%). Burundi, in 2014, established 0,16 million \$ in CCI exports¹⁰⁸.

Especially in the online economy and the digital sector, the CCI function as a driver: 200 billion \$ were attributed to digital sales of CCI goods and services in 2013 worldwide. Powering the sale of digital devices with creative content can be related to the CCI as well; in 2013 530 billion \$ were made in this field. Digital cultural goods reached an amount of 66 billion \$ of B2C sales in 2013 and 21,7 billion \$ in revenues for online media and free streaming websites¹⁰⁹. The CCI are open to women, to youth, are more inclusive and diverse than other industries or societal sectors. Independent operator, SMEs, and the informal sector are constituents of the CCI, all entertaining a strong entrepreneurial mindset and pull.

The overall situation in Africa is being assessed in the above-mentioned report as follows: “Today, African societies contain cultural riches that are bubbling up to embrace the opportunities offered by new technologies and commercial markets. (...) Yet, the African market is poorly structured and cultural goods are largely provided through the informal economy, which is believed to employ 547,500 people and generate US\$4.2b in revenues.”¹¹⁰.

In 2005, the Organisation of African States adopted a revised Master Plan on CCI, based on decisions and measures taken in 1992 and 2003, which in cooperation with UNESCO was continued in 2008. One of the main conclusions of the plan reads: “It is therefore imperative that the African Cultural industries should be situated in the context of poverty reduction efforts, sustainable development initiatives and programs.”¹¹¹. EAC governments (for example in Rwanda) are gradually recognising the importance of CCI as an instrument for achieving broader development goals. The integration of CCI development has been included in poverty reduction strategy papers. There are already efforts underway to implement a number of programmes and measures aimed at involving a wide variety of social groups. A flourishing CCI contributes to the global awareness of the related nation/culture and acts as a tourism powerhouse.

Effective partnerships between the cultural and creative industries, on the one hand, and politics and representatives of other sectors, on the other, can be and are necessary in order to convey the creative potential of entrepreneurship and increase the visibility, attractiveness and mindset of entrepreneurial activities, especially in the digital arena. Laboratory and hub structures, deeply rooted in artistic settings as well as awards and related training programs can provide effective solutions. Financial support for the CCI and its players might be different than that of other

¹⁰⁶ UN/UNESCO: Creative Economy Report 2013, Special Edition, New York 2013.

¹⁰⁷ Creative Economy Outlook 2002-2015, UNCTAD, New York, 2018.

¹⁰⁸ Ibid.

¹⁰⁹ Cultural Times – the first global map of cultural and creative industries, EY by initiative of CISAC and support by World Bank, New York, 2015.

¹¹⁰ Ibid.

¹¹¹ Read more at: https://au.int/sites/default/files/pages/32901-file-auc_plan_of_action-_def.pdf

sectors. For example, microfinance solutions might be a way to go or crowdfunding activities on a global scale. Being closely linked to ICT, the creative industries provide another relevant set of experiences and best practices in the field of SMEs. Those, as well as individual entrepreneurs (free lancers) create the large body of the international creative industries.

Culture always has been the field of promoting values and ideas. Thus, the ability of the CCI to foster pride and self-awareness is a relevant factor in the promotion of digital entrepreneurship. A blockbuster movie like “Black Panther” (with its focus on a new digital Africa) created a surge in robustness and pride in being an African. A sequel is being prepared already and Nollywood series’ surely will build up on that narrative.¹¹² Wakanda, the imaginary African nation, possesses technological superiority with an aim to benefit societies, thus bringing the social entrepreneur’s motivation together with the creative industries one.

The popular culture being the realm of the creative industries provides ample space for the digital entrepreneur. Application arenas ranging from media, to advertising to gaming are places to accumulate cultural capital for entrepreneurs and consumers alike. It is emerging from popular and subcultural online spaces and the interactions that games and videos bring about.

Culture, understood as the way we as humans actively decide to do things and to understand our surroundings, is the rich playing field of the creative industries. As seen, it often merges the social dimension into the undertakings and motivations of the entrepreneur.

¹¹² See also: New African Magazine, Black Panther: Changing perceptions, 1. April 2018 – assessed 15.4.2020. Or the book series by Nnedi Okorafor on the “Akata Warriors”.

7.11 Selected observations and recommendations from secondary sources research on skillset, women and social entrepreneurship, Creative Industries

Findings from secondary research

- The field of entrepreneurship and entrepreneurship ecosystem research and theory in the last decade does profit from and focus on the thriving start-up scene as a new paradigm of modern business. University programs need to be up-to-date in their research and contributions – international exchange and networking could support this transferring these into institutional forms.
- A skillset close to innovation and creativity as core values of the corresponding skillset and mindset of the modern entrepreneur seems to be integrated into this paradigm. This endorses a specific “western” or “northern” culture. A relevant skillset and mindset need to be adapted to the existing local cultures – university programs can be a critical and guiding actor in doing so by capacity building for local needs, showcasing culturally relevant examples, integrating the local private sector including MSMEs.
- Digitalisation and globalisation as drivers will be more and more connected to the climate crisis on hand. Thus, local/regional solutions and local/regional supply chains will be of value. Micro businesses and SMEs can be seen being parts of those – a transdisciplinary core course on climate change could be part of each (digital) entrepreneurship education.
- The mindset (and related skillset) of the social entrepreneur can be seen as a relevant driving force of start-up entrepreneurs in the EAC. The acceptance of (digital) entrepreneurship is heightened by solutions provided by private social enterprise and might claim traditional values (such as community values) an active participation for a beneficial civil society – a transdisciplinary core course on social entrepreneurship could be part of each (digital) entrepreneurship education.
- Women are strong actors in setting up businesses. Recognising their contribution and hard work via equal rights and pay is mandatory for the afore mentioned beneficial civil society. Educating girls and integrating them in tech programs in all levels of education is the first step. Highlighting and sustaining women entrepreneurship in various ways (media, competitions, finance, tech, digitalisation,) are the next steps – female lecturers and female entrepreneurs should be an integral part of (digital) entrepreneurship education on all levels.
- The cultural and creative industries are drivers for a change of mindset. Narratives of success and pride as part of popular-culture can motivate, nourish and disseminate by providing role models and convincing stories – storytelling and media relations are part of (digital) entrepreneurship activities and should be taught as marketing skills.
- A skillset for the 21st century is constructed of: Creativity, critical thinking, communication, collaboration, character formation, metacognition, agile working, data literacy, problem solving strategies. All of these can be seen as part of an entrepreneurial mindset – practical training in those capacities should be a part of (digital) entrepreneurship education.
- Social media, being one of the major playgrounds for pop-culture, provide opportunities not only for stories but for digital solutions on various levels from company to self-employment and freelancing – marketing in and with social media should be a part of (digital) entrepreneurship education.

- The regional informal sector of the economy needs to be recognised as being of value. Its individual resilience, business intelligence, specific creativity, solutions focussed flexibility are part of the skillset and mindset of the creative entrepreneur. Even if these businesses and entrepreneurs are need-driven, they form the basis of an entrepreneurial ecosystem (e.g. via providing examples within the family, support, motivation, and sometimes micro-amounts of finance). Pride and belonging can be built by recognition and acknowledgment of skills for the formal sector.
- Lifelong learning and capacity building form a relevant answer to the fast-changing technical evolution and its related economic system. A culture of adaption, curiosity, and creative responses provide a ground for this – university is the place to play and test.

After looking at entrepreneurship promotion from systemic and individual perspectives, several layers can be articulated and give a lens through which to observe boundary conditions and dependencies an entrepreneur is surrounded with and embedded in. Those are visualized in Figure 9. *The individual entrepreneur* with their mindsets, upbringing (including gender, family culture etc.) and environmental circumstances requires the domain of *quality entrepreneurial practice* to proceed that gives exposure, trainings, and skills. A wider *support ecosystem* including mentoring and networking opportunities is necessary to guide and connect the entrepreneur on their journey while the *enabling environment* including legal, finance, infrastructure, policies, and other boundary conditions set the frame and playing field of the individual entrepreneur. Beyond that, the individual entrepreneurs in East Africa get increasingly connected to and with the *international digital entrepreneurship systems* through digital communities, networks, and quality content that is readily available.



Figure 9: The different layers and factors determining the success of entrepreneurs in East Africa

8. Case Reports and Case Studies on (Digital) Entrepreneurship in EAC / Africa

Full-fledged case studies including deep dive field work were not to be conducted during a worldwide pandemic limiting travel and face-to-face communication and within a short period of time. Thus, a selection of the qualitative interviews was used to go further in a dialogue in order to produce an approach to a case study in a thick description¹¹³ and evaluation for a selected given setting. The sources for these interviews, due to restraints of the global pandemic, were not interviews conducted by the researchers, but documented and published interviews or bits of interviews from existing data sources, such as books or newspapers or social media videos and podcasts. The selection of interviews to be changed into case studies was undertaken by evaluating contacts via pre-existing knowledge of the partner's experience, the potential of his or her position and of his or her organization working as an example, and the diversity factor of the given sample in providing different angles. Anecdotal evidence forms the basis of the qualitative data research here as the interview partners refer to their lives and personal experiences. In interpreting them, the hermeneutic horizon of the researcher and his or her own history become transparent; educated guesses relying on the wealth of individual knowledge and former triangulations of knowledge and sources with other sources do lead the way in creating meaning. Before setting out to analyse the case studies, collected in 2020 for this paper, a look will be taken on the interviews and studies presented by Sangu Delle¹¹⁴. His descriptions provide case reports and generate valuable insight into the mindsets and environment young entrepreneurs (from Africa but from EAC as well; from all industries, but from tech and creative industries as well as social industries as well). Four young entrepreneurs were chosen as they represent EAC countries and they show a diverse set with women and men, sociopreneurs, moguls and creatives as well as techies – as Delle describes them. His introductory remarks shed a light on his selection and attribute a valid aspect to the entrepreneurial narrative from an African entrepreneur: “Resisting each polarised narrative, as well as standard narratives of development and economic models that have repeatedly failed to offer Africa an equal position in the world stage, *Making Futures* provides a balanced but optimistic window into the way some of the greatest strengths of Africa's youthful entrepreneurs are drawn directly from their challenges as well.”

8.1 Eric Muthomi from Kenya¹¹⁵

Operating in EACs most advanced economy with the biggest output measured in Dollars, Muthomi's company, Stawi Foods and fruits, is a pioneer in the processing of bananas into multipurpose banana flour. Stawi (from Kiswahili for “prosperity/success”) is contributing a sustainable and higher income to almost 1,000 farmers in Kenya. He started early with his economic endeavours, his mother owning a shop, so he set up a place where compact discs were

¹¹³ See Clifford Geertz: Thick Description – Toward an Interpretative Theory of Culture, New York, 1973.

¹¹⁴ Sangu Delle: Making Futures: Young Entrepreneurs in a Dynamic Africa, Abuja-London, 2019

¹¹⁵ Ibid, page 5 to 17. Title: Creating Value from Bananas – category „The Aspiring Moguls“.

sold. After that forum or economic ventures, some short-lived, followed. This went until he was halfway through university, running into trouble when export payments from South Africa never arrived and money was short. A construction company he started in 2009, still operates. Delle states, that like him, many of the young entrepreneurs he talked to started early in their lives and were serial entrepreneurs. We would add that the influence of “home”, of examples et by mother or father or both and the “commercial attitude” do play an important role, and beyond that the chance of acquiring a good, even university, education, which creates knowledge, opportunities and networks for those who dare. This will be followed up through the case studies and interviews. Getting him started on the banana-business was a research conducted into opportunities and strength of markets and of his local assets in Kenya. Thus, recognizing that food waste was abundant her realized the potential of the abundance of “rotten” bananas (due to transport issues) and their potential to create wealth. This then shows a ingenious yet structured mind(set), focussing on problems to be solved. Creating the business model, he needed to look for money. Funding came by the way of participating in a challenge (Nature Challenge Africa) and finally winning it, furthermore he won the Enblis business plan competition, having discovered it online. This shows, that knowing where to search plus having access to internet and other technology, can be essential to becoming and entrepreneur. Moving from the countryside to the capital came as the next change plus finding Chinese manufacturing and Alibaba to purchase it at low cost. The baby boom in Kenya made him move into baby nutrition and porridge as a product. Further growth and financing for it came via three more competitions he won. Setting up the company structure, essential services (like accounting, auditing, legal) were outsourced to focus on the core competencies and competitiveness; young women form the communities build the mayor work force. Today (in 2019) he strives for a turnover of more than \$1 million, yet finance remains a problem.

Digital tools create opportunities he believes, giving his advice to start uppers: “For one, I would tell (aspiring entrepreneurs) to try and start wherever they are without saying that they lack the capital or networks to do their business. Those are things that come as one moves along, but you need to get started, even if it’s in a very small or micro way. Use the internet to brainstorm.¹¹⁶” His narrative feeds into the “can do, think big, dream even bigger” narrative of the “American Way of doing business”, which might be explained by his studying at Harvard university, being trained in the Harvard management and business mindset. This might free energies and at the same time hinder depending on the cultural surroundings.

8.2 Andrew Mapuya from Uganda¹¹⁷

The incentive to think of change came from the 6-year old boy watching the families only asset, a goat, choke to death because of having eaten a plastic bag: “I hate plastic”¹¹⁸, he declares. In 2008 he launched a company to help end the use of plastic bags and substitute them by paper bags. Stemming from the provinces in the East he comes from a poorer background, having to walk miles for leftover maize to sell it on the roadside, showing an early regard for business opportunities. Other smaller chances for business were followed up as they arose gathering experience and stamina for entrepreneurship. Age 16 he won a scholarship for a school in Kampala. Taking on the governmental decisions of 2008 to end the use of plastic bags via a ban of their use, he thought of a chance to substitute them by paper bags and make some money as the ban was not really enforced. He then did some “old school” market research by visiting stores and

¹¹⁶ Ibid, page 16.

¹¹⁷ Ibid, page 69 to 81. Title: Pioneers Paper Bags – category „The Sociopreneurs“.

¹¹⁸ Ibid, page 71.

asking around. Then in an internet café he researched on how to produce paper bags. A course on entrepreneurship and financial literacy at the Junior Achievement Chapter of his school provided further skills. In order to raise money, he and his classmates collected 70 kg of used plastic bottles. With the money made and some borrowed money he started making paper bags with his company “Youth Entrepreneurial Link Investments”, as of 2019 employing 22 people directly. He plans to achieve \$1 million in revenues as well as digitally training other Africans to make paper bags or set up such a company – so far, he trained 500 people. Being so young (27 years in 2019) is a problem, he states. His clients look for seasoned partners in business. Money to support his companies’ growth comes and will come from grants and business plan competitions. In 2012 he won the Anisha Prize, sponsored by the African Leadership Academy, awarding \$100,000 prize money as well as winning the award for Social Entrepreneurship in the same year. The green economy is creating business opportunities, Delle states and points out to neighbouring Tanzania, where Patrick Ngowi (not featured in his book) resides as the CEO of Helvetic Solar, making \$10 million in annual revenues. Andrew Mapuya in 2019 is setting up a factory to shift to industrial production, planning to employ 1,000 people then¹¹⁹.

The difference in socio-cultural backgrounds could lead to different business types and entrepreneurial careers. Nevertheless, at one point of the journey, education, access to information and knowledge (preferably via the internet), and self-consciousness to step into the competitions of various kinds for funding, is necessary. A vision of what can be achieved by solving an environmental and social problem beyond solely getting rich or famous, might be of help to as a motivation.

8.3 Dorothy Gehtuba from Kenya¹²⁰

Age 11, Dorothy Gehtuba had to attend a boarding school in Nairobi, which challenged her creative side by encouraging excellence and expression. She thrived on music and poetry and exclaims: “I had found my passion”¹²¹ pursuing it through high school. Not being able to attend UCLA for film and television studies, she attended an Australian university, studying law and later in Canada communications. Working for a venture capital firm in Toronto she sang in an African acapella group becoming international known. After a dreadful bus accident on a tour through Zambia, she reconsidered her life and quit her last job being almost 30 years old. She took part in several auditions to find a job as a singer, actor. Not getting one, she finally decided to produce her own TV show, moving back to Kenya to pursue this idea there. From research she conducted, she found out that success seemed (high viewership ratings) to come via playing local content and telling local stories. On YouTube she experimented and learned to produce and to write scripts. With the arrival of Netflix and its different ways of storytelling, community building and internet-based, time-insensitive broadcasting, it was clear to her, what to do. The story of the blockbuster movie “Black Panther” excited her. It was clear to her, that telling African stories meant telling new stories beyond those standard and cliché ones of hunger, poverty and war. Founding her company “Spielworks Media” she used her savings and conceived her first show which she then produced for the Kenya Broadcasting Corporation. From there the company took off, producing various shows until the main client asked for a 10% kickback on the contract value. Refusing this, the contract was cancelled – a universal, not an African story. This traumatic experience¹²² let her

¹¹⁹ Ibid, page 80.

¹²⁰ Ibid, page 149 to 161. Title: Tells African Stories – category „The Creatives“.

¹²¹ Ibid, page 150.

¹²² It is noteworthy that Sangu Delle, upon relying this period of the interviewees business life, comments on his concept of African masculinity not allowing him to acknowledge traumatic pain, depression or other mental troubles (p.

learn to diversify her company in terms of financial independence, sovereignty towards clients and diversification as well offering a broader range of products. Using the digitalization of the mediascape to her advantage her company grew again. Storytelling involving competent African women, highly localized content, inspiring and humorous narratives are hits. She believes that there is rich African content that only needs to be tapped.

The creative mind and soul are rebellious, this narrative seems to say. A child is sent to boarding school, faces challenges, lives through disaster, and then the heroine finds her glorious destiny. Having internationally working parents, somewhat bestowed by means, definitely helps the rising entrepreneur. This is a universal story, which can be told with African ingredients, with the female angle. Delle reflecting on problematic African masculinity shows that promotion needs to be local, as Dorothy shows that content needs to be local to be successful.

