International Trade Centre

TECH ENTREPRENEURSHIP ECOSYSTEM IN TANZANIA

NETWORK ANALYSIS AND MAPPING OF INSTITUTIONS SUPPORTING ENTREPRENEURSHIP

FOREWORD

ITC is the joint agency of the World Trade Organization and the United Nations.

This Network Analysis and Ecosystem Mapping report has been conducted under ITC's Fast Track Tech project.

Financed by Canada, Finland, Germany, Ireland, Norway, Sweden and the Netherlands Trust Fund IV, the #FastTrackTech project is implemented by the International Trade Centre. Thanks to a targeted coaching and training offer as well as matchmaking with potential clients and investors, the #FastTrackTech project, since October 2019, is committed along-side digital entrepreneurs who aspire to international growth in Benin, Côte d'Ivoire, Ethiopia, Mali, Rwanda, Tanzania and Zambia. For further information on the project, please consult here: https://www.intracen.org/e-Trade-for-Impact/Fast-Tracking-Digital-Entrepreneurship-in-Africa/

The views expressed herein do not reflect the official opinion of ITC. Mention of firms, products and product brands does not imply the endorsement of ITC. This document has not been formally edited by ITC.

Limitations of the analysis

The analysis provided in this report reflects the findings of desk research and interviews. Some institutions, currently present in the ecosystem might not be represented in this analysis given their mandate (not including entrepreneurship support) or the sporadic character of their interactions in the network. In addition, this report has focused only on Tanzanian support institutions. Therefore, support initiatives from ITC, such as Fast Track Tech and other initiatives led by international development agencies have not been captured. The interview questions were based on ITC's Network Analysis methodology designed specifically to understand the interactions of support institutions. Therefore, questions were less focused on the assessment of the situation of start-ups or entrepreneurs. Due to the COVID-19 pandemic the mapping analysis was conducted remotely, which limited some interactions. The information gathered on the entrepreneur's perspective represents, via a focus group approach, a small subset of the ecosystem's entrepreneurs and therefore further analysis might be needed to provide a statistically significant assessment of the entrepreneur's journey. This report is a snapshot of the situation in Q1 2021 and therefore might not be representative of past or future interactions.

ACKNOWLEDGEMENTS

ITC team wishes to thank Dr. Amos M. Nungu, COSTECH's Director General and Ms. Promise Mwakale, Partnerships Lead at COSTECH for their early support and endorsement of the mapping exercise.

ITC also wishes Ennovate Hub for their active engagement with ITC to make this report possible as well as all ecosystem actors who provided information, insights, expertise, and time to contribute to this exercise.

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Entrepreneurship is one of the most fundamental processes underpinning economic growth and an important basis for developing solutions to economic and social challenges as well as to support self-employability and job creation, particularly for youth. Entrepreneurship, however, requires significant and appropriate public and private support to thrive and be sustainable over time. Therefore, entrepreneurship support institutions are critical entrepreneurship catalysers and require specific support and guidance to act as impact multipliers in their ecosystems.

Each of these entrepreneurship ecosystems is unique and emerges as the result of a network of institutions and actors interacting in complex and idiosyncratic ways. Enhancing and accelerating a supportive entrepreneurship ecosystem is central to enabling young entrepreneurs to access the services they need to start and grow their business.

Ecosystems can be studied through a variety of approaches. This report uses ITC's methodology to capture the characteristics and connections of the institutions active in the entrepreneurship ecosystem in Tanzania, with a special focus on tech sector. The objective of this report is to provide an accurate description of Tanzania's tech entrepreneurship ecosystem of institutions, identify gaps, overlaps and provide recommendations.

Firstly, the report starts with an initial mapping of the overall ecosystem and aims to gauge the types of support provided by institutions to entrepreneurs at different stages of the business lifecycle with a focus on the tech sector. This first section also includes the identification of gaps and overlaps in the service offer. Secondly, delving deeper, a network analysis is conducted to observe the types of linkages or collaborations that occur between various organizations in the entrepreneurship ecosystem. This network analysis does not only show the connections between actors but also identifies which institutions are highly connected. Finally, complementing the institutional perspective, this report also captures the views and experiences of entrepreneurs when receiving support and navigating the ecosystem.

Current ecosystem

Entrepreneurship has continued to grow rapidly in recent times in Tanzania, and this is ascribed to the unanimous effort from both government and private sector in supporting and promoting entrepreneurs. Young people are exploring alternative options to employment and trying to delve into entrepreneurship, with the aim of solving community problems, becoming self-sustainable and creating jobs. With the right support from start-up support institutions, entrepreneurship could become an integral part in Tanzania's economic development.

Despite Tanzania's potential, this report has identified several **gaps** in support services:

- Science, technology, engineering, and mathematics (STEM) training opportunities in the ecosystem
- Business services for entrepreneurs (recruiting, accounting, legal support)
- Access to early-stage investment opportunities
- Focus on international markets (scaling-up)

Given the focus of the report, the analysis has also examined the specific support offered to tech-entrepreneurs. Despite tech being considered a crosscutting element, fully focused tech entrepreneurship support is still scarce. Whilst the current support enables the emergence of technological applications in conventional sectors such as e-commerce, fintech or health tech, the ecosystem lacks support for those start-ups developing solutions related to tech emerging sectors such as: big data, virtual reality, gaming, internet of things, smart home, cybersecurity, blockchain and robotics.

In addition, the analysis identified several **overlaps** with regards to support provided in the idea and early stage. As per the report's analysis, over 70% of institutions provide capacity development to idea and early-stage entrepreneurs. This concentration has also led to replication of entrepreneurship training programmes. Entrepreneurs are offered the same type of training content from several programmes which results in lower interest of entrepreneurs to participate in capacity building activities. Replication of programmes occur due to silos and lack of ecosystem during the design and implementation of programmes.

Tanzania shows a limited amount of **connections** in the ecosystem. With a density figure of 0,347 (being 1 the highest possible density number), the

country has a lot of potential to reach its full capacity in terms of number of connections between actors. This report presents opportunities to increase the ecosystem actors' bridging capabilities (capacity to connect actors to the ecosystem) as well as their own individual network (total number of connections). In particular, the Tanzanian Startup Association appears as a good example with regards to betweenness centrality[1] and it showcases the key potential role of the association as an ecosystem enabler and potential ecosystem leader. Despite having other leading institutions, overall, the network has low bridging capabilities to ensure the connectivity and diversity of actors.

Connections with academia appear particularly low when compared to more mature ecosystems and indicate untapped potential for additional synergies between the Tanzanian education system and its entrepreneurship support. When looking at the geographic distribution of actors, the network appears to be highly concentrated in Dar Es Salaam, leaving some areas unattended. This is a well-known weakness of the ecosystem and has encouraged initiatives such as the Innovate map by COSTECH and HDIF, featured in this report, to identify all entrepreneurship support initiatives and provide a real-time update on the ecosystem and its different actors.

Entrepreneurs navigating the ecosystem are not fully satisfied with the support currently offered and particularly agreed that:

- Most of the support programmes in the ecosystem are short term programmes, which do not provide enough support to gain the needed skills, knowledge, and guidance to successfully launch and validate their business in the market,
- There are gaps in the quality of hubs managers, trainers and facilitators, resulting in weak institutions mostly focused on light-touch early-stage programmes.
- There is need to update government regulations to recognize start-ups specific needs and foster ventures growth. In the absence of a start-up act, tech entrepreneurs are subjected to follow long, complex and high-cost regulatory policies that are not favourable for early-stage businesses.

Next steps for the ecosystem

Based on the service mapping, identified gaps and overlaps, network analysis and user experience analysis, this report provides key recommendations to support the growth and success of the Tanzanian tech entrepreneurship ecosystem. These recommendations are intended to serve as guidance to the local ecosystem actors to redesign and create relevant support services for entrepreneurs.

Recommendations presented in the report focus on addressing silos and lack of communication between different actors, cover service gaps in the later and growth stage of the entrepreneurship journey and, gaps in investment support. Based on best practices several actions are recommended:

- Use of digital platforms to improve ecosystem cooperation and overcome silos
- Extending service offering to cover later-stage entrepreneurial stages
- Application of gender inclusive practices, recognizing the specific challenges faced by girls and women in tech entrepreneurship.
- Institutional strengthening for hubs to encourage specialization and the implementation of financially sustainable models for institutions to ensure long-term stability
- Diversification of funding opportunities for entrepreneurs
- Advocacy and policy development and to formalize a framework for action to bring all ecosystem actors and voices together.

[1] *Betweenness centrality is a way of detecting the amount of influence an actor has over the ecosystem. It is used in this report to find institutions that serve as a bridge from one part of the network to another.*

INTRODUCTION

There is a positive feedback loop among innovation, entrepreneurship, and economic development. New and growing businesses represent the primary sources of job creation and innovative activity in an economy, two factors that generally result in improved standards of living for all. New technologies and digital transformation in particular have the potential to support private sector development and employment growth. As such, tech entrepreneurship plays a key role in driving the economic growth of a country. Linking traditional industries with the tech sector creates new opportunities for innovation, enhanced productivity, business growth and job creation.

However, it is important to understand that the potential impact of tech entrepreneurship and innovation depends on their accessibility. For entrepreneurs to bring new ideas to life, they need access to education and a level playing field on which to compete. In this regard, the role of support institutions is to create conditions that allow more entrepreneurs to start businesses by building skills, generating access to finance as well as to international markets and networks, so that businesses can grow. Economic growth suffers when entrepreneurial activity is unevenly spread across socio-economical, demographic, and/or geographic dimensions.

According to the World Bank's data[2], Tanzania was between 2013 and 2019 amongst the top-three growth performers and least volatile economies in East Africa, with an average GDP growth of close to 7 percent. However. Household consumption and poverty is improving faster in Dar Es Salaam while inequality between the geographic regions is widening. Almost 70 percent of the population still lives on less than USD 2 per day. While there are emerging signs of increased participation of the poor in economic growth, outside of Dar es Salaam an important proportion of the population remains unable to fully benefit from the economic prosperity of the country and are vulnerable to poverty

Tanzania has one of the world's fastest growing youth groups. Of the estimated 55 to 60 million people in Tanzania, more than 50 percent are under 18 and over 70 percent are under 30 years. In view of the growing population, youth unemployment in particular is a large problem. A significant proportion of economic activity is highly informal in nature; thus, there exists a discrepancy between the demand for skilled jobs and the positions currently available in the labour market. In fact, there are approximately 800,000 young Tanzanian professionals who are entering the labour market on an annual basis and are competing for 40,000 formal jobs available. Therefore, Tanzania has a large pool of potential young entrepreneurs.

Indeed, entrepreneurship can be a major engine of economic growth and job creation when it is supported effectively in an enabling environment. Studies and research consistently link entrepreneurship with job creation, GDP growth, innovation, and long-term productivity increases.
However, businesses must be able to grow and prosper in order to have this positive feedback loop on the economy.

The ecosystem for micro, small and medium-sized enterprises (MSMEs) in Tanzania is fragmented. The World Bank's Ease of Doing Business index[3] shows that regulatory factors inhibit new businesses and raise the cost of starting one. According to the World Development Indicators (2020) the number of new businesses registering every year has fallen by 30 percent. This high rate of business discontinuance reflects the many challenges and lack of support received by the young Tanzanian entrepreneurs from the government and the private sector. Although some important reforms to support the private sector have been adopted, including the Blueprint for Regulatory Reforms and the Strategy to Control Government Arrears, those agendas need to be implemented more quickly. Additionally, government urgently needs to identify and adopt measures to foster greater private sector participation in the economy.

[2] The World Bank in Tanzania Tanzania (worldbank.org)
[3] Ease of doing business index - Tanzania | Data
https://data.worldbank.org/indicator/IC.BUS.EASE.XQ?locations=TZ

The ICT sector, which has been grown by an average of 13 percent during the past decade, can play a key role in deriving the recovery and future growth of the economy. At the private and non-profit sector level, a growing number of institutions providing business support services in the tech sector are emerging. Business support institutions are catalysts for job creation and economic growth when performing in a conductive ecosystem of support institutions. In isolation, each institution can make a small contribution to support entrepreneurship, but its action alone is insufficient to sustain it. Together, however, these institutions can boost entrepreneurship and economic growth by being collectively accountable for exponentially increasing job and economic opportunities for youth. Despite the current improvement in tech start-up support in Tanzania, several obstacles to entrepreneurship development and start-up creation remain: access to capital, awareness about available business support services, soft skills training, linkages to investors and international markets, and coordination and partnership among support institutions

To support Tanzania's efforts in improving entrepreneurship and creating an environment in which start-ups can thrive, this report provides an analysis of the Tanzanian tech entrepreneurship ecosystem with a specific focus on the interaction among tech ecosystem actors and gaps in services in supporting entrepreneurs.

This analysis is presented in three perspectives:

Perspective 1: Service mapping and gap analysis. Key findings regarding the services offered in the ecosystem based on the interviews conducted with relevant local institutions.

Perspective 2: Network analysis. Assessment of how the institutions within the entrepreneurship ecosystem in Tanzania interact using network analysis techniques[4].

Perspective 3: User experience analysis. Insights from entrepreneurs in terms of navigating the entrepreneurship ecosystem.

Finally, the report provides key recommendations for the improvement of the Tanzanian tech ecosystem

[4] Social Network Analysis - Cambridge Intelligence
https://cambridge-intelligence.com/social-network-analysis/

1. METHODOLOGY

Defining entrepreneurship support ecosystems

In the context of this report, an entrepreneurship support ecosystem is a collaborative arrangement through which institutions that support entrepreneurs combine their resources, capabilities, and products to offer a coherent, entrepreneur-oriented solution.

When they work, ecosystems allow institutions to create value that no single one of them could have created alone. Well-managed ecosystems improve the management of critical interdependencies to increase benefits or reduce costs.