8.4 Denyse Uwineza from Rwanda¹²³

Surviving the Rwandan genocide at the age of 4, Denyse is said to be driven by “survivors’ guilt” and Delle states: “This tragedy has fuelled her ambition and motivation to succeed in all spheres of life.”¹²⁴ Portraying her as a brilliant young woman fascinated by technology and math being ten years old. Voicing her desire to learn doing physics and math in high school, she was told that these are subjects for boys, not girls. Her parents, though educated to primary level not having the opportunity to go further and working as a driver and automobile spare parts saleswoman, supported her desire and plans. Denyse becomes the first of her family to achieve a college degree. She grew up without a computer, which, compared to most other aspiring start uppers, is rare, getting access to one in the last year on high school. A student friend, studying IT at university told her of his studies and she became interested. Interested in the internal workings of a computer, she learned how to code and to develop programs. Right after university at the age of 24 together with two student friends she decided to start her own software business: URU Technology Limited. Working from home as no capital was there for renting office space, they eventually secured their first client and contract with the Salesian Missionaries. With this working capital the company developed and grew in the area of software applications, for example a customer relationship database including sales, inventory for pharmacies. Partnering with larger telecommunications companies like MTN and Airtel they now develop to support SMEs. Driven by her recognition that prejudices and the gender gap hinders powerful girls and women to succeed, she developed training programs for girls, enabling them to code as well as using her story to inspire young female entrepreneurs in Rwanda. Other social activities (such as “The Women’s Bakery Program”) on all levels of education and society and all nestled in the IT sector are close to her heart. Her efforts lead to receiving the Africa’s Most Outstanding Emerging Women Leaders award in 2015. While running her business, she completed an M.A. in Social Sciences specializing in Gender and Development. Attending international trainings on gender and female entrepreneurship she tells: “This program means much to me, it gives an opportunity to young women to contribute to the improvement of the situation of women in Africa”¹²⁵.

Upbringing and cultural norms in the end can’t stop an entrepreneur – if the circumstances are right in allowing for peace, security, structure, and change. University education and access to the internet and IT is essential, even at a later stage in life. Moreover, this case study shows that from

155, 156). This might be discussed in promoting entrepreneurs in relation to the cultural setup concerning its success.

¹²³ Ibid, pp. 180-192. Title: Brings SMEs into the Digital Ages – category „The Techies“.

¹²⁴ Ibid, page 185.

¹²⁵ Ibid, p. 190.

the energy to create and change, more energy arises to change for the better. Using her story, Denyse Uwinea inspires and is being recognized as inspiring.

8.5. Further data from case reports of EAC countries and other African countries

The Covid-19 pandemic caused some structural problems in conducting the research: only a limited number of interviewees were approachable, reachable and willing to answer in these times. Thus, the researchers decided to tap into a wealth of interviews that either were available as case reports (Delle) or could be assessed on media sources such as YouTube, BBC Africa, CNBC Africa, among others.

These media representations with their aesthetics and narratives can be seen (not exclusively) as an output of pop-culture, showing the performative practise of daily life enveloped by society and economy as abstract entities. They do portrait and relate a general, yet specific, interpretation of the digital entrepreneur, the social entrepreneur, women in tech, and the creative industries. Taking them into the study helps to formulate actions for the promotion of digital entrepreneurship: Stories and narratives are a relevant tool for forming mindsets and promoting actions.

Here, interviews and personal statements from African entrepreneurs from mainly outside of the EAC are being evaluated.

8.5.1 Olalekan Olude from Nigeria

Olalekan Olude is the Group Chief Operating Officer of “Jobberman”, a company he co-founded. It is the one of the biggest job sites in sub-Saharan Africa by revenue, audience, and customers. Jobberman currently delivers services across consulting, testing, advertising and outsourcing. Before founding Jobberman, Olude worked with Goldman Sachs & Co., London as a Network Strategist with a focus on Europe, the Middle East, and Africa. In his interview he points to the merits of chance and luck as one of the factors of a basically unforeseeable dimension of success and to the merits of trial and error¹²⁶: “For me JM started by what I will call a mistake. We {*he and his co-founders; the authors*} have been friends and we have done some things together; most of them were not successful. Sometime in 400 level in school, there was an industrial strike. We then decided to try something that can be impactful. So, we have a number of mindsets: (1) something that can be impactful; (2) cost nothing to set up; (3) futuristic, that is it has something to do with the internet. We had about three options, which were jobs, news, and music.”¹²⁷. This notion, combined with having fun, is explored further by him: “It was bliss in the sense that we did not have all the technical words and all the strategy. If we check the strategy with what we have today, I will say we were just having fun. (...) I think what I will give to is a combination of luck and doing the right things at the right time. I will also give to the opportunity for *quick wins* that happened.”¹²⁸. Olude’s networks and his exposure to international circuits were crucial for his achievements and led to an offer by a business investor to form his company. Networks and ecosystems seen as clusters, he elaborates further, are of dire importance in African situations: “One of the things that has really worked for the internet industry in Nigeria is the ecosystem. This is because it allows the investors a very good opportunity to easily identify a starting point as they get into the country. I believe ecosystem is extremely, very important for any industry. I see the

¹²⁶ Interview documented in: Nasiru D. Taura et al.: Renegotiating Legitimacy in the Digital Age: Insights from Nigeria, p. 31-63, in: Nasiru D. Taura, Elvira Bolat, Nnamdi O. Madichie (editors): Digital Entrepreneurship in Sub-Saharan Africa Challenges, Opportunities and Prospects, London, 2019.

¹²⁷ Ibid, p. 34.

¹²⁸ Ibid, p. 35, 36.

government trying to do a lot along that axis. This is not really about association. It is not about the association of internet business. It is really about clusters. Clusters are very important.”¹²⁹. Networking and relationship building work differently on the African continent, they are social and personal, not so much led by discourse and interest in the profession of the other.

8.5.2 Abai Schulze from Ethiopia – Creative Industries, women entrepreneur

Coming from a village in rural Ethiopia, Abai Schulze was given to an orphanage in Addis Ababa at the age of 3, then adopted by and Texan family when she was in 5th grade¹³⁰. She studied economics and fine arts in the US and volunteered for USAID’s trade and investment department. Having visited Ethiopia several times, being moved by the poverty, she now thought of business opportunities in her motherland to help her kind. After her studies, she became involved with Ashoka, the world’s largest network of social entrepreneurs. She decided to move to Addis and at the age of 24 founded ZAAF, her company focused on designing, producing and marketing high quality leather good crafted by Ethiopian artisans, connecting suppliers, buyers, artists, and consumers. This happened before her completion of an MBA and Abai Schulze gives her reason: I don’t think business school was going to teach me how to run a business in Ethiopia. You don’t go by the book when you are running a business her. Your just jump into it and learn as you go.”¹³¹. Selling her products, she relies predominantly on the internet, e-commerce and social media as means of promotion and sales. The trend towards ethical fashion supported the rise of her business with its products finding their way to Europe and the USA as well as into magazines such as Vogue. Connectivity and stability of the internet are her main concerns. Without digital tools she would need a bigger team, a bigger budget. Without the internet, inspiration from fashions shows around the globe would not reach her. Being awarded with various national and international prizes (such as the UNESCO Templin Prize for Entrepreneurship) raises her credibility, visibility, and supports her cause, to improve lives of her Ethiopian countrywomen and -men. ZAFF will be developed into a global fashion brand to achieve this goal: “People must buy it on its merits not (due to) pity.”¹³².

8.5.3 Farida Bedwei from Ghana – ICT sector, women entrepreneur

Farida Bedwei, born in rural Ghana with a permanent physical disability, is the co-founder and Chief Technology Officer of Logiciel, the largest microfinance banking software platform in Ghana¹³³, being the youngest person ever to be appointed to the board of Ghana’s National Communications Authority. With her father working for the UNDP (United nations Development Program), the family moved to Dominca and Farida received home schooling by her mother. She explores the benefits she gained from her mother staying at home with her: “I always say that the best thing you can do for any woman is to let her decide what she wants to do with her life, not to dictate her. (...) Women are not feeling appreciated, because we are not able to quantify the work that they put in as stay-at-home moms and give them the due respect and appreciation they deserve.”¹³⁴. Pointing out, that domestic work does not count towards GDP and household activities and skills of women running a household are being made invisible, Farina Bedwei gives a strong statement to regard women entrepreneurship truly differently as an economic activity and mind- and skill-set. Returning to Ghana, she found an easy grasp on and interest in computers and

¹²⁹ Ibid, p. 40.

¹³⁰ See: Sangu Delle: Making Futures: Young Entrepreneurs in a Dynamic Africa, Abuja-London, 2019, p. 114-126.

¹³¹ Ibid, p. 122.

¹³² Ibid, p. 125.

¹³³ Ibid, p. 192-205.

¹³⁴ Ibid, p. 197.

technology being finally sent to school. Farida got a computer certificate and at 18 started to work for Omani Computers, specialising in software. To get better she approached a software development company in Ghana and got a job there by offering to just work for free in the beginning, later moving on the university to study E-technology. With 22 years of age, she became a software analyst for a start-up enterprise in Ghana, growing with their projects, such as developing a content management system for the Commission for Human Rights and Administrative Justice or a web-based payroll application for KPMG Ghana. In her next company, later Logiciel, she developed a cloud-based microfinance application with a wealth of novel and easy to use features in the end processing more than \$10 million in annual transactions. Her approach to digitalization is remarkable and fits a country with a high employment rate: “Sometimes it may be better to leave certain jobs as they are so that people can get their daily bread.”¹³⁵. Thus, she decided not to work with major banks, but to offer microfinance solutions. Working in tech sector for her seems to be easier for a woman as she feels she is judged by the product but not by appearance. Her stamina stems from her mother telling her never to say “I can’t” but always to say “I’ll try”. This brought her to write a children book “Definition of a Miracle” and to produce a comic book with a superheroine with cerebral palsy, a girl “trapped in an uncooperative body”.¹³⁶.

8.5.4 Akaliza Keza Gara women entrepreneur from Rwanda and others

A woman from Rwanda highlights her demands for entrepreneurial activities, and women working in the tech sector¹³⁷. The report on her states that Akaliza Keza Gara is the founder and managing director of Shaking Sun, a multimedia business specialising in website development, graphic design and computer animation being part of a team of animators who worked on African Tales, the first ever cartoon series produced in Rwanda. She is among a group of young women entrepreneurs who are promoting an initiative called “Girls In ICT Rwanda”, which was launched last year to encourage more girls and women to embrace the field. The project provides grants to young women to implement and market their ICT projects. Money is allocated based on the innovation aspect for each project. Gara has been recognised internationally, for example as a member of the 4Afrika advisory council for Microsoft in 2014. As a university graduate in multimedia technology, she is convinced that since women are consumers of ICT, it is important that they are also a part of the developers of technology so they can ensure that there are more diverse products available that appeal to both genders. Omitting the nerd-factor of women in ICT is important to her and nourishing the chances of young girls, thus being driven by social causes: “My commitment is to encourage more girls and women to join the ICT sector, but I also get the feeling that by establishing an animation studio this will showcase my innovations to help Rwandan children, by creating characters and settings that they can relate to and stories to entertain and inspire them,” she explains.”¹³⁸.

Jon Stever, founder of “The Office” in Kigali, looks into the necessities of networking, cooperation and social mindedness in coworking spaces and a support ecosystem of hubs and spaces. His insights can be generalized and apply to other cities and other regions in the EAC as well¹³⁹. He distinctly talks about a “community” or his community or the community, displaying his

¹³⁵ Ibid, p. 203.

¹³⁶ Ibid, p. 204.

¹³⁷ Aimable Twahirwa: Tech Entrepreneur Encourages Rwanda’s Young Women to Venture into ICT, United Nations University portrait, Sept. 2014.

¹³⁸ Ibid.

¹³⁹ Interview with Jon Stever, founder of The Office, Kigali, Rwanda, March 2015, in: Coworking Africa Platform, assessed May 1st, 2020.

connectedness within a Kigali ecosystem of tech hubs, incubators as well as a cultural scene, where his coworking space provides space for TED talks, art exhibitions, and social enterprise happy hours. Steve concludes: “Coworking plays a vital role in the development of the tech ecosystem. Research shows that collaboration between existing organizations and entrepreneurs is actually more important than any of the individual components of an ecosystem. Coworking spaces facilitate this collaboration by connecting tech entrepreneurs with each other, connecting tech entrepreneurs with support organizations and finance, and connecting tech entrepreneurs with the freelancers and service providers that can help them scale. / In Kigali we have a different vision, a vision inspired by local culture that can be compared with ubuntuism. Several spaces and organizations are coming together to build a new movement. We are launching a coalition amongst the entrepreneurship centres and creative spaces and organizations in Kigali to work on fostering greater collaboration between our communities. Because, we believe that if we work together across the city, that we can accelerate development.”¹⁴⁰. Being related to the local culture and integrating the ethics to an African idea (ubuntu) creates an identity that strengthens entrepreneurs.

Pointing in the direction of the importance of low-level entry for emerging or already acting entrepreneurs via trainings and workshops, that might relate to a university yet do not strive to provide university education, statements from workshop participants give evidence. In 2018 in South Sudan an UNDP related training took place. The post of James Ngor Ngor, 30 (who made revisions to his boda-boda business during the workshop and saw a hefty increase in his daily revenue) reads: “Before this training I really did not approach my business with a plan. In this past week, I’ve learned how successful entrepreneurs act and how to apply those lessons. I now see opportunity all over instead of obstacles. I know the concept of initiative seeking, and how to approach someone with resources with a plan for how I will make a profit”. Achol, another participant states: “I’ve learned that starting a business doesn’t necessarily require you to have money already, you can always find capital. I went home on the first day struggling to pick a business to create. Then, I looked at an old Indian cloth I owned with beads all over it. I took those beads and used local thread to make 15 new jewelry pieces out of that cloth. I started advertising here in the hall with participants and had a market immediately”. Interconnecting diverse entry path towards becoming an entrepreneur seems to support university programs, as they might lead to higher education. Nevertheless, the offer of a university in the end might not be a whole graduate program but a single certificate for a single skill, thus profiting from micro-learning and enriching the local entrepreneurship ecosystem with up-to-date offers.

¹⁴⁰ Ibid.

9. A first Resumé: A specific Ecosystem Model and some preliminary conclusions

A four-level development model to look at entrepreneurship ecosystems in the EAC is being proposed with this study. It assumes that at different levels of development, universities in different ecosystems (i) have a different entrepreneurial talent pool to work with and that a (ii) different set and depth of support functions must be realized through the universities.

The four proposed levels are:

1. Small density, few actors, little specialisation, little interconnectedness
2. Small density, various actors, little specialisation, little interconnectedness
3. Medium density, many actors, some specialisation, some interconnectedness
4. Medium to high density, many actors, a lot of specialisation, a lot of interconnectedness.

They demonstrate the path from the beginning to maturity of a university ecosystem in entrepreneurship programs:

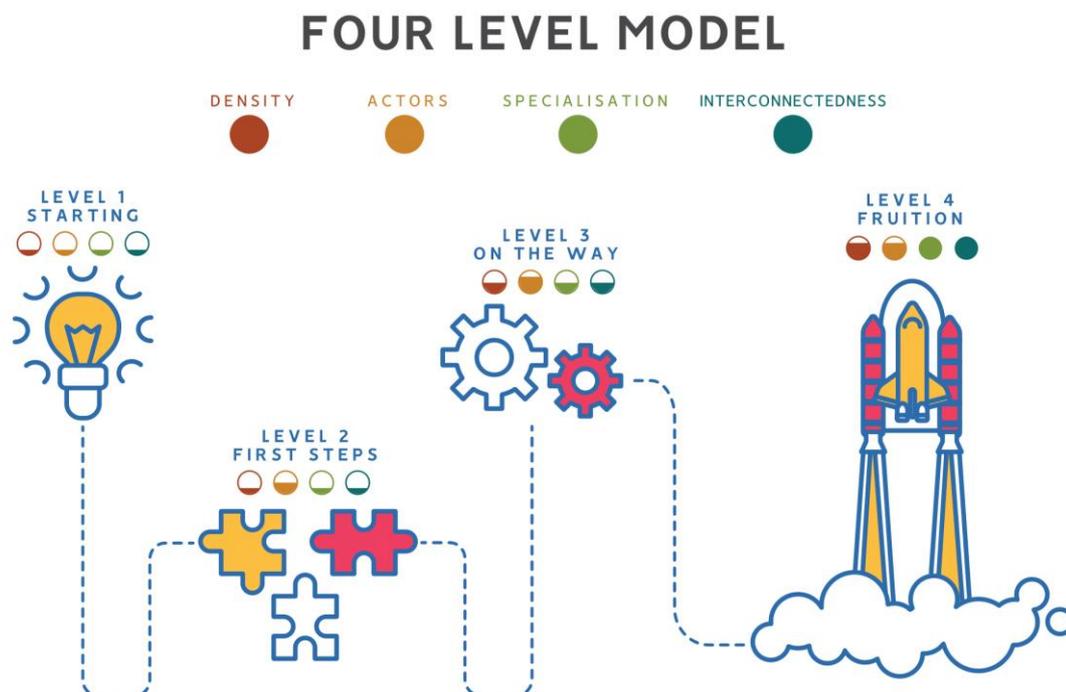


Figure 10: Four level Ecosystem Model

This helps university-based entrepreneurship initiatives concretely because it draws a complete picture of what needs to be achieved to give entrepreneurial talents better success chances. Small ecosystem densities can be artificially substituted by fostering more direct matchmaking and exchange with the fewer players. A low number of actors such as hubs can mean less relevant connections and can be bridged by more high-quality support rendered within the institution or by collaboration with hubs situated outside the ecosystem. The challenge of little specialization can be resolved by need-based match-making with local or international experts. Little

interconnectedness can be tackled by giving a platform to networking among those support actors in the ecosystem.

A specific SWOT-analysis narrowed down on university-related factors with regard to the digital entrepreneurship ecosystem provides some insight at this stage:

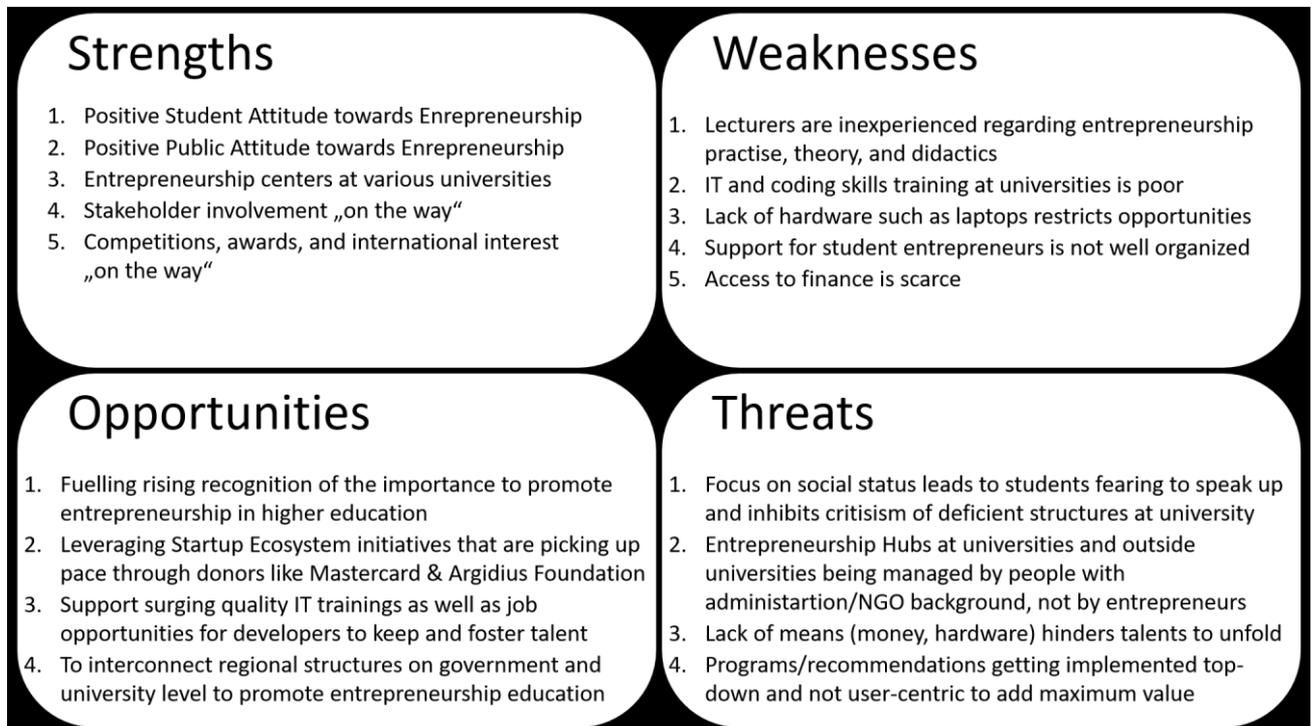


Figure 11: SWOT analysis

The further advanced an ecosystem is, the more a university can focus on building a “pipeline” of quality ventures that is taken up by other ecosystem actors. This allows a shift of focus of broad support at all stages to dedicated support solving bottlenecks in regards to identification and training. The proposed model can help to evaluate in which context a university is situated as well as give a direction of core activities that need to be rendered to entrepreneurs. More specificity emerges from goals set in a local university context and base on factors such as available study programs, local support ecosystem specializations, among others. Once such goal is set, the specific approach to identification of talents and their training needs can be determined.

9.1 Patterns and themes emerging from case report research

The case reports presented and evaluated, the studies, interviews, and stories related so far provide rich insights into the entrepreneurial ecosystem on the African continent. Leafing through the narratives, one has to recognize patterns in the business undertakings and success stories of each interviewee, always with regard to their regional and social environment:

- Early access to digitalization (be it by computer technology around or an internet connection) is essential
- Early examples of entrepreneurial activity and energy in the family (be it on whatever small scale) are essential

- Stories of heroines and heroes reaching the peak after hardships and tests, are inspiring and motivating and help the desire to start a business via learnings of what to do, what not to do and how to do it
- Stamina comes from active choice, connectedness to a social system of family, friends, or mentors and connectedness via tech to the globe
- Starting early helps
- Always being curious and trying is a prerequisite to not be demoralized by obstacles and uncertainties
- Women / girls face obstacles more than man / boys do
- “Masculinity” might be a concept that hinders along the way of the entrepreneur
- “Youth” is not a merit in itself; it can be a hindrance in being recognized as a business person
- Personal and rather concrete experiences of injustice or other situations perceived as socially or ecologically unjust or inadequate do set free energy for change
- The Creative Industries with their narratives of innovation, their special sense of networking, their expertise in storytelling, and their special structure consisting mainly of SMEs and freelance entrepreneurs provide a valuable addition to the entrepreneurial ecosystem and its promotion
- Locality is of value as it taps into the very sources of place and time
- Funding, financing and acquiring capital via grants and competitions is of value and essence to enable start-ups, especially of young entrepreneurs
- Earning or making some money early all by yourself provides stamina and motivation
- Having parents that have money and are educated, is no hindrance at all.

Some general themes evolve:

- Networks are essential, but they need to be nourished and formed – the informal aspects of the rigid system are a cherished part of the feeling of being a start-upper
- Media play an important role in the dissemination and motivation of entrepreneurship as an individual opportunity
- Narratives for and of the media frame expectations, they need to be integrated into the ecosystems
- Entrepreneurship is more than an economic narrative, it is a relevant part of pop-culture, especially in the ICT and digital sector and can be viewed, analysed and executed as such
- Role-models for the young, for girls and for boys alike are of great value; furthermore, mentorship as a continuation of being a role-model supports starting entrepreneurs
- Competitions are an important source of financing and dissemination of information and skills; they can be used to transport trainings too
- Hubs and clubs cater to different needs, they have their specific audience and followers
- Titles and honours are important means of recognition
- Being locally rooted helps to grow sustainably; the globe comes later

- A “realistic” approach towards entrepreneurship is of value and motivating in the end: not over-expanding expectations, taking the actual situations and environments into account, staying flexible, and being realistic towards the role of women and youth
- In the end, it is about values (not only money matters): progress (whatever that means to a nation, to a region, to an individual, to an entrepreneurs) has to be discussed and evaluated, change (as another metaphor for progress) as well.

Thus, a kind of entrepreneurship desk at university as a centre of activity connected to entrepreneurship study programs could be envisioned and conceived. It would be a combination of an offline-existence with an online-universe. Combining local, regional, and international aspects. The above-mentioned topics can be covered here via information tools; training offers; mentor and mentee profiles; a media platform (of and for the media); finance opportunities; promotions and offers of all kinds; tips and tricks; problems looking for solutions; creative ideas; fun; and more. This one-stop-shopping place could provide energy and attraction for the entrepreneurs already finished (alumni); the entrepreneurs at hand (the students of the university); the entrepreneurs to be (local youth); plus, a relevant set of the other stakeholders of the digital entrepreneur’s ecosystem.

These could include some of the following actors and factors which too seem to be relevant for the promotion of entrepreneurship: international networks, government as such and its offices, NGOs of various kinds. The ‘success stories’ which are of true promotional value, need to be told. Thus, the media – not included in most of educational and entrepreneurship ecosystem models, yet rather important – should be part. Either as “publications (in whichever medial form and via whichever channel)” owned by the university and its entrepreneurs or of “publications” by journalists in radio, magazines, social media and websites. Universities, it can be assumed, could through their networks and institutional capacity provide these stories and channels for promotion.

A first conclusion can be drawn at this point: Beyond the idea that digital entrepreneurship relaying on the forces of digitisation and globalisation will lead to the general evolution of wealth everywhere, no matter what, a more differentiated picture evolves. Entrepreneurship ecosystems need to take the very specific of time and space into account and refine the narrative of the digital entrepreneur, the start-upper as the creator of almost unlimited opportunities and change. This narrative is smashed to pieces by the bitter truth and evidence of a digital and economic divide. Thorough and up-to-date academic research is asking for more detailed approaches to data collection and interpretation in examining the grand vision of digitisation: “Digital enterprises, digital entrepreneurs, and digital workers from every corner of the world might all be able to connect using the same network, but this does not necessarily mean that they can all use it to alter their positionalities or level playing fields in the same ways, leading to a “thintegration” into global economies that does little to change positions of economic dependency (Carmody 2013).”¹⁴¹.

In the next step then the qualitative research data provided by the semi-structured interviews will be validated and case studies provided.

¹⁴¹ Mark Graham (editor): *Digital Economies at Global Margins*, Cambridge Massachusetts, 2019. Further reading: Nicolas Friederici, Sanna Ojanperä, Mark Graham: *The Impact of Connectivity in Africa: Grand Visions and the Mirage of Inclusive Digital Development*, *The Electronic Journal of Information Systems in Developing Countries* 79, 2, page 1-20, 2017.

10. Qualitative Interviews: Towards an up-to-date picture of the Entrepreneurial Ecosystem in the EAC

Qualitative interviews were conducted during a period of two month in summer of 2020. All in all, 17 structured interviews were undertaken. Four clusters of interviewees were chosen to differentiate the input: entrepreneurs, students, hub members, university staff. 13 questions were put to all the interviewees plus two or three more to the clusters mentioned above¹⁴².



Figure 12: Number of interview participants by country

The participants of the qualitative interviews were:



- Burundi: Libère Gatere, CEO & Founder of aclis.africa
- Kenya: Adelaide Odhiambo, CEO & Founder of Bluewave
- Uganda: Ricky Papa, Co-Founder of Safe Boda
- Rwanda: Protais Nkundabagenzi, Founder Lugo Systems Rwanda Ltd



- Burundi: Libère Nkuzimana
- Rwanda: Fred Mugabo
- Tanzania: Shakila Mshana Mbaraka
- South Sudan: Peter Khemis
- Uganda: Bashira Babala



- Burundi: Olivier Mwamimwiza, Community & Technology Manager Bujahub
- Kenya: Dr. John Olukuru, representing iBiz at Strathmore University
- Rwanda: Nathalie Nizonyima, MD Inkomoko
- Tanzania: Jumanne Mtambalike, CEO of Sahara Ventures
- South Sudan: Kennedy Bullen, Program Director ICT for Development Network
- Uganda: Gilbert Buregyeya, Program Manager MIIC (Makerere Incubation and Innovation Center)



- South Sudan: Prof. James Osuruamok, Dean of college of ICT, University of Juba
- Tanzania: Dr. Tabu Kondo, Head of Dpmnt. Computer Science, University of Dodoma.

¹⁴² Interview guideline and questions are to be found in the appendix A.

10.1 General questions to all interviewees

10.1.1 What is (digital) entrepreneurship for you and how are you engaged in or with it?

To entrepreneurs digital entrepreneurship is defined and summed up by the words of Adelaide Odhiambo: “using technology as an enabler to solve that particular problem“. The focus is clearly on identifying a problem (societal, economic) on a very practical and applied level, then using digital technology to engage in finding a solution. The result can be faster or easier market access, can be the creation of jobs, can be new start-ups, can be marketing via platforms or any other short term or long-term solution driven by digital technology. Digital transformation is of importance to entrepreneurs as they want achieve something for the larger and better good.

The students agree with the definition given above by the entrepreneurs: digital entrepreneurship is about transformation from the old way to a new, about being more efficient and as well beneficial. It could be a “game changer” (Fred Mugabo) connected to improvement, something to “help your country and the people” (Libère Nkuzimana). The students themselves point out that they are no digital entrepreneurs, yet some have tried to set up business.

Hub members (ones involved in running the hub) share the view of the entrepreneurs on digital entrepreneurship: the use of digital technology and tools in order to create a sustainable business. To focus not only on the local market or the national market, but on the global market is an integral part of digital entrepreneurship, including the current experience, that going digital is something necessary: “one of the things that we’ve learned from Covid is that actually things like digital marketing went from nice to have to a must have.” (Nathalie Nizonyima).

University staff point out to the transformational qualities and the involvement of the ICT sector.

10.1.2 How would you describe the state of affairs with entrepreneurship, start-ups and entrepreneurship education in your region or country?

The answers focus mainly on the state of educational affairs. Entrepreneurs agree on: “Most institutes teaching entrepreneurship have got more of theoretical models than practical models.” (Ricky Papa) pointing out that the skills need to be acquired in action learning situations. Training at university, in their mind, is not preparing for entrepreneurship but for being employed, thus making people sit and wait for a job, which might not come. The lack of initiative and the lack of capital are the main obstacles to be overcome.

Students as well focus on the lack of practical training, the lack of resources, the lack of coaching. Examples for entrepreneurship are being taken from Google or Facebook, yet lacking the local context with its shortages of finance and interconnectedness of an entrepreneurial ecosystem.

Hub members describe the state of affairs and the cultural sides in their country very specifically; representing individual points of view on the basis of anecdotal evidence. For Burundi it is said, that the French system univariates neglect the concept of entrepreneurship, only English style universities, coming as of late, do reflect on it and teach. The development of an entrepreneurial culture is still lacking. In Kenya entrepreneurship is starting something on the side, as a side job from being employed or being a student. Yet the idea of becoming a self-employed entrepreneur is there, while education is rather theoretical. Rwanda has undergone huge changes in the last 20 years and the entrepreneurial ecosystem and climate are supportive to setting up a company. Moreover, entrepreneurship is seen as a vehicle through which people would be able to create their own jobs in a country, where jobs are not abundant. For Tanzania, changes within the last ten years are being recognized towards a more favourable approach concerning entrepreneurship. The ecosystem is evolving. South Sudan, being a very young country of limited resources, is lacking behind in technology and education. For Uganda, a mindset of entrepreneurship or doing business

is established among its people. Thus, the promotion of entrepreneurship is undertaken and the ecosystem well established.

University staff underlines the necessity of business as such for the development of a country, therefore education in this field is mandatory.

10.1.3 How does a good entrepreneurship class or training look like?

Again, with entrepreneurs, the importance of hands-on training is being strongly recommended. Learning by doing is mandatory: “kind of getting your hands muddy” (Adelaide Odhiambo). Furthermore, a good training would open the minds of the students, making them see solutions and opportunities.

For students, mentorship and personal coaching is key of a good training or education. Knowledge should be transferred in the fields of “how to commercialize that product, how not to die” (Shakila Mshana Mbaraka), on marketing on a global and local scale, on needs and real-life experiences. Creating a creative setting where a free mind and dreams are possible is of value as well. Beyond that the hard facts of having internet access and sufficient hardware and software are mandatory.

The hub members, often doing trainings themselves at their hubs, focus on the real-life case studies, go for engagement in practical examples, the facilitation of exchange as opposed to top down lecturing, and participatory formats. Beyond that, the need for integration and awareness of the local context with its specific conditions of doing business and being an entrepreneur as opposed to examples and ideas from Europe or the US is seen. The linkage to the local entrepreneurial ecosystem is demanded and Jumanne Mtambalike points out to a program at university that was “linking university students and academia to private sector companies to try to form strategic partnership for students” as a best practice example.

University staff agrees with the notion of a lecturer or trainer being an entrepreneur and demonstrating something from his or her own experience.

10.1.4 What are the most important kinds of support a digital entrepreneur needs for his or her success?

Entrepreneurs see the threefold understanding of customer, business and problem as central to apply a digital solution. The macroeconomic conditions do play an important role: infrastructure that guarantees access to the internet, legal security that includes protection of copyrights, a network of investors and/or financial supply, plus a valid training.

The student’s perspective takes into account the presence of and contact to mentors and coaching. Beyond that, funding, infrastructure, legal security, and gathering the right knowledge and skills provide the support an up and coming digital entrepreneur does need.

Hub members being in the field relate a lack of funding, to financial insecurity for entrepreneurs. They point to the diversity of business types and the specialties of the tech sector to be taken into account. Awareness for the offer of the entrepreneur and market visibility plus the skills to achieve that are in demand. Finally, the mindset and how to achieve the right mindset as an entrepreneur, are being mentioned, again acknowledging the local context as a necessary and supportive component in being a successful entrepreneur: “People have to believe in themselves and in the little they have.” (Dr. John Olukuru).

University staff underlines all of the topics mentioned above: capital, infrastructure, visibility.

10.1.5 What are the main obstacles for digital entrepreneurs and innovation in your country, society, ethnicity?

Entrepreneurs name the following obstacles: short-term vision, lack of purchasing power and economic standing of local market, expenses in using digital services already existing and needed

for digital entrepreneurs, fear of technological change, and entrepreneurship as solely a survival strategy in a problematic labour market. Moreover, the above-named needs for support to be solved: “if you sort out training, if you sort the infrastructure, regulation and investment, then the rest are walkovers.” (Ricky Papa).

Students see financial issues as a main obstacle, as well as creating market and user interest. Beyond that infrastructure and a self-centred political system are obstacles to overcome.

Hub members state, that the lack of “tools” (hardware, software, internet access) is one of the main obstacles for digital entrepreneurship. Combined with an attitude, to do things alone, a lack of practical skills, the right employees and partners, and a mindset, that does not welcome a digital transformation, that is not focused that much on being initiative, this obstacle to hub members seems to be hard to overcome.

University staff is focused on the lack of or the problematic infrastructure as in a divide between city and countryside.

10.1.6 What are the main opportunities for digital entrepreneurs and innovation in your country, society, ethnicity?

The opportunities, entrepreneurs state, arise around whatever the country revolves around (Libère Gatare). Opportunities furthermore arise from challenges, even the Covid-19-pandemic being one for reconsidering., improving and restructuring and catering to new needs in various fields. Use cases for apps could be agriculture, real estate, public transport, to name concrete fields of business. These then need the expansion of digital infrastructure to the rural areas.

Students looking at the funding that is out at the moment, consider agriculture, health, and education as the main areas where opportunities for digital entrepreneurs could arise. Then the application of digital technology might open up opportunities in social media, mobile computing and data analysis.

Hub members acknowledge hands-on services as opportunities for doing business: website development, social media handling, community management, media design, personalization and customization of products – here the real of creative industries comes into view. All the efforts in digital transformation should strive to initiate for lower costs, thus providing more opportunities. The general idea of lowering unemployment via generating opportunities for self-employment is prominent, yet it needs the right preconditions (see above) for this to gather more momentum. All the challenges of a society nevertheless, do provide opportunities. A high rate of mobile phone usage and penetration within the population plus a young population being mentioned point at the idea of leapfrogging as an opportunity for rapid development. Digital products can bypass the physical borders among African countries, again leapfrogging to the creation of a common African market.

University staff points out the market as the field of opportunities.

10.1.7 What does entrepreneurship need to thrive and prosper in your country, society, ethnicity and what is the role of universities in this?

Entrepreneurs see the university as a place where the future of an individual and of a society is being shaped, thus, a long-term vision is needed in curricula. The courses and the institution should encourage young people and focus on developing a broad entrepreneurial mindset including soft skills in communication and networking. Ricky Papa puts this into one metaphorical sentence: “First of all, a university to me is like a kitchen where things are prepared before served.”