Defining the institutions within the entrepreneurship ecosystem

Pre incubators

- Offering mindset transformations for youth to engage in innovation and entrepreneurship
- Primary source of Innovation ideas
- Offers hands-on programs such as Internships
- Program durations between 3 months to 1 Year

Incubators

- Primarily focuses on helping early stage start-ups become viable and scalable
- Provides an array of support services and infrastructure through a systematic process
- Quality controlled intake of start-ups with regular time bound exits
- Program duration generally between 1 year and 3 years

Accelerators

- Can support early and growth stage start-ups
- Often invests financially in the start-ups
- Fixed-term, cohort-based program that catalyses start-up growth through intensive mentoring, networking, and educational services
- Quality controlled, often highly competitive, intake of start-ups with regular time bound exits
- Program duration generally between 1 week and 6 months

Young entrepreneur associations

- Volunteer-driven non-profit organizations promoting youth entrepreneurship
- Provides networking and peer-to-peer exchange opportunities
- Lobbying and providing recommendations to policymakers on issues related to youth entrepreneurship

Youth chambers of commerce

- Membership organization for young entrepreneurs to have a voice and address specific concerns of youth-owned enterprises
- Often provides business development services to young entrepreneurs

Co-working spaces

- A business services provision model that involves individuals working independently or collaboratively in shared office space

Venture capitalists

- A venture capitalist is an investor who either provides capital to start-up ventures or supports small companies that wish to expand but do not have access to equities markets.

Angel investors

- Angel investors are also called informal investors, angel funders, private investors, seed investors or business angels. These are affluent individuals who inject capital for start-ups in exchange for ownership equity or convertible debt.

Events and business competition organizers

- Pitching competition, bootcamps, business plan competitions, hackathons, B2B events, fairs and exhibitions are all different types of events and competitions for young entrepreneurs to ideate and scale up. Example events/competitions include Startup Weekend and Seedstars.

Defining the stages of entrepreneurship

Idea Stage

The business idea requires testing and research is conducted to determine whether it is worth pursuing.

Start-up Stage

The business entity is established legally and the focus lies on developing the products/services, adjusting the business model and understanding the customer's expectations.

Early Stage

The business is generating revenue and adding new customers, with a focus on reaching breakeven cash flow and further fine-tuning the business model.

Later

The business has demonstrated viability, with a well-known product/service and strong market presence.

Growth

The business is thriving and established in the industry and focuses on expansion, particularly into new markets.

Mature

The business is on top of its industry, often with two choices, either push for further expansion or exit the business.

ITC's Network Analysis methodology

ITC's Network Analysis methodology aims to capture interactions, trends and patterns in collaborations among institutions. The results presented in this section are based on three pillars of analysis:

Desk research

Preliminary research to understand the landscape of institutions in the country and their offerings. Research on specific studies and reports in the field of entrepreneurship support and start-ups development in the country. Research to validate findings.

Entrepreneurship support institutions

Personal interviews to understand the role of the institution in the ecosystem, its contributions, perspectives and specific collaborations within the network.

Entrepreneurs

Personal interviews to validate the institution's offering and to understand the entrepreneur's journey in the ecosystem.

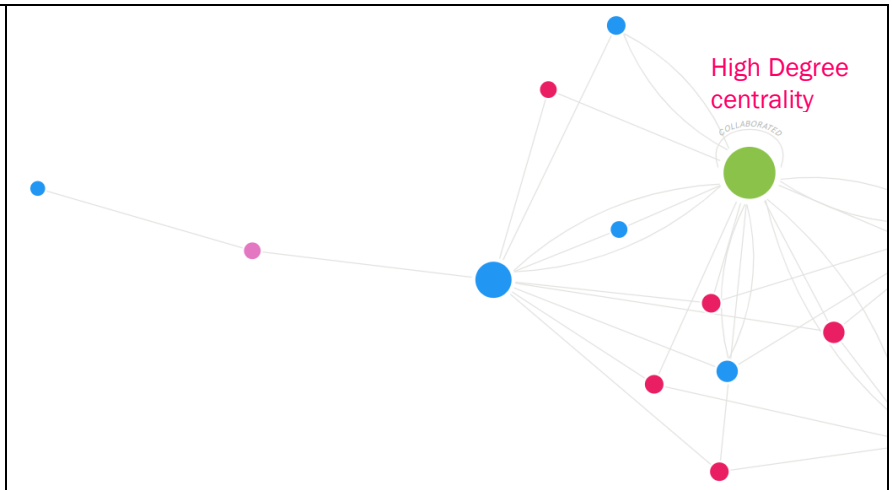
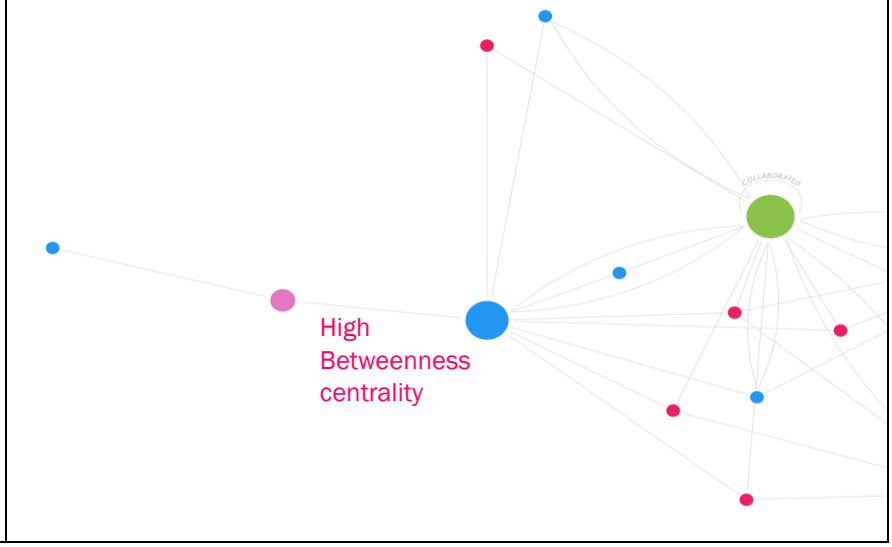
In order to represent and visually capture the interactions and linkages among the interviewed institutions, this section of the report provides qualitative and quantitative insights supported by a network analysis software.

The following section provides answers to two key questions:

1. ***What are the main connections in the network?*** The analysis explores how the landscape of institutions interact with each other, which are the most connected institutions, with who are they connecting and why are they connecting. The aim of this analysis is to understand what stimulates collaboration or what might be preventing it and therefore, what can be done to continue strengthening the ecosystem.

2. ***What are the different types of connections?*** To respond to this question, ITC's network analysis focuses on three key factors of collaboration: information, funding collaborations and service delivery. In the case of information exchanges, the analysis looks into aspects such as sharing of database of entrepreneurs, events information or market intelligence. Regarding financial exchanges, the analysis focuses on the exchanges of funds between institutions. This would be the case of institutions providing financial support for events to other institutions or logistics support. Finally, service delivery collaboration involves support for trainings, such as training material and training staff and collaboration for the organization of events and competitions.

Key Network Analysis Definitions:

Degree centrality The degree centrality measure finds actors (institutions) with the highest number of links to other institutions in the network. Institutions with a high degree centrality have the best connections to those around them – they might be influential, or just strategically well-placed.	
Betweenness centrality Institutions with a high betweenness centrality score are the ones that most frequently act as 'bridges' between other nodes. They form the shortest pathways of communication within the network. Usually this would indicate important gatekeepers of information between groups.	