Students see the role of entrepreneurs as problem solvers for the societal good: We're looking for improvement of our lives. (Fred Mugabo). Universities are the foundations of proper knowledge combined with exposure to practice. A comment highlights the attitude of young men: "You see, young men are very difficult to manage." (Libère Nkunzimana). Practical advice is the idea of having a platform to connect entrepreneurship students and having a lab at university specifically for digital entrepreneurship.

Hub members look approvingly at the university as an institution for the benefit of society and critically at the university in providing practical training, providing applied studies beyond purely academic research that does not look for a transfer, in trying to really connect to the local entrepreneurial ecosystems. "Experience actually matters most," (Nathalie Nizonyima), as the applicable knowledge not the degree matters in the business field and opportunity market.

University staff sees the role of the university in providing training, yet would support the notion, that university needs to connect to the entrepreneurial ecosystem in order to enable students to get relevant experiences.

10.1.8 What are the most important skills and knowledge that university graduates in the EAC lack with regards to entrepreneurship, business, and founding start-ups?

Entrepreneurs focus on entrepreneurial skills, taught by experiential learning and exposure to practice. Recognizing and solving a particular problem and focusing on that is a skill needed. Law and legal system knowledge is of value. On the side of soft skills, the ability to network is a most valued skill.

Students feel that the knowledge they might gain at university is not applicable, thus asking for applicable skills and knowledge to be used right from the start of being a digital entrepreneur in setting up a business or using ICT tools.

Hub members ask for the development of direly needed soft skills to start or run a business: communication, presentation, time management, leadership, negotiation, critical thinking, motivation. Being more professional in these areas would allow to find a team of people one can trust and know what they to in order to grow one's own business as wo often deception or fraud and robbery of valuable date is happening within a business. Furthermore, they mourn that university prepares for a job, a position of formal employment.

University staff see the concept of being employed after graduation as the main obstacle for the development of entrepreneurial skills, which are lacking.

10.1.9 What are the most important skills and knowledge that university graduates in the EAC lack with regards to digital and technology skills?

Entrepreneurs see a whole set: "ability to understand and interpret data, digital marketing and online promotions and programming skills." (Ricky Papa). These skills then need to be of quality in order to be able to operate on an international level.

Students feel that exposure to cases and practicalities of being a up-to-date modern digital entrepreneurs is lacking, be it in practical IT such as coding, be it in technology such as the internet of things, be it in business building such as marketing. The step form theory to practice is not covered and the mindset of students and university is still too much focused on being employed after graduation.

Hub members go for high end technical skills that are in demand as well as digital marketing skills. Gilbert Buregyeya points to a gender related difference: not many women attend IT courses or are interested in those.

University staff is aware of emerging technologies that are important (internet of things, big data analysis, robotics, AI) yet of now are lacking in the curriculum.

10.1.10 What are all the linkages that you believe are missing between universities and the innovation ecosystem such as entrepreneurship hubs and the private sector?

Entrepreneurs feel that there is no shared interest and a lack of understanding for each other's needs. People running the universities don't see the changes and necessities of the society and economy let alone the digital transformation of 2020. Students are not encouraged to join networks or have an understanding of networks and associations.

Students are missing the links in general between university and the ecosystem outside the university. Partnerships should evolve, bridged by a common interest in money as an agent of development and energy.

Hub members agree on the failure of productive connections and the silo mentality of universities. Knowledge and experiences are rarely shared. Alumni work connecting industry and university is not being done. Beyond that there is little confidence in what the universities can offer the local private sector as training for specific needs it not undertaken.

University staff see the lack of connections as well, expect the private sector to approach to the university. A special problem is pointed out: the fear of ideas being stolen.

10.1.11 What skills, what a mindset and experiences do graduates need to better fit into the formal digital job market?

Entrepreneurs in general point to the technological and entrepreneurial skills. The connection to communities and being curious about them is of importance as there problems to solve can be found. Stamina and curiosity could be named as the relevant factors for an entrepreneurial mindset.

Students are aware that jobs are not waiting for them but that being an entrepreneur needs a broad skill set, an open mind and networking. Above all, striving to be good in what ones does, is a must. Beyond that, an eye for the consumer, the market, the user experience is at the heart of setting up a company.

Hub members as well go for digital, for IT related skills plus management and self-leadership skills. The mindset they recommend is one of a beginner, a knowledge seeker, knowing that learning never stops and openness for new input.

University staff name technological and entrepreneurial skills.

10.1.12 What are the biggest challenges one will face implementing digital entrepreneurship programs at universities?

Entrepreneurs feel that the agenda needs to be pushed by the leadership of the university. If that's the case, if the political will is there, resources might appear, things might go well, acknowledging that not making money but educating the next generation is the real goal of a university. Assurance of the quality of lecturers is another topic that needs to be tackled.

Students have a clear picture of what are the challenges and know their demands. They are on the practical side of things, such a good internet connection and free access, laboratories, stable power, good equipment. Then the university itself: a university management interested in entrepreneurship not in making money only, quality teaching with experiential learning parts. Hub members agree with the above-mentioned issues. It's the university management; the political processes, interests, and regulations; the lack of relevant infrastructure; problematic lecturers. Yet the give some precise hints at what to do: have content in local languages; put students at the heart of each change, look for their needs, and build communities of students on campus.

University staff sees the challenges in the lack of equipment and in the lack of entrepreneurs that can teach.

10.1.13 How could market entry of student innovations effectively be supported by entrepreneurship centres at universities in the EAC?

For entrepreneurs' market entry needs capital and investors. Thus, strategic partnerships with relevant companies, institutions, organizations need to be built in order to support endeavours. For students its contacts, coaching, collaboration, and finance. Then suitable marketing supported by an interested university ecosystem should follow.

Hub members point to the possibility of universities being the first customer and first investor of a student entrepreneurs. By exposing him or her via the university ecosystem to the market, awareness and chances might grow. For this, again, strategic partnerships are of value. It should be remembered, that not everyone everywhere can be reached via internet, so that even in the scene of digital entrepreneurship, more traditional marketing channels, such as radio, are to be used.

University staff favours the idea of a university offering capital and being the first investor.

10.2 Questions to specific subgroups of interviewees

10.2.1 Question to only entrepreneurs: Which organization or institution was important for your success and what difference did it make?

It is the communities offering problems, interest in solutions, feedback. Its hackathons that challenge problem solving mechanisms. It's the organizations where one was employed. Its foundations and other organisations that provide first financial resources.

10.2.2 Question to only entrepreneurs: What is hard about starting a digital start-up?

Getting initial funds is hard. Finding the tight employees or partners is hard. Getting references is hard. Yet starting might be easy as you start small, but maintaining, growing, and staying in business is hard.

10.2.3 Question to only entrepreneurs: What kind of support would you have wished for in your journey while studying at university that can make a real difference for future entrepreneurs to succeed?

Knowing that a degree it not that important, but one's own brain and experience is, focusing on brain, not paper. A good mentor is needed as well as a comprehensive management training for running a company.

10.2.4 Question to only hubs: What are the top three problems you as a hub have to help entrepreneurs solve for them to become successful?

They are: mindset, financing, focus, and practical issues such as internet access and works space.

10.2.5 Question only hubs: What aspects of university-industry collaborations could be valuable for a university and their student entrepreneurs?

First of all, exposure and sharing. Exposure to real-life situations, sharing of managerial and digital knowledge. This, combined with challenges and mentorship would be valuable.

10.2.6 Question to only hubs: What kind of university-industry collaboration could the private sector be interested in and why?

Something tangible for the private sector would enhance the collaboration, something that provides a return on investment. Services by the university in market research and innovation for example, as the student body represents the young population with their needs and wants.

10.2.7 Question to only students: What is hardest for you about starting a digital enterprise?

Lack of funding, lack of digital-technical resources, lack of mentorship, limited business and management skills.

10.2.8 Question to only students: What aside financing do you lack the most to start a digital enterprise?

Resources in other forms, such as innovation hubs and skills in various domains. Then really starting: awareness rising and marketing to acquire customers.

10.2.9 Question to only university staff: Please describe up to three ways of university-industry-collaboration that can be beneficial for student entrepreneurs?

Research activates in various practical fields, industrial practical training, technology transfer.

10.2.10 Question to only university staff: Describe an example of a university-industry collaboration that was successful, how it worked and why it was beneficial?

Training of students at enterprises. Usage of research by industry to come up with solutions. Hubs after graduation.

10.3 Evaluation and interpretation of findings

The central narratives that were detected in the interviews are displayed in Figure 14.



Figure 14: Central narratives obtained from the interviews

The condensed answers present generalised central narratives on becoming a (digital) entrepreneur and/or being a (digital) entrepreneur. The statements paint a broad and multi-faceted picture of the status of the ecosystem the digital entrepreneur is existing in, thus providing answers to the general research topic. All four groups of interviewees interrelate in their answers, offering their perspectives on the same topic thus completing the picture from multi-faceted angles. As to be expected, with certain topics of the interrogation, answers do differ, on other topics they correlate and supplement each other. In certain answers, suggestions and recommendations are given and ideas explained that underline the evidence given – these are condensed below. Furthermore, obstacles, demands and necessities are being pointed out.

Central narratives are:

(1) Entrepreneurs and digital entrepreneurship are problem solvers for the people, the community, the society, the country.

The motivation to become a digital entrepreneur (often) stems from wanting to be beneficial to the community/country. This includes wanting to improve the conditions of life, the promise of digital transformation. Beneath this narrative, the desire to gain a sufficient individual outcome or even be really wealthy, shines through as the success of the proposed service, product, company after having overcome all obstacles will lead to being provided for and live a good life.

(2) Technology is an enabler for the digital transformation which is the task of the digital entrepreneur, his or her raison d'être, in order to be a game changer.

Without digital transformation, countries will be left behind is one of the central issues of this narrative. This being rather general a statement, it needs to be enriched and differentiated by aspects of locality, culture, strategy, and potential.

The transfer via applications and solutions should very much take into account the local culture, specialities and givens as much as being state-of-the-art on a global scale.

Enriching this narrative are the aspects, that the local givens can be obstacles (see more below) but that on the other hand a one-sided alignment with American or European design, modes of work, customer experience, content is of no good.

(3) University education to become a digital entrepreneur is not up-to-date.

It has to be (more) real-life, practice oriented integrating experiential learning, case studies, expert talks, and employing lecturers – at least some – being entrepreneurs themselves. A balance of expert skills in technology and management has to be combined with the fruition of soft skills such as self-motivation, presentation, networking.

Here, the issue of the mindset comes into view: changing the mindset of the university leadership but also and mainly of the students being geared towards jobs as employees not towards becoming an entrepreneur is an underlying issue. Beyond that a general mindset geared towards innovation and change combined with curiosity and openness is becoming more and more essential as a driving force in the personal and societal set-up reflected in universities and education.

(4) Funding is the key to incentivising and nourishing the digital entrepreneur.

This narrative contains manifold aspects as to what would be the right amount - provided by the right person or organisation - in the right way - at the right time - for the right organisational form - with the right people.

(5) A working ecosystem related to (digital) entrepreneurship is one of the most important drivers of development and success.

Networking, partnerships, mentoring, sharing, and communication as well as awareness-rising are all part of a developed entrepreneurial ecosystem. Connectivity, a term from the tech sphere, signifies what the ecosystem is about: easy, rapid, knowledgeable, to-the-point, trustworthy exchange that offers opportunities for all within a win-win situation. Stakeholders of this ecosystem are varying, but in an ideal world should encompass students, university (staff and management), hub members, entrepreneurs (from the freelancer to the owner of a large company), government (at various levels), finance (banks, investors,), agencies, organizations (in commerce), media, representatives of expertise from abroad (EAC, EU, country-specific, NGOs,) and maybe schools and pupils in a separate entity.

Supporting (digital) entrepreneurship and its ecosystem is one thing, obstacles to it are another. Related to the narratives above where some obstacles are being mentioned in general, quite concrete the question of technical infrastructure is being put on the table. The lack of infrastructure or bad infrastructure on various levels (from hardware and software up to an available reliable internet connection to a countrywide electricity grid and more, as well as acknowledging the difference between countryside and city) makes it hard for the entrepreneur to start and to prosper. Related to this observation by the interviewees is the push for good governance and government structures that cater to the entrepreneur. Copyright protection, law enforcement, speed and clarity in decision making form the core of the suggestions for the nourishment of an entrepreneurial ecosystem.

The interviewees mention cultural factors as well to outline some obstacles they face. The issue of a “mindset” already was mentioned. It is focused too much on getting a job in a big company or government, of not being pro-active, of not looking for the customer and its needs (beyond stating that solving problems for the customer or community is a driver for becoming an entrepreneur which casts some doubt on the scope of this motivation), of needing a set of Softskills that allow to reach beyond the local manners. The observation that women are not involved in IT that much was made; an explanation not given beyond this being related to maybe cultural factors. Theft of ideas and the fear arising from that to share ideas, was pointed out as being a problem. UX and platforms should take into account what the local gives (technical devices and infrastructure, language, customs, difference countryside and city), them being ignored often as digital development answers to a global idea of “how to”.

First recommendations on the practical level are: Create ...

- a platform for the students at university (local, country-related but EAC-wide too) to interact and network
- a platform at university to showcase results (solutions and ideas) to the “world”

- competitions (hackathons, ideation labs, innovation labs,) with the winner(s) being funded at university
- a student club and community run by students not by university
- content not only in English or French but in the regional languages.

The Covid-19 pandemic was not mentioned often, more so it was seen as being part of the broader scope of infrastructure problems (one among others) and it was seen as a potential driver of digital transformation thus providing opportunities.

The findings derived from this research correlate with the findings derived from desktop research.

11. Quantitative Survey: Insights from the Digital Entrepreneurship Ecosystem in the EAC

11.1 Demographical factors

90 participants from the 6 EAC countries took part (Figure 16). 41% came from Uganda, 24% from Tanzania, 10% from Burundi, 9% from South Sudan, 8% from Rwanda and Kenya.

77% of the participants were male, and 23% female (Figure 17: Gender distribution of survey participants).

Age distribution shows a young group of participants: 54% between 26 and 35 years and 34% under 25 years. Thus, more than three-quarters are below 35 years old. 6% each got to the age groups of 36 to 45 years and 45 years and above (Figure 18).

The professional background was clustered into Companies (start-up, corporate employee, freelancer, ...) with 49% of participants; University (student, lecturer, administrator, ...) with 30%; and Entrepreneurship support providers (hubs, government institutions, think tanks, ...) with 21% (Figure 19). For the sake of readability, they will be called Hubs, Companies, and Universities respectively in the following but refer to these more detailed descriptions.

Relevant findings according to demographic factors are discussed when apparent and relevant. The questionnaire and all charts can be found in Appendix C.

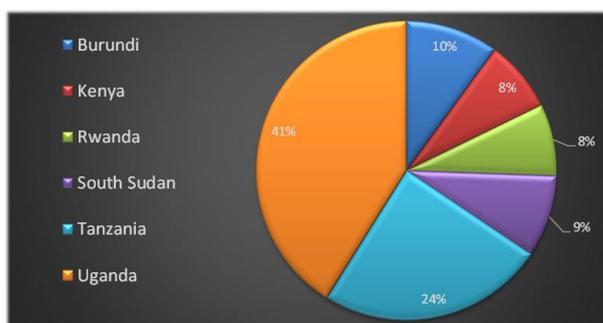


Figure 16: Survey participant country distribution

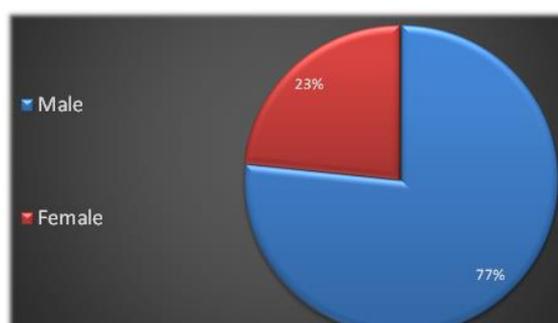


Figure 17: Gender distribution of survey participants

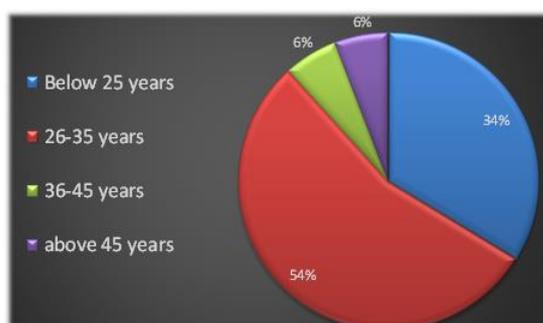


Figure 18: Age brackets of survey participants

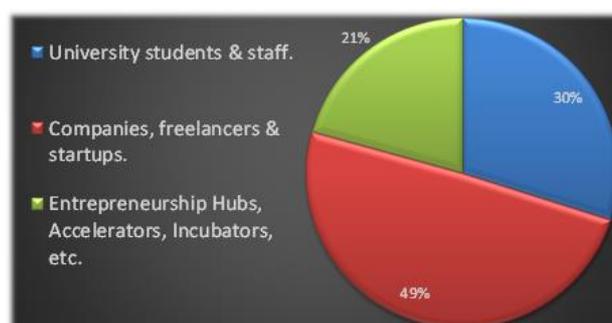


Figure 19: Professional background of survey participants

11.2 Questions, observations, and interpretations

The results will be displayed question by question. Where certain subgroups show strong deviations from the average answers, these are displayed. After that, a summarizing conclusion will be drawn and again describe the specific perspectives of participants considering gender, occupation, geography, and age.

11.2.1 Question 1: Obtaining skills for starting an enterprise at university

The first question asks for the level of agreement regarding the following: “At university, a student can obtain all relevant skills needed to start his/her own enterprise.” 71% of participants do not believe that universities provide the skills needed to start an enterprise. With 7% not being sure, a vast majority show their doubt in the current university education at hand providing needed skills for (digital) entrepreneurship Figure 20.