2. ECOSYSTEM MAPPING

Tanzania's tech entrepreneurship support ecosystem

According to World Bank Report (2017), on *Tech Start-up Ecosystem in Dar Es Salaam*, Entrepreneurship has continued to grow rapidly in recent times in Tanzania, and this is ascribed to the unanimous effort from both government and private sector in supporting and promoting entrepreneurs. Young people are exploring alternative options to employment and trying to delve into entrepreneurship, with the aim of solving community problems, become self-sustainable and create jobs. The success level currently experienced in Tanzania entrepreneurship ecosystem is largely attributed to the role innovation hubs are playing in the ecosystem, as sighted in the Human Development Innovation Fund (2018) report on *Catalysing and Scaling Innovation in Tanzania.* In the last 4 years, the number of enterprise support organizations have grown by over 60% (from 17 to 40+ institutions), which has seen entrepreneurship activities expand quickly across Tanzania and contributed immensely to the growing rate of tech enterprises in Tanzania.

With the right support from start-up support institutions, entrepreneurship could become an integral part in Tanzania's economic development. Although there is a noticeable growth of entrepreneurs in the ecosystem, there are still critical challenges faced by entrepreneurs. These challenges range from access to quality training content, capacity building for founders, access to early-stage funding and government regulations, which has remained an impeding factor affecting the development of entrepreneurship in Tanzania. Innovation hubs in Tanzania consist of mainly incubators and accelerators that are majorly focusing on supporting early-stage start-ups, with less institutions playing a role in the growth and investment stage. Until this time, innovation hubs are mainly working in silos, thereby duplicating support being provided to the entrepreneurs.

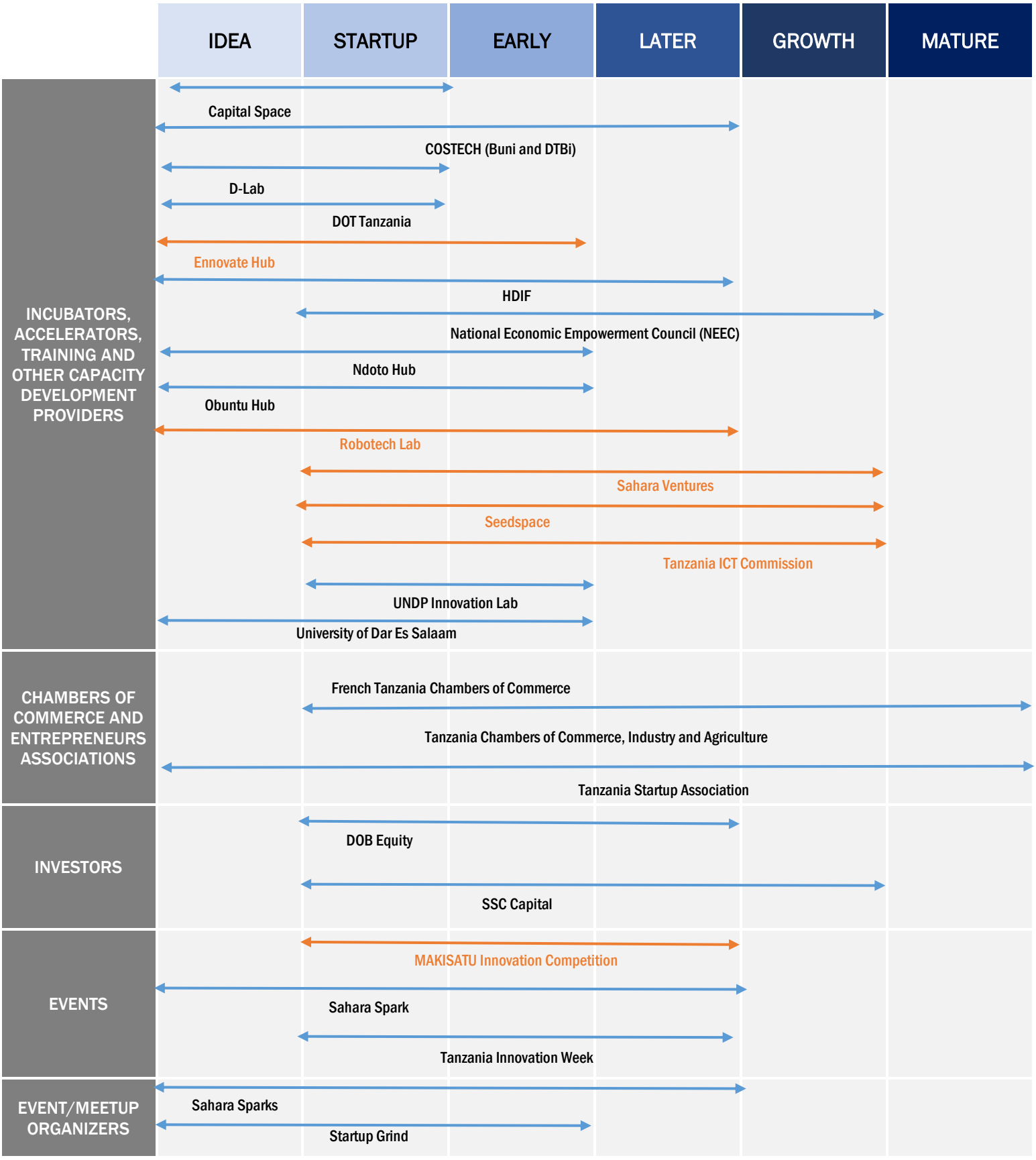
Despite the challenges, Tanzania ecosystem is one of the fastest growing ecosystems in Africa, with a jump in the global innovation index ranking from 97 to 88th position between 2019 and 2020. This shows that the ecosystem is picking up through the engagement and commitment from key stakeholders, like the government, corporates, innovation hubs and developmental organizations. In recent times, the ecosystem has experienced a higher rate of involvement of corporate companies and government agencies in the innovation ecosystem activities, through sponsorship of innovation events, providing technical support to entrepreneurs and connecting entrepreneurs to market.

The ecosystem has grown to a stage where innovation hubs are now providing more diversified services for entrepreneurs to develop their start-ups. For example, the Tanzania ecosystem now have only-female focused innovation hubs, like Ndoto Hub, where female founders are provided with a safe space and dedicated support to grow their business. With the presence of hubs such as Seedstars/Seedspace, entrepreneurs have conducive co-working spaces and access to global networking opportunities to connect with other founders and investors.

Further, government agencies are increasingly connecting with the ecosystem to provide capacity building and funding to entrepreneurs. The ecosystem continues to explore different avenues to formulate effective partnerships between government, private sector, and innovation hubs. Despite the gaps, overlaps and network challenges highlighted in this report, the Tanzanian Tech ecosystem is growing and demonstrates willingness and openness to learn from best practices to continue its improvement.

Figure 1 below provides an overview of the range of institutions active in the Tanzanian entrepreneurship support ecosystem at various stages of the lifecycle of a business. See section 1 on methodology for a list of definitions of entrepreneurship support institutions.