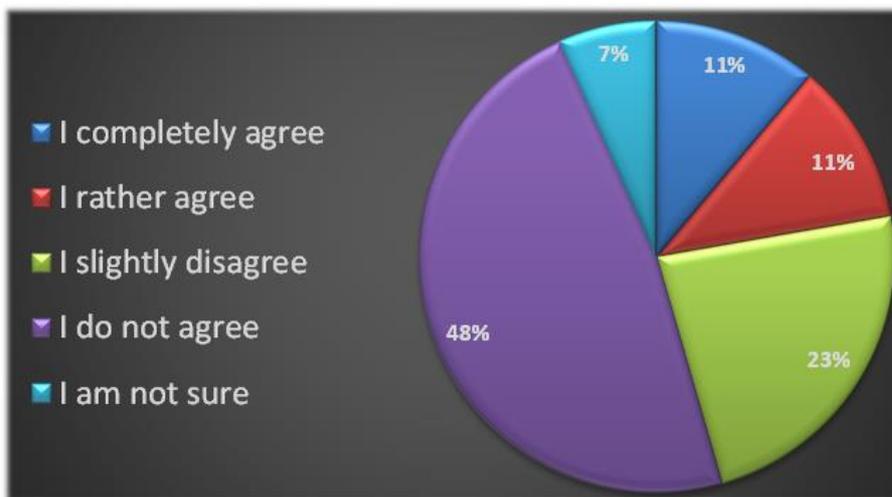


Figure 20: Answers of all participants for Question 1: “At university, a student can obtain all relevant skills needed to start his/her own enterprise”

Looking into specific demographics, the professional background of participants leads to the most varying opinions. Figure 21 points to an even higher degree of distrust: 84% of the companies see the lack of relevant skills education. At university itself (Figure 22) – the vast majority of answers coming from students – 50% of the participants point to the lack of relevant skills education. The gap between the company and university segments could be explained a skill mismatch between university and work that is less apparent while still on campus.

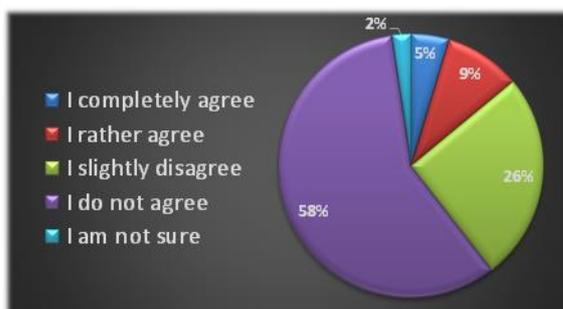


Figure 21: Answers for Q1 from Companies

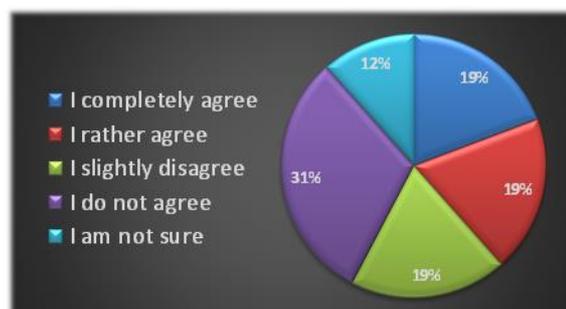


Figure 22: Answers for Q1 from Universities

The answers paint a provocative picture: Relevant skills to start an enterprise so far are not being taught in the set, level, right way or density needed.

Key findings:

- 71% of all participants think that universities do not provide the skills needed to start an enterprise.
- Students and young lecturers are more positive (38% agreement about those skills provided than people from companies (14% agreement).

11.2.2 Question 2: Access to entrepreneurship support at university

The second question reads: “A student has easy access to the following relevant entrepreneurship support at university.” Participants were able to tick between one and three of 8 available answers. The 90 participants ticked 193 answers in total. Figure 23 displays the percentages that each answer received of the 193 answers given. Networking events received most ticks and was chosen by 48% of all participants. Entrepreneurship trainings was ticked by 43% of all participants, while 28% ticked that mentorship opportunities are available. Still 26% of participants stated that there is no support available, showing the 4th highest tick count. “Getting start-up investment” was only ticked by five people, amounting to 6% of participants.

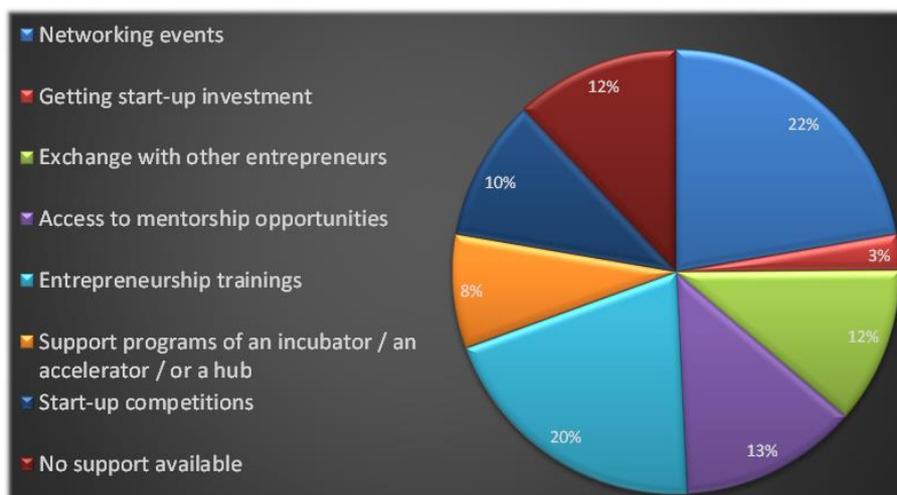


Figure 23: All 193 answers of all participants for Question 2: “A student has easy access to the following relevant entrepreneurship support at university (please tick a maximum of 3)”

Access to entrepreneurship trainings and networking events are the dominant forms of support, with 42% combined. Mentorship and exchange with other entrepreneurs were chosen by 13% and 12% of the participants, showing that this support tool is being acknowledged. Support programs by hubs and investment opportunities are less available at universities or for university students. Only 3% of all participants mentioned that start-up investment was available – this showing that funding is one of the direst problems. And 12% of participants point out that there is no entrepreneurship support whatsoever available.

Looking into answers given for different countries, South Sudan needs to be mentioned. 63% of participants there ticked that no support is available at all. This is understandable looking at the history and situation of the country and is in line with results from qualitative interviews and desk research.

A relevant difference according to gender is that “Start-up Competitions” was the third-most picked support program being available for women (33%) and only the seventh-most picked answer for men (19%). This might show the higher level of motivation and activity of women

mastering the challenge of becoming an entrepreneur. Yet this needs to be researched more and is an educated guess due to anecdotal evidence.

Key findings:

- 12% of participants state that there is no entrepreneurship support available at universities at all, an astonishing number concerning an entrepreneurship program.
- Trainings and networking events seem to be most widely available support measures. This makes sense considering they can be made available with comparably low effort. The quality of those interventions needs further research.
- Entrepreneurship support programs by “hubs” are very limited in number. The networking might not be established here and “hubs” at universities are rare.
- Getting start-up investment at the university is very rare. This topic, being a general one looking at the overall research, needs specific attention.

11.2.3 Question 3: A profile of university lecturers

The third question reads: “University lecturers have the skills to support the successful creation of student ventures”. The question asks for the evaluation of the most prominent and obvious choice to promote entrepreneurship at universities. The results displayed in Figure 24 show that 53% of participants do not think lecturers can support enterprise creation. With another 19% being indecisive, only 28% think university lecturers do have the right skills set for their position.

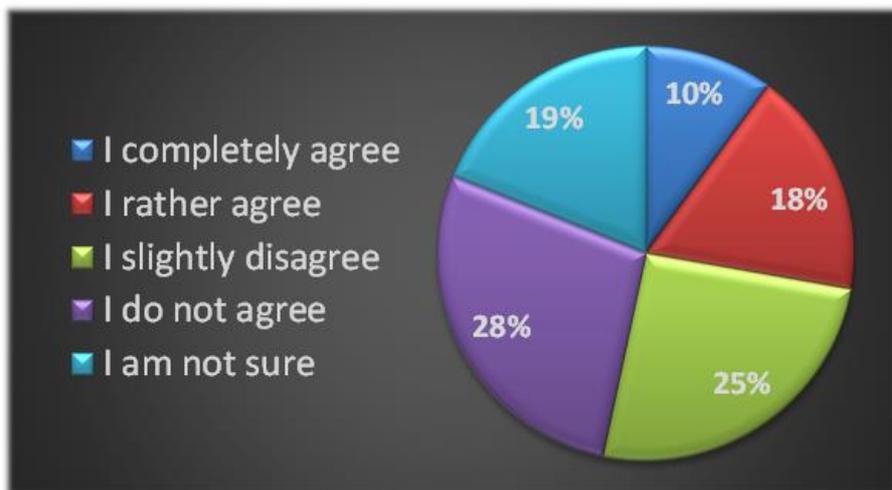


Figure 24: All answers for Question 3: “University lecturers have the skills to support the successful creation of student ventures”

Looking at the demographic factors, there is a relevant difference between universities and companies (see Figure 25 & Figure 26).

The “company” segment sticks out with 65% disagreement about sufficient lecturer skills while 35% at university see a lack of skills. Though, uncertainty about the question for universities is at 35% and thus equally as high as disagreement. The agreement about sufficient lecturer skills is close to the overall agreement ratio of 28%. A possible interpretation of the high uncertainty of the university is the lack of a reference regarding how good entrepreneurship support could look like and the lack of entrepreneurship experience to be able to judge if lecturer skills are valid.

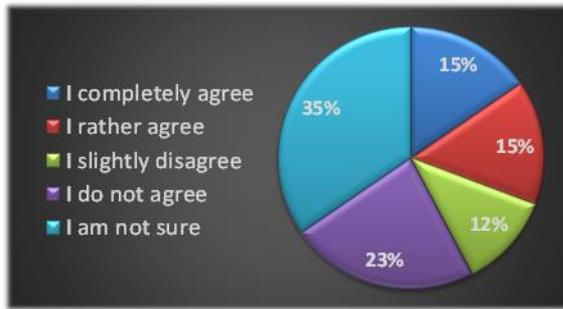


Figure 25: Answers for Q3 from universities

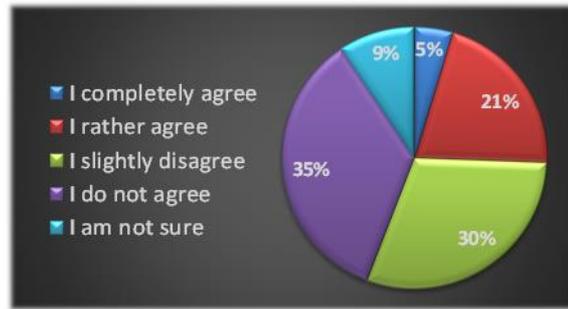


Figure 26: Answers for Q3 from companies

Key findings:

- 53% of participants believe that lecturers lack the skills to effectively support students in enterprise creation.
- In companies a high 65% believe that the university lecturers lack relevant skills.

11.2.4 Question 4: Hardship for women to start enterprises

The fourth question reads: “Women do have a harder time than men to start an enterprise”. This question allows to explore different perspectives on the structural hardship shown through desk research. The full breakdown of answers is displayed in Figure 27. 49% of participants are positive that women do have a harder time to start enterprises than men. A minority of 33% disagree on that statement.

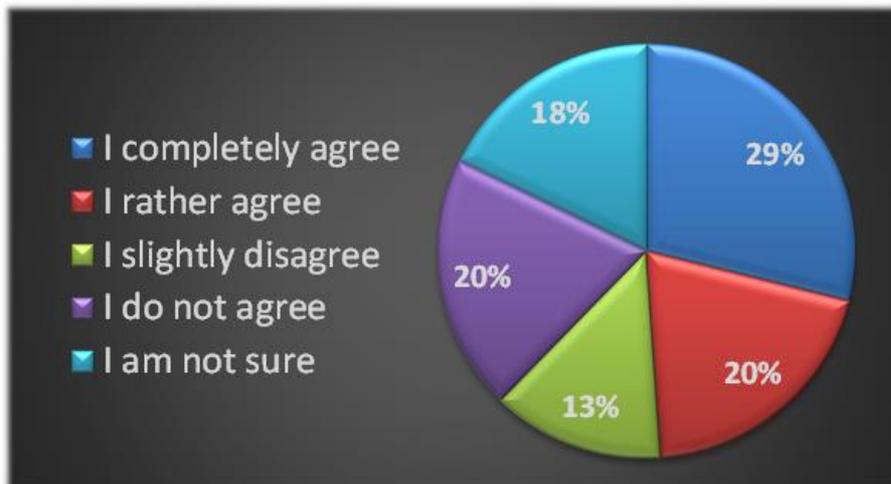


Figure 27: All answers for Question 4: “Women do have a harder time than men to start an enterprise”

The most prominent difference concerning demographic factors is between women and men (see Figure 28 & Figure 29). 72% of the women state their agreement. Men think so at 42%. A possible interpretation is that women experience such hardship while it is harder to detect, notice, or admit for men.

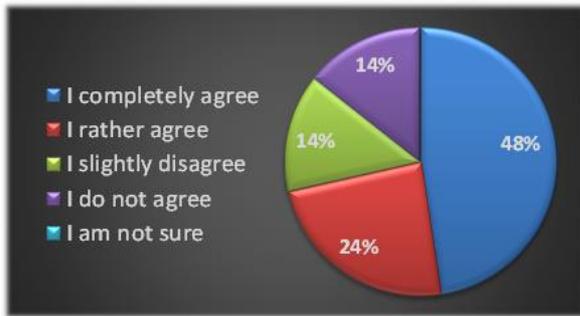


Figure 28: Answers of women regarding Q4

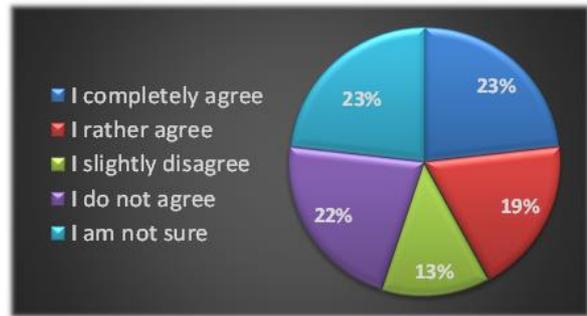


Figure 29: Answers of men regarding Q4

Companies and Hubs (51% and 67% are positive) show awareness for the bigger hardship women face when starting enterprises (see Figure 31 & Figure 32). The positive recognition of the statement is at 35% for university (with 28% among men in the university segment) and thus visibly lower than the other two segments (see Figure 30). An explanation might be that students in general (here in this survey with a dominance of answers by men) have less experiences that would unveil a gender difference recognition regarding the hardship to start an enterprise. On the other hand, it could be expected that a sensibility for gender issues might be visible at university. This topic needs further research. Yet it is crucial to acknowledge that an environment or system that does not acknowledge the fact of a harder time women have starting enterprises cannot be supportive in changing or even solving the gender gap issue at hand.

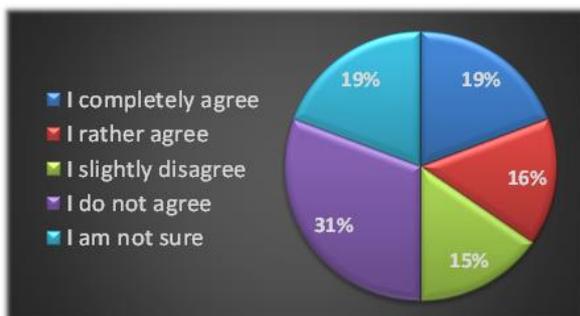


Figure 30: Answers of Universities regarding Q4

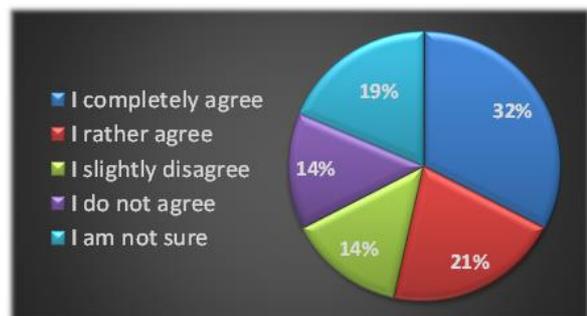


Figure 31: Answers of Companies regarding Q4

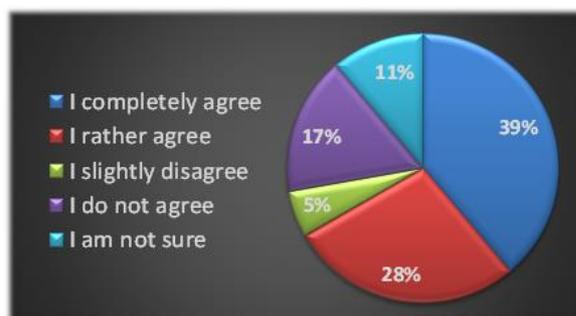


Figure 32: Answers for Q4 from Hubs

Key findings:

- Women have a harder time to start enterprises: 49% of all participants show some or full agreement with this.
- 72% of women stated they rather or fully agree that they face a harder time starting enterprises.
- University as a support system for women has to really recognise their specific issues and integrate them into a curriculum.

11.2.5 Question 5: Knowledge about digital business models

The fifth question reads: “At university, students can learn how to come up with viable digital business models”. The answers on the general scale (Figure 33) show an almost even distribution between agreement and disagreement with the statement given (41% yes, 44% no). Taking into account that 15% of the participants are not sure about the statement a further look at that demographics might provide more insight beyond a high level of disagreement on a skill that is of high value and need in entrepreneurial doings. Thus, it can be said, that business models training should be developed more and integrated further into a curriculum.

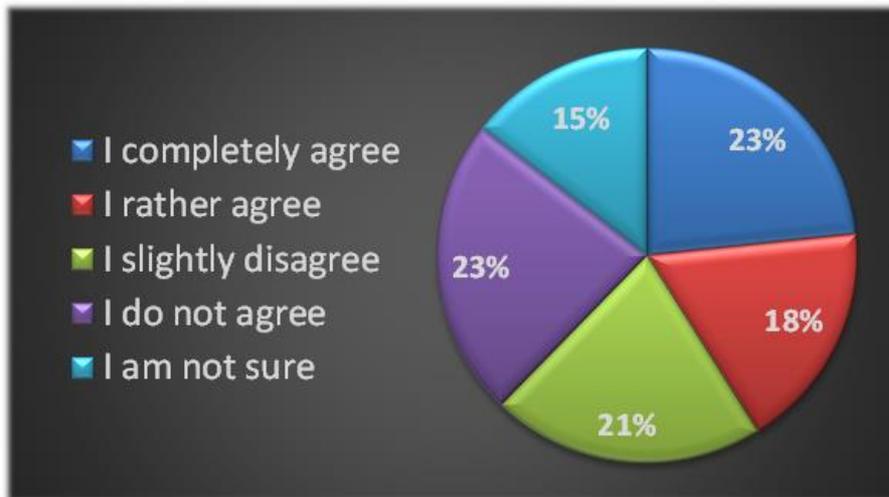


Figure 33: All answers for Question 5: “At university, students can learn how to come up with viable digital business models”

University with 54% shows the highest level of agreement to a valid set of learning on coming up with business models (Figure 34). Hubs follow close behind with 50% (Figure 35). Companies on the other hand state at only 28% that viable business model can be formed at university while 58% disagree (Figure 36). Thus, entrepreneurs or managers already having exposure to practical business fields feel that university education regarding business model set-up is somewhat inadequate. This would call for an exchange between the status groups to find out how needs can be specified and a relevant transfer of skills can be initiated.

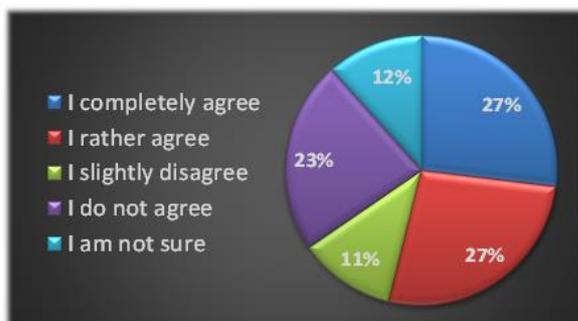


Figure 34: Answers for Q5 from Universities

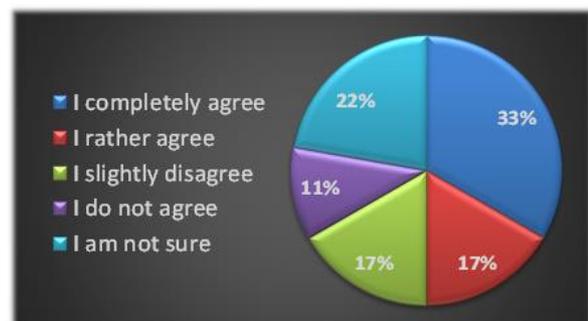


Figure 35: Answers for Q5 from Hubs

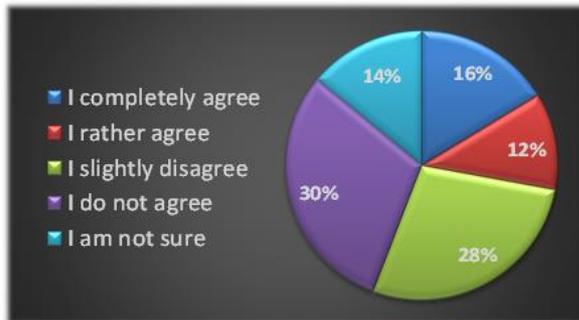


Figure 36: Answers for Q5 from Companies

Key finding:

- The ability and quality of learning about viable digital business models needs to be tackled; specific exchange between university and practice – integrating context such as women in tech as well as local givens – is a way towards this.

11.2.6 Question 6: Coding skills

The sixth question reads: “At university, students can learn coding well enough to build software products for a digital enterprise”. Coding itself or the knowledge of special conditions attached to coding projects is a central building stone of digital entrepreneurship. 41% of the participants state that coding is taught well enough. 41% state that coding is not taught well enough. With 18% being undecided, the answers show that there is a need to focus on coding skills training or coding as part of digital entrepreneurship (Figure 37). Restructuring of the curriculum or cooperation with coding course providers outside of the university could be supporting this.

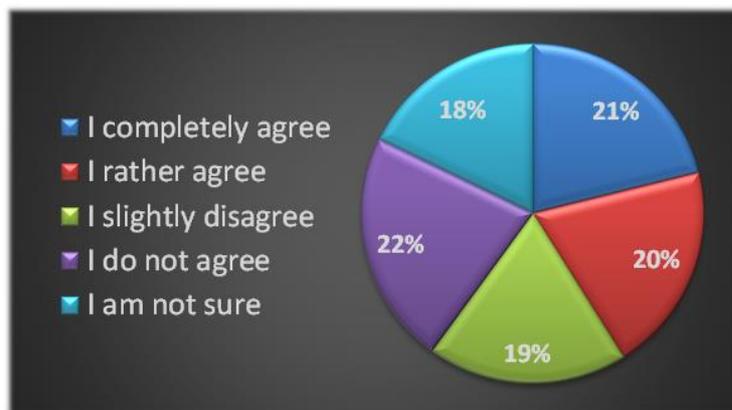


Figure 37: All answers for Question 6: “At university, students can learn coding well enough to build software products for a digital enterprise”

Key finding:

- Coding knowledge and coding skills as one centre of digital entrepreneurship need to be integrated further into the curricula – with cooperation between university and external providers providing a feasible solution.

11.2.7 Question 7: Ranking methodologies for entrepreneurship education.

The seventh question reads: “Please rank the following methods to improve learning outcomes in entrepreneurship education from 1 (best) to 5 (least good).” Project-based teaching came up as number 1 with 47% choosing this as the best or second-best way to learn entrepreneurship (Figure 38). This is even more specific as the question gives an example of a project-based teaching: “setting up a student enterprise”. Action learning or supervised and reflected learning-by-doing way are proven methods and can be integrated into curricula. Integrating entrepreneurship hubs into university comes up as number 2 with 41% approval. The integration of entrepreneurs or external practitioners from the private sector into teaching at university comes up as number 3 with 37%. Case studies of successful local venture comes up as number 4 with 30% and visits of local companies as number 5 with 25%. The integration of local context was ranked as least helpful. Reflecting this one might assume, that in digital entrepreneurship the focus is being put on the big international companies and the founders of Facebook or amazon as the heroes of modern entrepreneurship and stale wards of success. Furthermore, the insecurity and volatility of local environments with regard to political, legal issues but in infrastructure as well might add to the lower ranking. Last, the division between countryside and city might play a role: Whereas in a few big cities in the EAC examples of successful local entrepreneurship can be found large parts of the EAC are lacking local access to successful role models. This needs further research to come up with reliable and valid answers as from the desktop and qualitative research the integration of local factors and networking for an ecosystem seems to be of high value. Here universities can play a vital role.

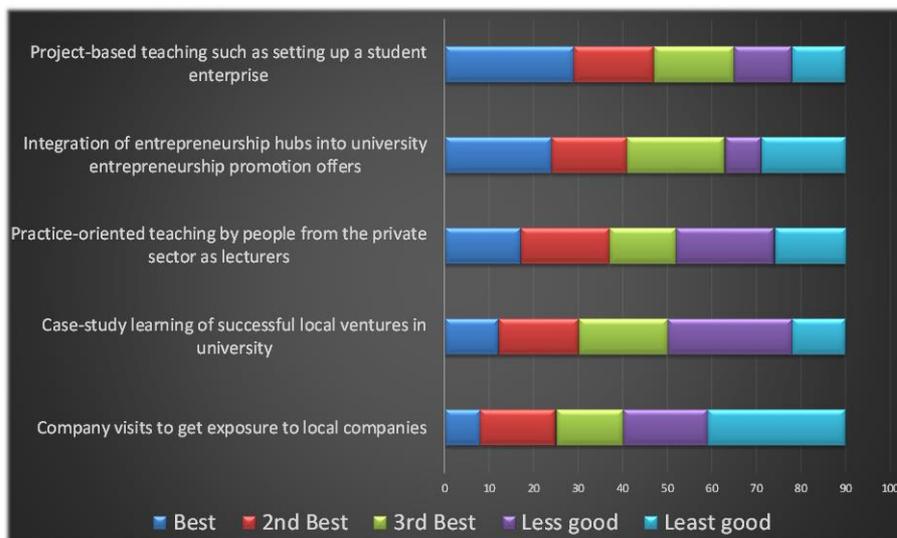


Figure 38: Answers of all participants for Question 7: “Rank the following methods to improve learning outcomes in entrepreneurship education from 1 (best) to 5 (least good)”

Figure 39 shows the answers given by all participants from companies. Project-based teaching stays on top (27%). Practice-oriented teaching is valued almost similarly (24%) and regarded as a better option by people from the private sector than Integration of hubs into the university offers. Case study learning and company visits are still regarded as the least good options even by companies themselves. The assumptions on local context given above may apply here to looking at the results.

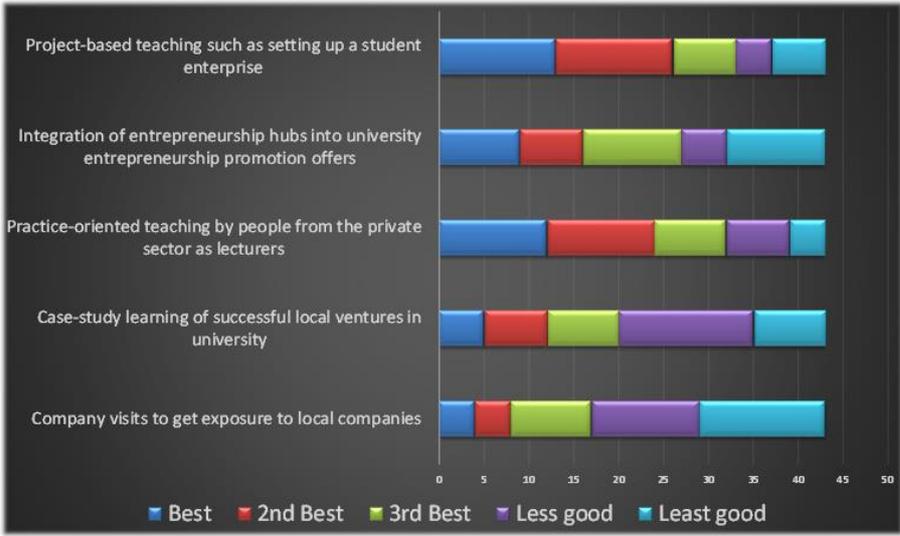


Figure 39: Answers for Question 7 given by participants from the companies

Figure 40 shows the answer distribution for participants from the university segment. Their clearly favoured option is integration of hubs into the university offers: 65% state it as their first or second choice. Case-study learning and project-based teaching follow, company visits are rated the fourth option and practice-oriented teaching by people from the private sector comes last. The participants of the university segment not being interested in being taught by practitioners needs to be researched further. Are there negative experiences or experiences at all? Visits to local companies on the other hand and thus exposure to practice count high in the university ranking. Here no relevant assumption can be made with the data available.

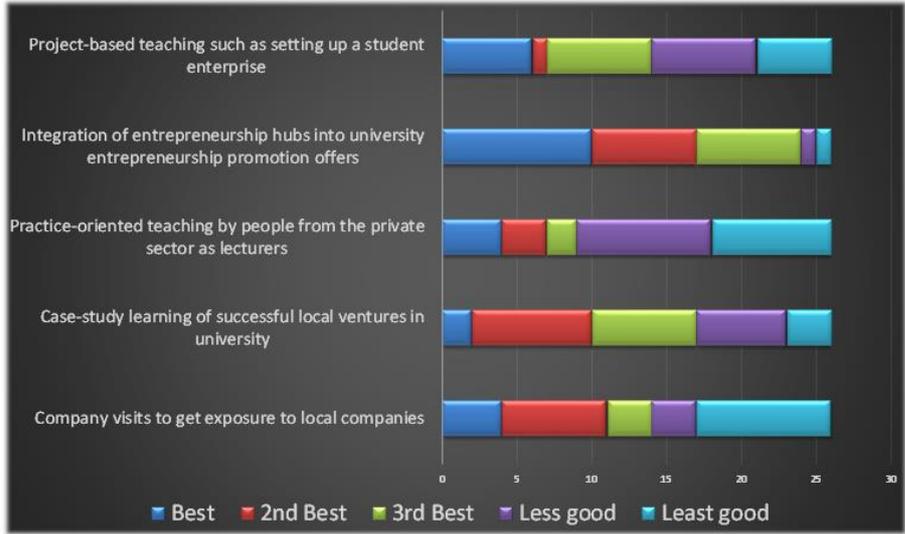


Figure 40: Answers for Question 7 given by participants from Universities

Figure 41 shows the ranking for participants from the Hubs segment. Project-based teaching comes first with 67% choosing it as Best or 2nd Best. Integration of hubs into the university offers as well as case study learning of successful local ventures come second (44% and 50% for first and second choices respectively). Practice-oriented teaching by people form the private sector while local company visits comes last with no rankings of a number 1 choice here. Local context in case-study learning is something that the segment of hubs favour. This might reflect their close ties to the local network and entrepreneurial ecosystem already at hand, them being one of the central

knots in this net. The integration of hubs into universities could strengthen the network and profit all segments of this survey.

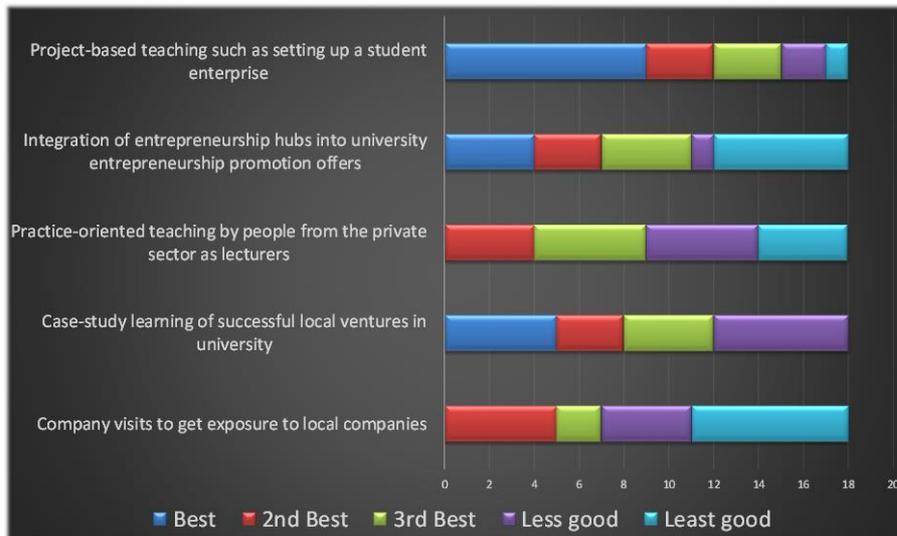


Figure 41: Answers for Question 7 given by participants from Hubs

Overall, project-based teaching is seen as the best methodology for entrepreneurship education. Only participants from university stated such interventions not as their best pick. Furthermore, universities do not look at private sector and local company collaborations as the good options. The integration of hubs into universities is highly favoured. How these would be integrated into a curriculum and how they then can benefit the university needs to be discussed. Additionally, it can be evaluated if the hubs would be run by the university or could be branches of external hub ecosystems. A further implication of these findings could be that hubs would collaborate with universities to offer project-based teaching and case-study teaching based on their experience regarding entrepreneurship.

Key findings:

- Project-based teaching is ranked the best method.
- Curricula and the universities can be strengthened by integration of hubs or collaboration with hubs.
- Local content, local knowledge and local environment do not rank high.

11.2.8 Question 8: Financial management skills.

The eight question reads: “You, personally, learned most of your financial management skills at...”. Participants were able to tick between one and three answers. The goal was to find out about how this specific and relevant skill for entrepreneurs is commonly learned to get an idea about locality (University? Community?) and ways of learning (Peer-learning? Learning by doing? Self-study?). Self-studies was ticked as one of the three choices by 70% of all participants, leading to 30% in the overall ranking. “Starting a business” and “Other entrepreneurs” were chosen by 24% and 22%. Lecturers at university, friends, and family members acquired significantly lower rankings with 10% and 7% each (Figure 42).

It can be seen that self-teaching, action learning, and peer-exchange are by far the most used ways to learn financial management. That universities and their lecturers are not being ranked

highly as a locality and a way of learning shows that an integration of specific finance lectures or training into entrepreneurship curricula might be of need; it might point out as well to a needed change in didactics.

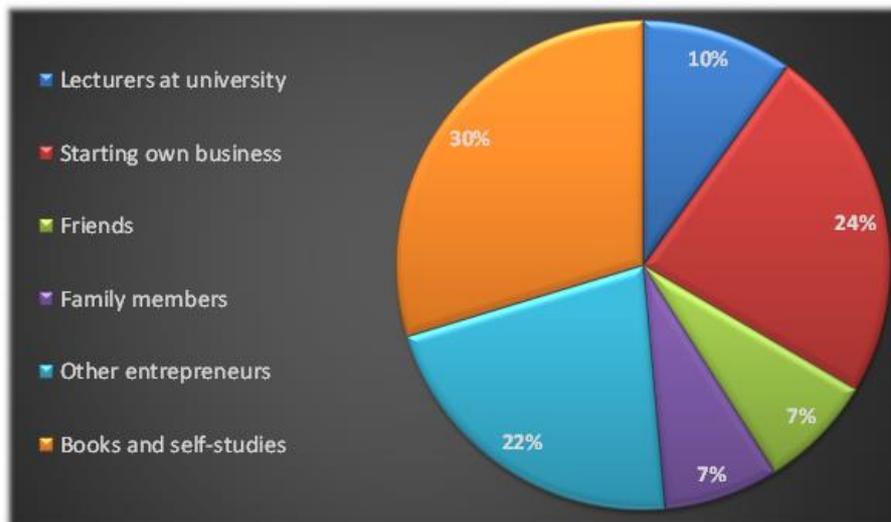


Figure 42: All answers for Question 8: “You, personally, learned most of your financial management skills at...”

Self-studies, learning-by-doing, and peer-learning seem to step in as relevant methods and ways to acquire finance skills. All three are ways of learning that can be integrated into curricula and strengthened in different educational settings at university. Learning from others seems to be effective especially with other entrepreneurs, but less so with one’s personal community (friends, family).

Key findings:

- Self-studies, learning by doing, and peer-learning are viable ways for learning in the EAC university context – not connected to the university setting at times.
- A topical and didactical development would sustain the relevance of university learning here.
- The family-and-friends context is not as relevant for the acquisition of financial skills as a functioning entrepreneurial ecosystem with peer-learning opportunities.