Figure 1: Tech ecosystem actors by category and business stage



GAPS AND OVERLAPS

Figure 2: List of services by institutions in the tech ecosystem

	INCUBATION					ACCELERATION						
Institutions	**Business Training**	**Mentoring**	**Technical Training (STEM)**	**Soft Skills** (i.e.: communication, leadership)	**Co-working**	**Funding**	**Prototyping**	**Entrepreneurship Event/Talks**	**Market Information**	**Linkages to Investors**	**Business Support** (i.e.: Recruiting, Legal advice)	**Trade Fairs / B2B**
Capital Space	✓				✓							
COSTECH (Buni and DTBi)					✓	✓		✓	✓			
D-Lab	✓		✓	✓		✓		✓				
DOT Tanzania	✓			✓		✓		✓				
Ennovate Hub	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	
French Tanzania Chambers of Commerce								✓	✓			✓
HDIF						✓		✓				
ICT Commission	✓	✓			✓	✓		✓	✓			
Jenga Hub	✓	✓	✓	✓	✓		✓	✓				
NEEC						✓			✓			✓
Ndoto Hub	✓	✓		✓	✓		✓	✓	✓			✓
Obuntu Hub	✓	✓		✓	✓		✓	✓				
Robotech Lab	✓		✓				✓					
Sahara Ventures	✓	✓	✓	✓		✓		✓		✓		
Seedspace	✓	✓		✓	✓	✓	✓	✓	✓	✓		
Smart Lab	✓	✓		✓	✓		✓	✓		✓		
Tanzania Chambers of Commerce, Industry and Agriculture								✓	✓			✓
Tanzania Start-up Association								✓	✓			✓
UDIEC	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓
UNDP Innovation Lab	✓	✓		✓		✓	✓					

IDENTIFIED GAPS

Business Soft Skills Training for Entrepreneurs

Opportunities for business skills training such as financial management, leadership and team management, effective communication, business commercialization and business administration are very limited in Tanzania entrepreneurship ecosystem. Most of the available training focuses on ideation and business model development, which are offered in short programmes implemented by hubs. Trainings provided by most institutions in the ecosystem is not sufficient for entrepreneurs to successfully launch their business in the market and attract external investment.

Business Services for Entrepreneurs

Most business service companies such as those providing recruiting, accounting and legal support do not focus on young enterprises. Their fees are not inclusive enough for entrepreneurs that are starting out. This has limited entrepreneurs from outsourcing business services such as recruitment, legal, finance and IT. Entrepreneurs in Tanzania are struggling with finding best talents to join their teams, due to high cost of hiring experienced talents, and the same challenge cuts across other specialty areas of their business. Their inability to afford expert support services jeopardizes the growth and sustainability of their ventures, such as high workforce turnover, legal penalties for non-compliance, poor technology to scale up their business, etc.

Tech founders also require capacity building to improve their competency in strategy development, recruitment, and team management as they continue to scale their businesses in the market. The current program structure from most entrepreneurship support organizations (ESOs) in Tanzania do not consider post-ideation venture building support that is very critical to building scalable and investment ready ventures.

Science, technology, engineering, and mathematics (STEM) training

There are few players in the STEM sector in Tanzania due to low traction from the ecosystem. Most STEM institutions are focused on providing training and space to primary and secondary school students. The ecosystem is yet to identify how STEM programmes can be embedded into entrepreneurship development programmes. Also, institutions running STEM programmes are facing sustainability challenge and are trying to find viable business models to continue running their operations.

Access to early-stage investment

The entrepreneurship ecosystem in Tanzania is still facing challenges to attract external funding for entrepreneurs. In particular, one of the critical gaps is the lack of angel investment activities within the local ecosystem as well as the existence of competitive grant processes that supports a variety of start-ups to continue developing their ventures.

Early-stage funding opportunities are usually provided through impact funding and angel investing, to support entrepreneurs in developing their ventures to a level where they can qualify for bigger investment ticket sizes. Pre-seed funding could be facilitated by local institutions, while building an investment pipeline for entrepreneurs in the ecosystem. Enterprise support institutions can also play a significant role in facilitating investment connection between entrepreneurs and relevant early-stage investors. See more under recommendations section.

Focus on international markets

There is little focus on international market connection in the ecosystem. Most of the institutions interviewed either do not have plans to provide international connection for the entrepreneurs in their community or they are yet to start providing such support. The institutions that are currently empowering their entrepreneurs to scale beyond borders are National Economic Empowerment Council (NEEC) through international trade fairs, Sahara Ventures through events and investment matching, ICT Commission in ICT exchange programmes and Ennovate Hub through trade facilitation.

To strengthen entrepreneurship development in the ecosystem, there is a need to encourage scalable businesses that has the capacity to do business across borders. Start-up support institutions should be capacitated to facilitate international market connection for entrepreneurs in their community. This will help entrepreneurs tap into a larger market, build valuable partnerships and become more viable for external investment opportunities.

IDENTIFIED OVERLAPS

Most institutions are supporting entrepreneurs in the idea and early stage

Over 70% of institutions interviewed provide capacity development to idea and early-stage entrepreneurs. Most of the support from these institutions ends at pre-revenue stage, which makes it more challenging for entrepreneurs to successfully scale into the market. There are handful of institutions that are providing venture building and mentorship support to post-revenue entrepreneurs. Overlap of programmes do not enable start-ups to receive support across start-up development stages, which hinders entrepreneurs from qualifying for external funding to commercialize their businesses.

This overlap can be partly explained by the fact that most of the funded projects focus on early-stage support and therefore encourage this type of support within hubs looking for funding. However, institutions in Tanzania require capacity building to diversify their services, from ideation to growth stage. Entrepreneurs from the focus group noted that they require more business management and mentorship support from hubs to guide them from proof of concept to commercializing their ventures. This has remained a critical need for entrepreneurs to successfully navigate through the 'valley of death' stage of their entrepreneurship journey.

Replication of entrepreneurship training programmes

According to the institutions interviewed and entrepreneurs that participated in the focus group, there are high rate of replication of training content in the ecosystem. From the table of services provided in Figure 3, it is noticeable to see high concentration of early-stage programmes, especially in the ideation stage. Entrepreneurs are accessing the same type of training content from one programme to another. This has reduced the interest of entrepreneurs to participate in capacity building trainings in Tanzania. Replication of programmes continue to occur mostly because the institutions work in silos while designing and implementing their programmes.

Another reason why institutions are replicating training programmes is due to lack of specialization by ESOs. The hubs find themselves designing programmes based on funding opportunities available. This is also ascribed to sustainability challenges faced by the institutions, as they are constantly seeking for funding opportunities to continue running their operations.

The ecosystem is also lacking structure to track hubs' activities, to understand what programmes exists in the ecosystem and how each hub can align systematically to complement each other, rather than replicating efforts. Ecosystem actors, including funders, are missing the holistic view of the ecosystem to avoid overlaps and ensure there is sufficient support in each stage of entrepreneurship development.

Entrepreneurs support Institutions are mostly working in silos

Several institutions interviewed highlighted that ecosystem enablers in Tanzania are mainly working silos, which had led to replication of effort within the ecosystem. Although there has been some progress in building a collaborative culture among the institutions in recent times, a large part of the institutions are yet to fit into the idea of collaborating with other stakeholders in designing and implementing programmes. On the other hand, most of the collaborations in the ecosystem are not inclusive, only a small set of organizations partner to implement different programmes, while other smaller institutions are left out from such partnerships, which do not allow diversity and growth for other institutions. The collaborations revolve around same circle of stakeholders.

There is no inclusive collaboration culture in the ecosystem, which hinders the growth and capacity development of hubs that are not connected to the 'high level circle' of institutions in the ecosystem. There is a need to expand collaboration linkages and support system to reach smaller hubs and provide the same level of support to all entrepreneurship players in Tanzania.

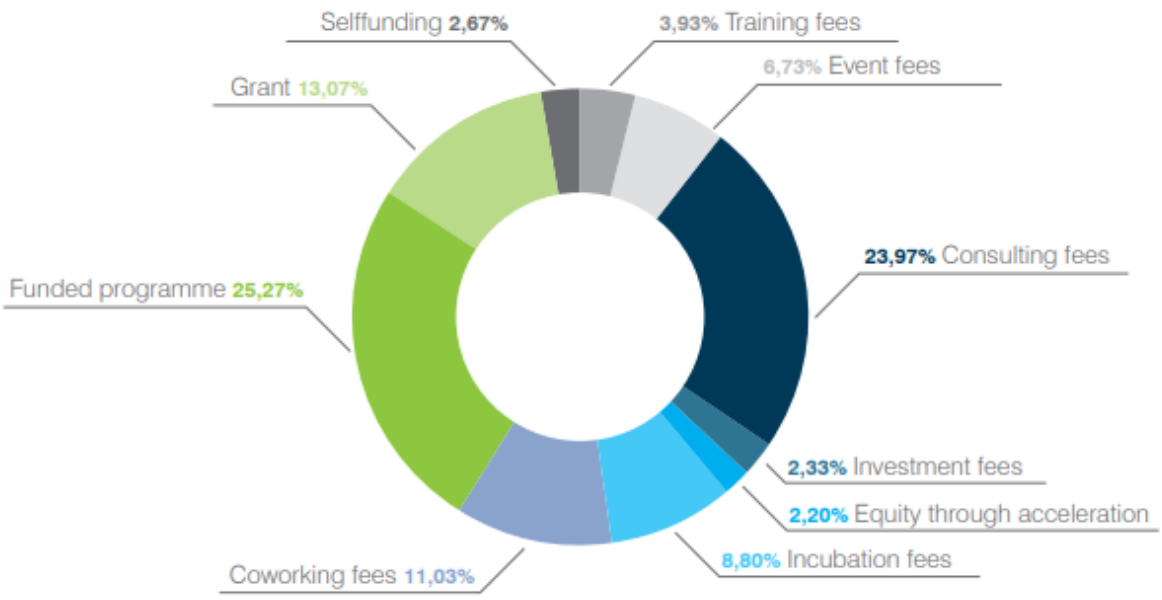
To ensure training quality, hubs need to collaborate to implement programmes and, support less experienced hubs with peer knowledge sharing and capacity building support. This will increase their competencies in providing standard business development and management training to entrepreneurs.

Sustainability of entrepreneurship support institutions

Institutions supporting entrepreneurs in Tanzania are also experiencing similar challenges to find sustainable models for their programmes. Whilst entrepreneurs seek for both business training and early-stage funding from hubs, ESOs have limited resources to provide holistic support to entrepreneurs in their community. This is attributed to the fact that most institutions are not clear on the right business models that will ensure sustainability of their programmes and operations.

Most funding coming to the institutions are programme based, mainly from donor organizations, to support their cohort-based programmes. The funding runs out once the programmes close, which leaves the institutions in a survival state until they get more funding from donor organizations. Only a few of the hubs have been able to diversify their business model through monetizing co-working spaces, offering innovation consulting services and hosting paid events. The ITC report on Supporting Start-ups Tech Hubs in Africa, highlighted best-practice business models for Tech Hubs. Some of the models are grants from donors, government and corporates, consulting fee from services provided to client, event management, revenue sharing with start-ups, investment success fees, training fees, co-working space, programme-based funding and equity from acceleration support to start-ups. For hubs to be competent enough to implement some of these models, there is a need to develop capacity building training programme for hubs to improve the knowledge and expertise in developing a more sustainable business model.

Figure 3: Revenue generation sources for Tech Hubs



Source: ITC Tech Hubs Report: https://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/ITC_TechHubs_Africa%20Folder_20200701_web02.pdf

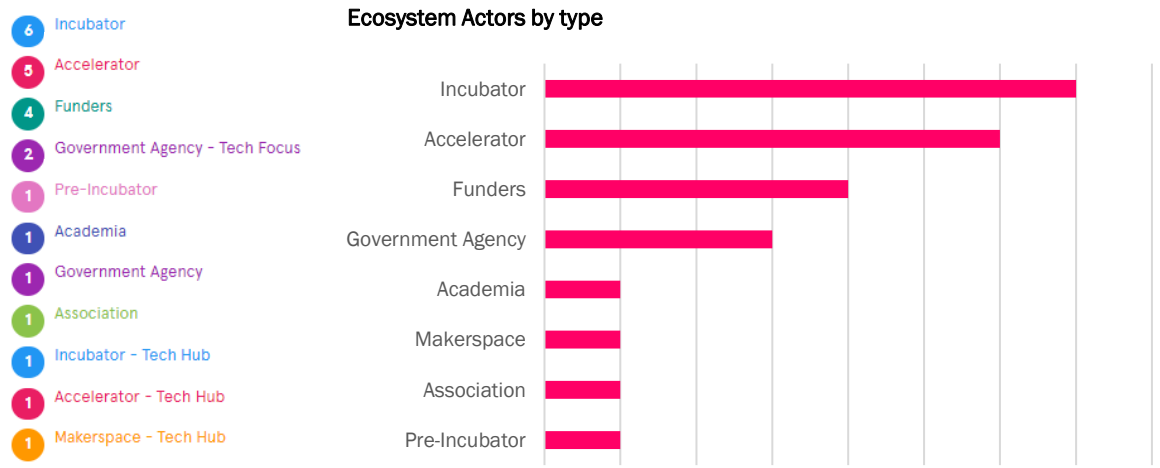
3. NETWORK ANALYSIS

The following section summarizes the findings of the network analysis as well as the conclusions drawn about the community within Tanzanian tech entrepreneurial ecosystem. The analysis provides insights on density, centrality and three types of network connections: information sharing, funding and, service provision collaborations.

ECOSYSTEM NETWORK ANALYSIS

The information below summarizes key features of the network:

INSTITUTIONS CONNECTING IN THE NETWORK



This Network analysis has identified five institutions fully focused on promoting Tech entrepreneurship: COSTECH, Ennovate Hub, ICT Commission, Robotech Lab and, Sahara Ventures. Despite most of the institutions active in the network are private initiatives, when looking at tech support, the private sector is still more predominant.

Considering the overall network level, incubators are more predominant than accelerators and funding support. In particular, accelerator initiatives are more recent, smaller and less connected in the ecosystem when compared to public sector led initiatives or incubators.

The categorization of incubator and accelerator is described in the graph below.

CONNECTIONS IN THE NETWORK

Connections on information sharing are most common among actors. Though it indicates some intention to collaborate, stronger connections such as service delivery collaborations are less predominant. It is common for institutions in the network to operate in silos due to overlapping roles or missing strategic clarity in the institution.

NETWORK DENSITY

Measured using the ties between actors, which represent interactions within the ecosystem, the study establishes that connections within the ecosystem are not at their full potential.

The density of the Tanzanian network, which describes the portion of the potential connections in the network that are actual connections, is relatively low. Comparing the number of actual connections to the number of potential connections, Tanzania remains at the lowest end, scoring 0.347 (`1` being the highest possible density number, and `0` the lowest). Looking at 'well' connected actors (defined as catering for more than five connections), the network remains loose.