11.2.9 Question 9: Ranking interventions to support digital student ventures.

The ninth question reads: “Please rank the following items according to what will make digital student ventures more successful from 1 (most impactful) to 7 (least impactful).” Taking first and second place in ranking into account, mentorship with successful local entrepreneurs received the highest ranking (32%), followed by curriculum-integrated entrepreneurship trainings (29%), extra-curricular entrepreneurship trainings (27%), practical coding courses (25%), computer labs (23%), free fast internet on campus (23%), and financing options for student ventures with 18%. (see Figure 43).

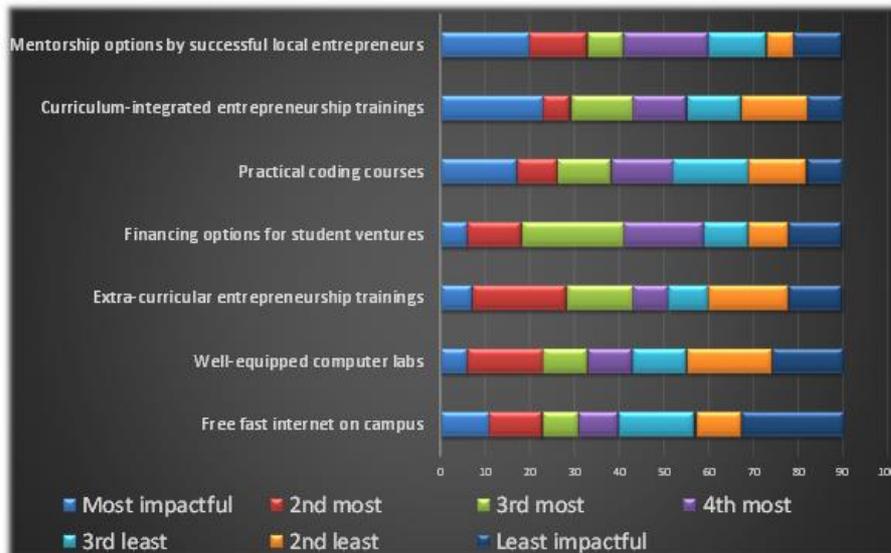


Figure 43: All answers of Question 9: "Please rank the following items according to what will make digital student ventures more successful from 1 (most impactful) to 7 (least impactful)"

Support, guidance, and exchange with a senior entrepreneur such as in mentorship is a highly valued and proven to be successful tool for success. Compared to the results of question 7, where the local context was negated or ranked low, successful local entrepreneurs are considered impactful here. The difference between methods and success factors might be that the local mentor presents a personal relation and direct support, whereas in question 7 abstract measures were ranked. Practical entrepreneurship trainings, intra-curricular (integrating case studies, field trips, hacklabs) or extra-curricular range high in appreciation and again are a proven to be successful tool. The infrastructural components of the question in form of computer labs and free fast internet together rank as less impactful. This could mean that infrastructure is good enough already, or that a sufficient infrastructure can be found elsewhere. Financing options are an additional university offer, which is not to be expected, experienced, or given so far by or to students. Yet, taking rank 3 into account, it shows, that financing is a much-valued option nevertheless (40%). Considering being named on place 1 to 3 in the general ranking shows that the first 5 items are given similar figures (around 40% of approval as success factors for student ventures). This could mean that every measure beyond tangible infrastructure building is in demand to be either integrated or strengthened in relation to a curriculum of (digital) entrepreneurship.

One individual demographic deviation from the average ranking is the lower score by university for coding courses (12% rank this as the most important factor for success, whereas 28% of the hubs voted for coding courses and a median of 19% did this). This could signify that students expect theoretical knowledge from a university. It furthermore could signify that entrepreneurship training is not directly connected to IT and coding as well, meaning that digital entrepreneurship is a term and idea to be specified more and integrated more into a mindset.

This question allows to differentiate by gender. The issue of mentorship (and thus a specific and related space) is of high esteem with women (38%), whereas men with 17% are clearly less interested in mentorship (see Figure 44 and Figure 45). A stereotype that matches would be that of the self-styled warrior-entrepreneur needing no help as opposed to a more participatory and exchange-oriented style associated with women. Furthermore, the issue could signify the need of a safe individual space for women. Here a practical intervention by university is visible: Creation women entrepreneurship clubs. Extra-curricular entrepreneurship trainings are not voted for by women. This might add to the "safe haven" theory, providing a well-known space inside, not

outside university – nevertheless this would need further research. Men show a visibly higher appreciation of a free fast internet on campus (15% of men as opposed to 5% of women). This might be an indicator for a male self-confidence regarding individualistic self-learning which is supported by internet connectivity.

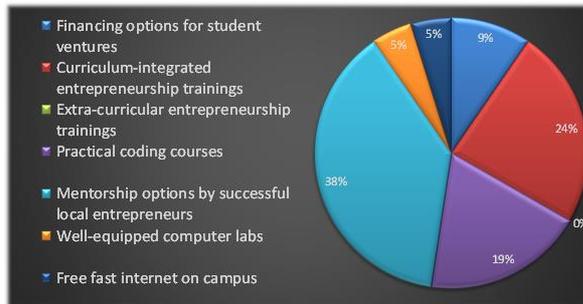


Figure 44: Most impactful interventions voted by women

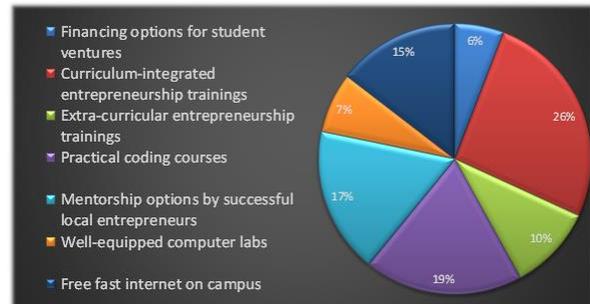


Figure 45: Most impactful interventions voted by men

Key findings:

- Individual support – as in mentorship – is of high value.
- Successful local entrepreneurs can and should act as mentors, thus the local entrepreneurial network is strengthened.
- Women have a well-above inclination towards mentorship, this being the most impactful intervention. A woman only entrepreneurship club might be a measure.
- All measures that integrate practice into the curriculum or the university-system get an equally positive ranking.
- The low ranking of coding courses with students could signify that entrepreneurship and digital entrepreneurship need to be more differentiated. It might be considered which general department the digital entrepreneur belongs to or which focus the curriculum has: economics or IT?
- Infrastructural factors such as free and fast internet as well as computer labs were deemed least impactful. Nevertheless, in the overall research picture, a reliable infrastructure is one important assets of successful digital entrepreneurship.

11.2.10 Question 10: Hindrances for students to become digital entrepreneurs.

The tenth question reads: “Please rank the following items according to what will hinder you the most in becoming a digital entrepreneur after university from 1 (biggest hindrance) to 7 (smallest hindrance).” The top three hindrances taking rank one and two into account are: Lack of skills of digital business models (40%), lack of technical skills to build products (36%), and lack of market knowledge at 35% (see Figure 46). The findings in question 5 and 6 correlate with the findings in question 10. 44% in question 5 point out, that digital business model training is not being represented well enough at university. 41% in question 6 point out, that coding skills training has to be represented more or better in university curricula. Considering the overall results in question 1 and 3 on the university being an environment to be trained in digital entrepreneurship, the ranking below shows the validity of the overall results of the survey. A lack of ideas, or a lack of distribution skills are ranked as the smallest hindrances. This overall image is consistent across demographics.

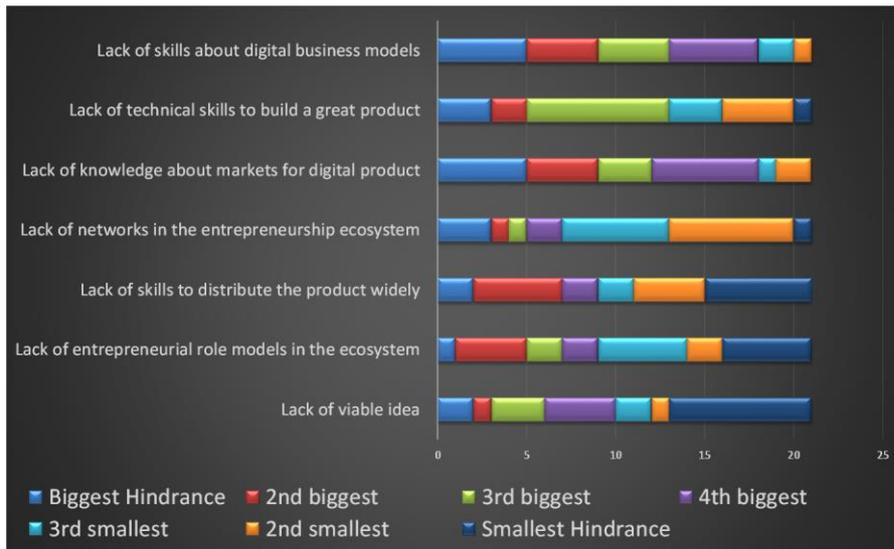


Figure 46: All answers for Q10: “Please rank the following items according to what will hinder you the most in becoming a digital entrepreneur after university from 1 (biggest hindrance) to 7 (smallest hindrance)”

Key findings:

- Training in digital business model creation skills is necessary and wanted.
- Viable ideas as such are abundant, the question is how to develop them realistically and market-driven. A focussed integration of case-study teaching and action learning in curricula and university could develop these skills.
- The survey provides a valid evaluation of the overall situation of (digital) entrepreneurship education as the results and cross-references of the questions plus the results of the qualitative survey and desktop-research correlate.

11.2.11 Question 11: Reasons for lack of internship offers by digital companies

The eleventh question reads: “Please rank the following items according to why companies in the ICT sector do not offer student internships from 1 (biggest) to 6 (smallest)”. The answers also do not differ for specific demographics. The lack of a budget for internship activities is seen as the biggest hindrance (40%). On rank 2 follows the statement, that students lack relevant digital skills to work on company projects (37%). Internships would be a solution to providing practical training related to entrepreneurship and creating an entrepreneurial network. Yet it seems to be something that – at the moment – stipulates more negative effects at or with a company than positive effects. Here university could lobby for more internships at companies and prove their value, so that the effort put in by companies pays off for them. Considering that questions 5 and 6 did identify universities as problematic places to learn technical and entrepreneurship skills, lobbying and connecting to practice in companies and hubs in an entrepreneurial ecosystem for universities is mandatory. The impulse should come from universities, as well as setting up a structure. Action learning and practice-oriented learning is named and supported by all parties seen in question 7 as the number 1 method for successful training. The problem of a lack of practical training and learning needs to be solved via cooperation, trust building and an active marketing of positive results of an entrepreneurial ecosystem as all demand practice orientation yet both universities and companies here do not seem to be fit to provide these learning spaces.



Figure 47: All answers for Question 11: “Please rank the following items according to why companies in the ICT sector do not offer student internships from 1 (biggest) to 6 (smallest)”

Key findings:

- Proof of relevance and pay-off of internships will help companies take up internship activities.
- A clear set of expectations and rules guiding internships as well as their evaluation will support their success. An intern is not a fully trained manager but a learner – appropriate expectation management on all sides needs to be institutionalised.

11.3. Summary of survey findings

The most relevant findings from the survey question are presented in short here. For further key findings and an interpretation see the chapter above. Recommendations in full are being given in the management abstract.

10.3.1 General findings involving all participants

The following list states the major findings that were deducted from the answers of all participants with no regard to demographic clusters.

- (1) 71% of all participants think that universities do not provide the skills needed to start an enterprise.
- (2) 12% of participants state that there is no entrepreneurship support available at universities at all.
- (3) Getting start-up investment at the university is very rare.
- (4) 53% of participants believe that lecturers lack the skills to effectively support students in enterprise creation.
- (5) Women have a harder time to start enterprises: 49% of all participants show some or full agreement with this.
- (6) The ability and quality of learning about viable digital business models needs to be tackled; specific exchange between university and practice – integrating context such as women in tech as well as local givens – is a way towards this.

- (7) *The top three ranked methods for entrepreneurship education are:*
- 1) Project-based teaching such as setting up a student enterprise
 - 2) Integration of entrepreneurship hubs into university entrepreneurship promotion offers
 - 3) Practice oriented teaching by people from the private sector as lecturers
- (8) *The top three ways participants learned financial management skills are:*
- 1) Books and other self-studies, including online
 - 2) Starting one's own business (practical learning)
 - 3) Through other entrepreneurs (peer-learning)
- (9) *The top three interventions to impact success of digital student ventures are:*
- 1) Curriculum-integration of entrepreneurship trainings
 - 2) Mentorship through successful local entrepreneurs
 - 3) Practical coding courses
- (10) *The top three skills that students lack are:*
- 1) Lack of skills about digital business models
 - 2) Lack of technical skills to build a great product
 - 3) Lack of market knowledge for digital products

11.3.2 Perception about women entrepreneurship

- (1) 72% of women stated they rather or fully agree that they face a harder time starting enterprises
- (2) Universities have the lowest agreement rates at only 35% completely or rather agreeing on the hardship of women entrepreneurship. This means that university as a support system for women has to really recognise their specific issues and integrate them into a curriculum
- (3) 38% of women ranked mentorship as their favoured option as the most impactful intervention for the success of student ventures whereas 17% of men voted mentorship as their first option

11.3.3 Perception and role of hubs in the university-based entrepreneurship ecosystem

Hubs and universities across the EAC do not seem to be well connected or integrated in their offers, that could build up on each other and sustain each other. Only 8% of participants in question 2 stated that students have an easy access to hub's programs. Yet, answers from question 7 ranked the integration of hubs into the entrepreneurship promotion offers at universities as the second most effective intervention.

The relation itself seems problematic at the moment: Participants from universities ranked the integration of hubs as the best way of improvement. Yet it is not clear if this means an integration of hubs run by the university itself. Hubs themselves put the integration into university education on the third rank which could be interpreted as an indicator that they have no interest in or do not see how they can create value through closer collaborations with universities. One third of the hubs even ranked integration into the university structures as the least good option to improve learning outcomes.

The training and promotion of digital entrepreneurship in a very practical way is a central issue among hubs. In question 9 that asked to rank items in terms of impact on digital student venture success, hubs showed a well-above average inclination towards the relevance of coding skills and well-equipped computer labs. These practicalities plus a functioning internet emerged as relevant in desktop research and qualitative interviews among entrepreneurs and practitioners as well. Hubs could make a positive impact if they get involved more into how entrepreneurship education is structured at universities. Participants from universities are in favour of this. To integrate hubs into university education, hubs could collaborate with universities to offer project-based teaching and case-study teaching based on their experience regarding entrepreneurship practice.

The findings show that there is room for a more effective entrepreneurship ecosystem and networking taking into account all views, expectations, and situations of stakeholders to benefit all.

11.3.4 Comparing the perspectives of universities and companies

Overall, participants from companies have an above-average negative perception about the state of entrepreneurship training and promotion at EAC universities, especially participants from universities. Some examples:

- Companies show 84% disagreement that students can obtain all relevant skill to start an enterprise. Universities stand at 50%.
- Companies show 65% disagreement about lecturers having the skills to support successful venture creation by students. Universities stand at 35%.
- Companies show 58% disagreement that students can come up with viable digital business models. Universities stand at 34%.

The relevant difference in perception and expectations about entrepreneurship training and promotion as well as the entrepreneurship ecosystem points to the need of exchange, networking and a mediation of needs and wants. A lack of trust in university programs on the one side and a lack of trust in the capabilities of the private sector can be constructed, it needs to be dissolved. The entrepreneurial ecosystem and with it the entrepreneurial mindset should be formed by all stakeholders. The integration of all in a participatory and trustful way will provide positive results.

Due to the number of survey participants, results need to be treated with care. The triangulation with results from desk research and the interviews leads to an overall robust impression about the state of the digital entrepreneurship ecosystem in the EAC.

Bibliography / Sources

Monographs

- Atari, Dominic Odwa et al.: Technical, Vocational, and Entrepreneurial Capacities in Southern Sudan: Assessment and Opportunities. Centre for Refugee Studies, York University, Toronto, 2009.
- Banerjee, Abhijit V.; Duflo, Esther: Poor Economics: A Radical Rethinking of the New Way to Fight Global Poverty, New York City, 2011.
- Basardien, Fawzy; Friedrich, Chris; Twum-Darko, Michael: Evidence-Based Practices of Promoting Entrepreneurship Education in Higher Education Institutions in Africa, *Journal of Economics and Behavioral Studies*, Vol. 8, No. 5, 2016.
- Brixiová, Zuzana; Kangoye, Thierry: Networks, start-up capital and women's entrepreneurial performance in Africa: evidence from Eswatini 13, in: High-growth Women's Entrepreneurship - Programs, Policies and Practices, edited by Amanda Bullough, Diana M. Hechavarría, Candida G. Brush, Linda F. Edelman, 2019.
- Brush, Candida et al.: A gendered look at entrepreneurship ecosystems, *Small Business Economics*, Springer, vol. 53(2), pages 393-408, August 2019.
- Brynjolfsson, Eric; Kahin, Brian (ed.): Understanding the Digital Economy; Data, Tools, and Research; MIT Press, Boston 2000.
- Burke, Jaso; Akinwotu, Emmanuel: Coronavirus could 'smoulder' in Africa for several years, WHO warns, *The Guardian*, May 8, 2020.
- Bwisa, H. M.: Towards the improvement of entrepreneurship education in Africa, 2019.
- Delle, Sangu: Making Futures: Young Entrepreneurs in a Dynamic Africa, Abuja-London, 2019.
- Friederici, Nicolas et al.: Digital Entrepreneurship in Africa, Oxford, to be published (note taken from the call for chapters).
- Fuchs, Christian; Horak, Eva: Africa and the digital divide, Science Direct, 2006.
- Geertz, Clifford: Thick Description – Toward an Interpretative Theory of Culture, New York, 1973.
- Graham, Mark (editor): Digital Economies at Global Margins, Cambridge Massachusetts, 2019. Further reading: Nicolas Friederici, Sanna Ojanperä, Mark Graham: The Impact of Connectivity in Africa: Grand Visions and the Mirage of Inclusive Digital Development, *The Electronic Journal of Information Systems in Developing Countries* 79, 2, page 1-20, 2017.
- Hewitt, Magda: Entrepreneurship, Training, Education and Job Creation, 2010.
- Hofer, Andrea- Rosalinde; Potter, Jonathan: University Entrepreneurship Support: Policy Issues, Good Practices and Recommendations (OECD, LEED document), 2010 - <http://www.oecd.org/education/imhe/46588578.pdf>, assessed April 4, 2020.
- Hwang, Victor W.: The Rainforest: How „Chicago Thinking“ explains Silicon Valley, Chicago, 2012.
- Isenberg, Daniel (Babson Global): The Entrepreneurship Ecosystem Strategy as a New Paradigm for Economic Policy: Principles for Cultivating Entrepreneurship, Dublin, 2011.
- Isenberg, Daniel: How to start an Entrepreneurial Revolution, 2010.
- Kaijage, E.; Wheeler, D.; Nebery, R.: Supporting entrepreneurship education in East Africa, final report for presentation to stakeholders, University of Nairobi, Plymouth University, 2013.
- Kasekende, Louis: Remarks at the Public Dialogue on Higher Education in Uganda (Bank of Uganda), 2017.

- Kasozi, A.B.K.: The National Council for Higher Education and the Growth of the University Subsector in Uganda, 2002-2012, 2016.
- Kapfudzaruwa, Farai et al.: Youth Entrepreneurship and Africa's Sustainable Industrialization, 2018.
- Lamnek, Siegfried: Qualitative Sozialforschung, 4., vollständig überarbeitete Auflage, Weinheim, Basel 2005.
- Lewis, Richard D.: The Cultural Imperative, Global Trends in the 21st Century, New York 2003.
- Lilishkis, Stefan; Halbfass, Brigitte; Liszt, Verena for DAAD: Case studies and recommendations for action on the "Practice Partnerships" programme, 2017.
- Man, Th. W.Y.; Lau, Theresa; Chan, K.F.: The competitiveness of small and medium enterprises. A conceptualization with focus on entrepreneurial competencies, Journal of Business Venturing 17, Issue 2, March 2002, Pages 123-142.
- Mason, Colin; Brown, Ross: Entrepreneurial Ecosystems and Growth Oriented Entrepreneurship, Background paper prepared for the workshop organised by the OECD LEED Programme and the Dutch Ministry of Economic Affairs, 2014.
- Mgasa, Doto Balele: Women entrepreneurship in Tanzania: A case study of dairy production and marketing in Babati, Wageningen, 2014.
- Mori, Neema: Women's entrepreneurship development in Tanzania: insights and recommendations, International Labour Office, Geneva, 2014.
- Musa, ElKhider Ali: Emerging Women Entrepreneurs in Sudan: Individual Characteristics, Obstacles and Empowerment, Dakar, 2012.
- Mwasalwiba, Ernest; Dahles, Heidi; Wakkee, Ingrid: Graduate Entrepreneurship in Tanzania: Contextual Enablers and Hindrances, European Journal of Scientific Research Vol.76 No.3, pp.386-402, 2012.
- Nadgrodkiewicz, Anna: Building Entrepreneurship Ecosystems, 2014.
- Nani, Gwendoline Vusumuzi: Entrepreneurship Intervention: Towards Transforming Education in Institutions of Higher Learning: A Case of One Public University in Zimbabwe, Journal of Education and Practice Vol.10, No.35, 2019.
- Okebukola, Peter Akinsola: A Cultural-Techno-Contextual Approach (see: <http://ctcapproach.com/>, assessed April 20, 2020).
- Otuya, Peter et al.: A Proposed Approach for Teaching Entrepreneurship Education in Kenya, 2013.
- Olomi, Donath. R.; Sabokwigina, Deo: Entrepreneurship Education in Tanzanian Business Schools: A Nationwide Survey (Given at the 12 International Conference on African Entrepreneurship and Small Business Development UDES), Dar es Salaam, 2010.
- Raimo, Loris: What more might universities do to promote entrepreneurship in the UK?, London, 2017.
- Sarr, Felwine: Afrotopia, Berlin 2019 (Paris 2016).
- Taura, Nasiru D.; Bolat, Elvira; Madichie, Nnamdi O. (editors): Digital Entrepreneurship in Sub-Saharan Africa, Challenges, Opportunities and Prospects, London, 2019.
- Twahirwa, Aimable: Tech Entrepreneur Encourages Rwanda's Young Women to Venture into ICT, United Nations University portrait, Sept. 2014.
- Wolhuter, Charles et al.: Education in East and Central Africa, 2014.
- Yunus, Muhammad: A World of Three Zeros – The New Economics of Zero Poverty, Zero Unemployment, and Zero Net Carbon Emissions, New York, 2017.

Organisational publications, newspaper articles, data bases, interviews

- African Union, Agenda 206, <https://au.int/en/agenda2063/overview,%20assessed%209.3.2020>
- African Union AUCCM: Plan of Action on Cultural and Creative Industries in Africa, 2006

Adegoke, Yinta: Tech Tourists: The Promise of the Big Tech CEO Africa tour is not always what it seems, Quartz Africa, December 2019.

African Business Magazine, Week 18, 02.05.2020 – online issue, assessed on May 2nd, 2020.

Argidius Foundation: Learning to SCALE effective enterprise development (YouTube playlist), accessed April 28, 2020.

Argidius Foundation: What We Do (Website), Accessed April 28, 2020.

Ashoka Contributor Group: 10 Ways Universities Can Improve Entrepreneurship Education, New York, 2014.

Ayiba Magazine: interview with Sharon Adongo, Amplifying social change in Eastern Africa through technology, 2015.

CIA: The World Factbook, OECD Data Collection, World Bank Data Collection.

Coworking Africa Platform, assessed May 1st, 2020: Interview Jon Stever, founder of The Office, Kigali, Rwanda, March 2015.

Cultural Times – the first global map of cultural and creative industries, EY by initiative of CISAC and support by World Bank, New York, 2015.

Die Süddeutsche: Was denkt Afrikas Jugend?, Wochenchronik, 14.-20. March 2020.

GEM: Supporting Africa’s Young Entrepreneurs: an investment in job creation and future prosperity for all, 2012.

GIZ: Guide for Mapping the Entrepreneurial Ecosystem, 2018

GIZ: Digital Innovation Made in Africa for Sustainable and Inclusive Development, Volume 3, Female Entrepreneurs 2019; or volume 4, Local Champions.

Global Entrepreneurship Monitor, Report 2016/17, Babson College, London Business School.

Government of Rwanda, World Bank Group: Future Drivers of Growth in Rwanda; Innovation, Integration, Agglomeration, and Competition, Washington, 2019.

Gugu, Steven: Bridging the gap between local and expat founding, VC4A, April 2020.

Hofstede Insights, <https://www.hofstede-insights.com/country-comparison>, assessed April 19, 2020.

Internet World Stats, Website, accessed on 5 May, 2020.

International Monetary Fund , Burundi: Poverty Reduction Strategy Paper II, New York 2012

Kauffman Foundation: Measuring an entrepreneurial ecosystem, 2019.

Kauffman Foundation: Entrepreneurial Ecosystem Building Playbook 3.0, accessed May 11, 2020.

Koltai Co: Website Steven Koltai, accessed May 8, 2020.

National Council for Higher Education of Uganda: 2017/2018–2019/2020 Strategic Plan, 2017.

New African Magazine: African Universities, Education with a Purpose, 21/09/2017, <https://newafricanmagazine.com/15789/>, assessed April.4., 2020.

New African Magazine: Black Panther: Changing perceptions, 1. April 2018 – assessed 15.4.2020. Or the book series of Nnedi Okorafor on the Akata Warriors.

OECD: Entrepreneurship at a Glance 2017, OECD Publishing; https://www.oecd-ilibrary.org/employment/entrepreneurship-at-a-glance-2017_entrepreneur_aag-2017-en, assessed April 11, 2020.

OECD, Week 2012 – Gender Equality in Education, Employment and Entrepreneurship: Final Report to the MCM Paris, 2012.

OECD, Closing the Gender Gap. Act Now, 2012 - <https://www.oecd.org/gender/Executive%20Summary.pdf>, assessed May 1, 2020

The 2014 African Prosperity Report, Legatum Institute, Women entrepreneurs drive prosperity, what hinders them?, London, 2014.

The Economist: 2017 African Business Outlook Survey, London, 2017.

The Economist, Intelligence Unit, Coronavirus sinks global growth prospects for first half of 2020, Q2 global forecast 2020.

The Republic of South Sudan, Ministry of General Education and Instruction: General education strategic plan South Sudan 2017-2022, Juba, 2017 / The World Bank (in response to a request of the government of South Sudan): Education in the Republic of South Sudan – Status and Challenges for a New System, Washington-Juba, 2012.

The Tony Elumelu Foundation: What is Africapitalism?, <https://tonyelumelufoundation.org/africapitalismstitute/>, assessed 5.202020

UKaid, Aspen Network of Development Entrepreneurs: Entrepreneurial Ecosystem Diagnostic Toolkit, 2013.

UN/UNESCO: Creative Economy Report 2013, Special Edition, New York 2013.

UNCTAD, New York, 2018: Creative Economy Outlook 2002-2015.

UNCHE: Institutions, website accessed on 10 May 2020.

UNCHE: Program list, website accessed on 10 May 2020.

uniRank: 2020 Burundi University Ranking, accessed May 9, 2020.

U.S. Department of Commerce, The Office of Innovation and Entrepreneurship at the Economic Development Administration: The Innovative and Entrepreneurial University: Higher Education, Innovation & Entrepreneurship in Focus, 2013.

Village Capital (Matranga, Heather Strachan): Why do investors continue to shortchange entrepreneurs in emerging markets?, May 12, 2017 (<https://medium.com/village-capital/why-do-investors-continue-to-shortchange-entrepreneurs-in-emerging-markets-f57a8bf4a7d8>)

Voices of Women Entrepreneurs in Rwanda - <https://www.care.org.rw/resources/case-studies/item/317-women-entrepreneurs-in-rwanda>.

Voices of Women Entrepreneurs in Tanzania, International Finance Corporation, Washington, DC, 2007.

Wikipedia: List of universities in Burundi.

World Bank Open Data: Website, accessed on May 1, 2020.

Appendix

A. Qualitative Interviews guideline and questions

Hello,

Thank you very much for supporting this study on the “East Africa Digital Entrepreneurship Ecosystem in Higher Education” for the East African Community, the IUECA (Inter-University Council of East Africa), and the GIZ representing the German Development Cooperation.

My name is XYZ and I will be conducting this interview as well as working on the study itself.

The questions deal with the entrepreneurship ecosystem, education for entrepreneurship, and especially digital entrepreneurship, meaning a focus on the information and communication technology industry and side of skills.

The interview contains 10 questions and potentially follow-ups to learn more and benefit the study. This shall benefit support for entrepreneurs and your open opinions, thoughts, and detailed insights will be very helpful.

If the connection breaks down or recording is lost, I will get back to you. Please speak audible and clear into your microphone.

I assume this conversation will take between 30-45 minutes depending on your wealth of insights. Would 30 minutes ok or do you have further commitments afterwards?

...

Wonderful, do you have any other questions?

Our interview will be recorded and be evaluated as part of the study. Your name will be mentioned. Is that okay? If you want, you will get a copy of the finished study.

As you have agreed, I will start the recording now and ask again for your permission to do so.

Thank you again XYZ and just for the record, please confirm that you are fine with recording this interview.

If you are ready, we can start now. I will start asking you the questions now.

1. What is (digital) entrepreneurship for you and how are you engaged in or with it?
2. How would you describe the state of affairs with entrepreneurship, start-ups and entrepreneurship education in your region or country?
3. What are the constituents of a good entrepreneurship class or training?
4. What are the most important kinds of support a digital entrepreneur needs for his or her success?
5. What are the main obstacles for digital entrepreneurs and innovation in your country, society, ethnicity?
6. What are the main opportunities for digital entrepreneurs and innovation in your country, society, ethnicity?
7. What does entrepreneurship need to thrive and prosper in your country, society, ethnicity and what is the role of universities in this?
8. What are the most important skills and knowledge that university graduates in the EAC lack with regards to entrepreneurship, business, and founding start-ups?
9. What are the most important skills and knowledge that university graduates in the EAC lack with regards to digital and technology skills?
10. What are all the linkages that you believe are missing between universities and the innovation ecosystem such as entrepreneurship hubs and the private sector?

11. What skills, what a mindset and experiences do graduates need to better fit into the digital job market?
12. What are the biggest challenges one will face implementing digital entrepreneurship programs at universities?
13. How could market entry of student innovations effectively be supported by entrepreneurship centres at universities in the EAC?

Specific questions by specific target groups:

Entrepreneurs / Start-ups on market:

1. Which organization or institution was important for your success and what difference did it make?
2. What is hard about starting a digital start-up?
3. What kind of support would you have wished for in your journey while studying at university that can make a real difference for future entrepreneurs to succeed?

Hubs:

1. What are the top 3 problems you as a hub have to help entrepreneurs solve for them to become successful?
2. What aspects of university-industry collaborations could be valuable for a university and their student entrepreneurs?
3. What kind of university-industry collaboration could the private sector be interested in and why?

Student:

1. What is hardest for you about starting a digital enterprise?
2. What aside financing do you lack the most to start a digital enterprise?

University staff:

1. Please describe up to three ways of university-industry-collaboration that can be beneficial for student entrepreneurs?
2. Describe an example of a university-industry collaboration that was successful, how it worked and why it was beneficial?

Thank you again, and good-bye.

B. Quantitative survey questionnaire

Dear reader, ...

Thank you for participating in this survey which will only demand about seven minutes of your time with its 11 questions. It is done as part of a research project of IUCEA (Inter-University Council of East Africa) and GIZ (German development cooperation) looking into how do universities in the East African Community currently promote digital entrepreneurship?

Your answers will shape programs and activities around digital, ICT, and entrepreneurship at universities in all six EAC countries.

Please answer for the East African country you feel best informed in regard to our question, e.g. your place of birth or training.

1. At university, a student can obtain all relevant skills needed to start his/her own enterprise. (1-5, agreement)
2. A student has easy access to the following relevant entrepreneurship support (please tick a maximum of)
 1. Networking events

2. Getting start-up investment
3. Exchange with other entrepreneurs
4. Access to mentorship opportunities
5. Entrepreneurship trainings
6. Support programs of an incubator / an accelerator / or a hub
7. Start-up competitions

3. University lecturers have the skills to support the successful creation of student ventures. (1-5 & N/A)

4. Women do have a harder time than man to start an enterprise. (1-5 & N/A)

5. At university, students can learn how to come up with viable digital business models? (1-5, agreement & N/A)

6. At university, students can learn coding well enough to build software products for a digital enterprise. (1-5, agreement & N/A)

7. Please rank the following methods to improve learning outcomes in entrepreneurship education from 1 (best) to 5 (least good):

1. Practice-oriented teaching by people from the private sector as lecturers
2. Case-study learning of successful local ventures in university
3. Project-based teaching such as setting up a student enterprise
4. Company visits to get exposure to local companies
5. Integration of entrepreneurship hubs into university entrepreneurship promotion offers

8. You learned most your financial management skills... (please tick maximum of 3)

1. From listening to your lecturers at university
2. From starting your own business
3. From a friend
4. From a family member
5. From other entrepreneurs
6. From books

9. Please rank the following items according to what will make digital student ventures more successful (from 1 (most impactful) to 7 (least impactful))

1. Financing options for student ventures
2. Curriculum-integrated entrepreneurship trainings
3. Extra-curricular entrepreneurship trainings
4. Practical coding courses
5. Mentorship options by successful local entrepreneurs
6. Well-equipped computer labs
7. Free fast internet on campus

10. Please rank the following items according to what will hinder you the most in becoming a digital entrepreneur after university (from 1 (biggest hindrance) to 7 (smallest hindrance))

1. Lack of viable ideas
2. Lack of technical skills to build a great product

3. Lack of knowledge about markets for digital products
4. Lack of skills to distribute the product widely
5. Lack of skills about digital business models
6. Lack of networks in the entrepreneurship ecosystem
7. Lack of entrepreneurial role models in the ecosystem

11. Please rank the following items according to why companies in the ICT sector do not offer student internships (from 1 (biggest) to 6 (smallest)).

1. Companies lack relevant digital projects that students can work on
2. Students lack relevant digital skills to work on company projects
3. Too much work for companies to train students so they add value
4. Too much bureaucracy to collaborate with universities on student internships
5. Students lack relevant business/ entrepreneurship skills to add value to a company
6. No budget for internship activities

Thank you, would you please fill in some socio-demographic items to finish off:

A. I am from ... (single choice)

- a) An entrepreneurship support provider (hubs, government institutions, think tanks, ...)
- b) A university (student, lecturer, administrator, ...)
- c) A company (Start-up, corporate employee, free-lancer,)

B. I am ...

Male

Female

Other

C. My age lies between ...

- a) 18 to 25 years
- b) 26 to 35 years
- c) 36 to 45 years
- d) above 45 year

The country I relate my answers to is:

South Sudan

Burundi

Rwanda

Uganda

Kenya

Tanzania

Thank you for answering the questions and contributing to the improvement of the digital entrepreneurship ecosystem development in East Africa.

Please send this questionnaire to as many people you know working in the field of entrepreneurship or ICT/Technology - even from within your team or institution. This will benefit our research and further action greatly.

The link to share is:

To get a copy of the study and be available for potential follow-up engagements, you can share the following contact data voluntarily. Please send the results of the study on the “Digital Entrepreneurship Ecosystem in East Africa” to the following email address:

Yours
organisation

C. The authors

Matthias Möbius:

Co-Founder of StartHub Africa Ltd. and SHA Consulting Group Ltd. – A hybrid Social Enterprise focussing on early stage entrepreneurship promotion in Subsahara Africa, as well as on Startup incubation through innovative revenue-based financing models and Corporate Innovation with African companies; Background in theoretic physics and Computer Vision applications; Entrepreneur first and foremost, consultant, coach; Advocate for systemic entrepreneurship; Excited about building innovation structures and processes with and for corporate companies.



Prof. Dr. Ulrich Wunsch:

Founder and Owner of SAABA.education – Bildung für Subsahara Afrika gGmbH (SAABA.education – education for Sub-Saharan Africa not-for-profit limited company); former president of SRH University for Popular Arts (private university of applied sciences in Berlin, Germany); former vice dean of Fresenius AMD (academy for fashion and design, private university for applied science); acting visiting professor and study program leader at Universität der Künste, Berlin (state owned Arts and Music University); journalist for various media (print, radio, TV) and author; senior manager and consultant at event agencies (mainly for big European corporations); coach and consultant; research in media and communications sciences, creative industries, start-up scenarios.