This figure can serve as a baseline for the ecosystem to increase connections. In this case, this would translate in more connections with already stablished actors. Specific connections are examined later on in this section.

Tanzania's tech ecosystem – Network density:

INSTITUTION CENTRALITY

About the measures:

Institution nodes are ranked according to betweenness centrality. This type of centrality, measures how many times a node (institution) acts as a gateway in the network. The higher the betweenness centrality of an institution, the more paths run through that entity to connect two other actors. When an institution has a high betweenness centrality, and therefore a bigger node size in the map, it means that a node is a key bridge or facilitator between different actors.

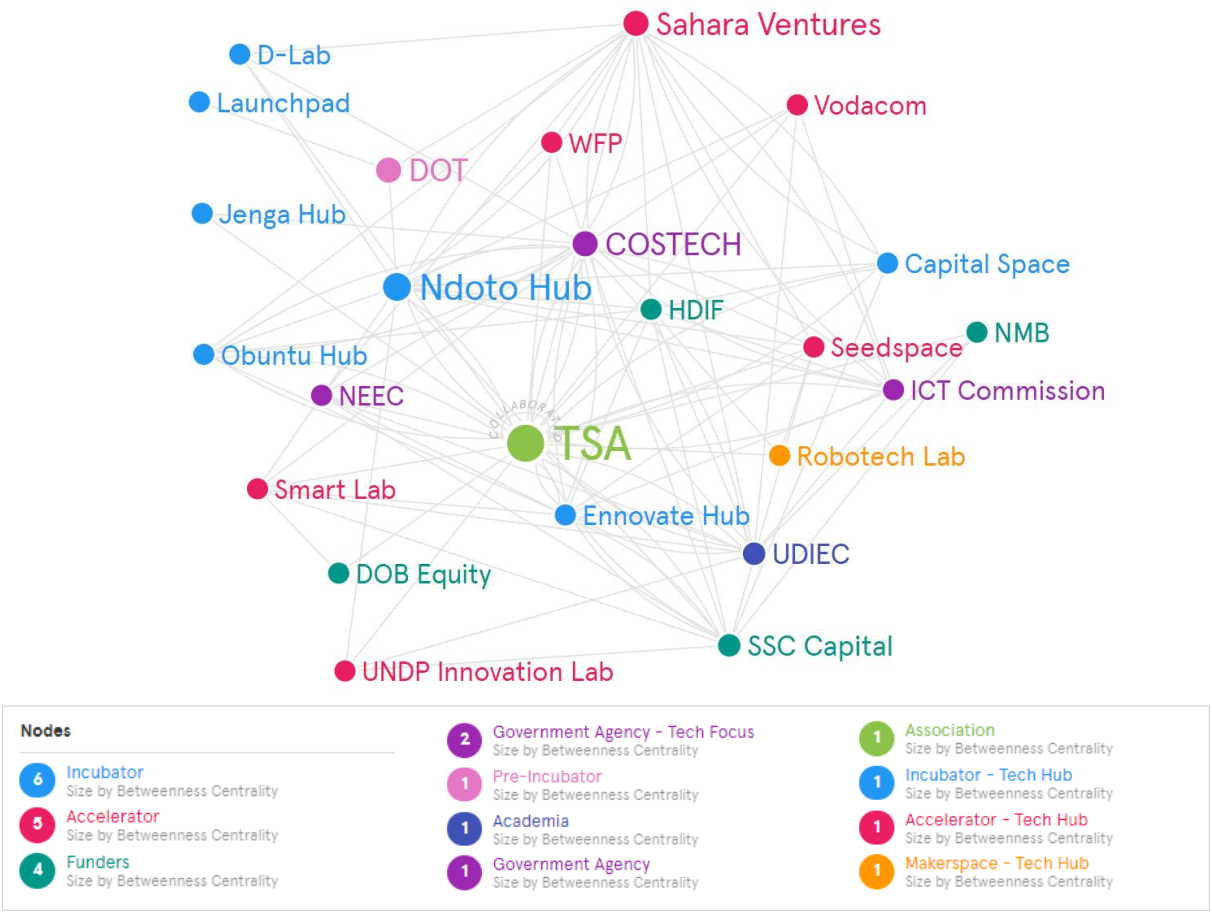
Overall, it measures how often an institution appears on shortest paths between nodes in the network. Institutions with high betweenness may have considerable influence within the network by virtue of their control over information passed between others. They are also the ones whose removal from the network will most disrupt communications between other institutions because they lie on the largest number of paths taken by messages.

This report has also evaluated degree centrality, defined as the number of links upon a node (i.e., the number of ties that a node has). This indicates which institutions have built a bigger network for themselves but does not provide insights on their work as ecosystem builders.

Figure 4 shows the overall network of institutions supporting entrepreneurs in Tanzania. The size of the nodes (institutions) corresponds to their betweenness centrality score (the higher the node, the higher the betweenness centrality).

Overall Network

Figure 4: Tanzania's Tech Ecosystem Network



Deeper analysis of Figure 4 indicates the following possibilities for growth in the network:

Potential connections

Table 1 provides an overview of institutions acting as bridges to expand and strengthen the ecosystem network (ranked by betweenness centrality). This indicates that when connecting to these institutions, actors will potentially improve their reach to less connected actors in the ecosystem. If a new or existing actor connects and collaborates with Tanzania Startup Association (TSA), Ndoto Hub, Sahara Ventures or Digital Opportunity Trust (DOT), connections to small scale or recent actors in the ecosystem have the potential to improve.

Table 2 provides a ranked list of institutions with a strong individual network (degree centrality). These institutions have a large network as a result of a successful positioning. When connecting with them, actors might be able to increase visibility and access new opportunities. However, when compared to Table 1 they might not necessarily provide support to reach new or emerging actors (less connected) in the ecosystem.

Overview of Actors by Betweenness Centrality	*(High bridging capabilities)*
TSA	80.81
Ndoto Hub	35.5
Sahara Ventures	25.84
DOT	22
COSTECH	22

Table 1: Raking by betweeness centrality

Overview of Actors by Degree Centrality	*(Strong individual network)*
TSA	33
COSTECH	22
Ndoto Hub	18
Sahara Ventures	17
UIDEC	14

Table 2: Raking by degree centrality

When looking at the distribution of the results (see Annex II) TSA appears as an outlier specially with regards to betweenness centrality (bridging capabilities), this showcases the key role of the association as a key ecosystem enabler and potential ecosystem leader. Despite having four additional institutions (as listed above) with high betweenness centrality figures, overall, institutions in the network have low bridging capabilities to ensure the network is connected and diverse.

Institutions have the potential to increase their presence in the ecosystem by:

- Increasing the overall number of connections by sharing information with other actors, proposing collaborations to deliver joint services and supporting other institutions to deliver on their mandate. Connecting to highly connected institutions, such as the Tanzanian Startup Association would immediately boost connectivity and density in the ecosystem.
- Identifying key partnerships to play a bigger role in the ecosystem. Look for actors not yet included in the network (national and international) and bring them in through collaborations and information sharing. When additional institutions are included in the network, institutions connected to new actors increase their bringing capabilities and therefore their relevance within the ecosystem.

Access the interactive Network map here. Or scanning the following code:

1. What are the main connections in the network?

Connections concentrated in Dar Es Salaam

Most institutions supporting tech entrepreneurs in Tanzania are located in Dar Es Salaam and have limited potential to reach entrepreneurs in other regions of the country. While some of these institutions have undertaken initiatives to reach rural entrepreneurs and those based in other regions through online training and mentoring programs and e-platforms, online solutions remain a challenge due to network connectivity and lack of engagement. As the need for entrepreneurship development continues to grow in the regions, institutions are slowly setting up physical spaces in the regions, and as well working with regional representatives, key focal points, schools and universities to reach the entrepreneurs Government bodies with regional offices are also playing a key role in strengthening entrepreneurship activities in the regions.

Figure 5: Regional presence of institutions supporting entrepreneurs in Tanzania

Source: https://innovate.co.tz/

To inform the ecosystem and track new support initiatives, the Tanzania ecosystem has created an open-source platform to capture all institutions present in the ecosystem. Institutions included the innovate map but not reflected in this report might not have a tech support component or might not be sufficiently connected to the core network of support providers.

Innovators Map is an open source tool for all ecosystem stakeholders in Tanzania. Easily find other stakeholders. Explore and use our data and generate insightful maps, charts, and reports. It has a promise to grow both in the way it benefits innovators and all other stakeholders but also in terms of the rapid expansion of the community around the innovation ecosystem, this is the tool that will put Tanzania ecosystem on the world map, due to the easiness of understanding the state of ecosystem and progression in specific areas over the years which will undoubtedly in turn be the catalyst to increased faith from investors and other key players around the globe.

Visit the website: https://innovate.co.tz/

Potential growth through connections with academia

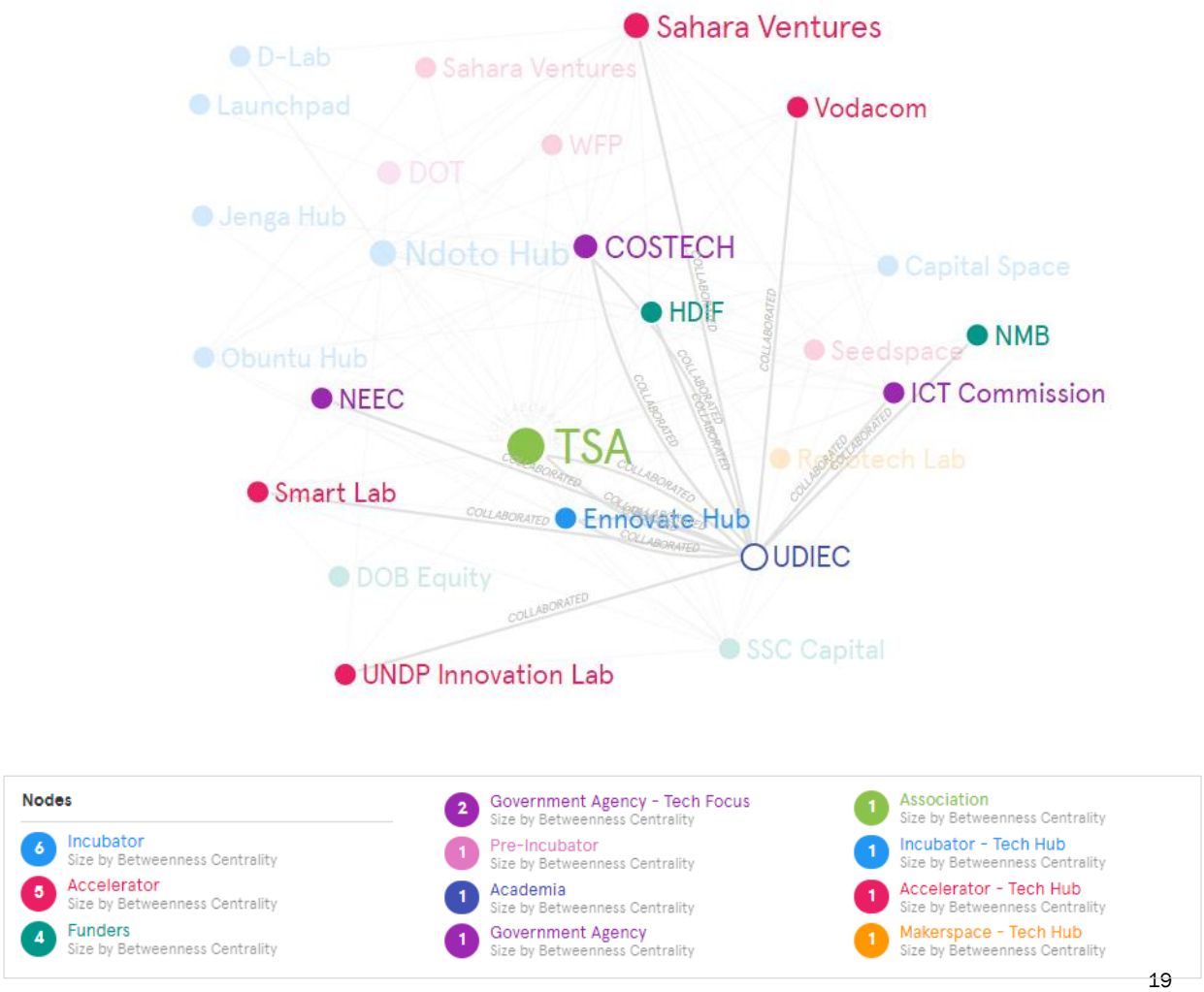
The network analysis points out a strong lack of connections between Tanzanian universities and entrepreneurship support institutions. While Tanzania is still working towards recruiting entrepreneurs, this lack of connections and collaboration is detrimental to raising awareness and attracting students to entrepreneurship. Indeed, partnerships to raise awareness among students are crucial and, in this regard, several areas of collaboration are still unexplored.

Whilst, at the time of the report, there were some University-led hubs emerging, only the University of Dar Es Salaam was sufficiently connected to be part of the ecosystem network as partner for information sharing and service delivery. This can be explained by two factors:

1) The ecosystem does not prioritize universities as key partners: Hubs lack awareness and success stories to see the potential learning and innovation opportunities to collaborate with academia.
2) The ecosystem struggle to welcome new institutions to the network: Only institutions operating in the country for several years are part of the network. This can be partly explained by the existing silos the lack of collaborative platforms to communicate as an ecosystem.

Further, according to the interviewed sample of institutions, there is an increasing interest from universities to start their own innovation and entrepreneurship centres. With this increased interest, there is potential for existing institutions in the ecosystem to support the emergence of these new hubs and to focus on providing support services to cover the existing gaps in the ecosystem.

Figure 6: Tanzania's Tech Ecosystem with focus on academia



Tech only support initiatives

Whilst tech only initiatives are mostly linked, tech focused institutions are scarce. This can be partly explained by the fact that other institutions in the ecosystem consider tech support as a crosscutting need for all entrepreneurs and therefore, do not perceive the need to specialize further.
The consideration of tech as crosscutting can be particularly relevant when supporting technological applications in conventional sectors. For example: e-commerce, marketplace, classifieds, adtech, agtech, autotech, cleantech, edtech, fintech, healthtech, real estate tech, regtech, space tech, marketing tech (loyalty apps), transportation, travel, and tourism tech (Source: occstrategy.com). However, the ecosystem should also consider increasing support for those startups developing solutions related to emerging sectors such as: big data / data & analytics, virtual / augmented reality, gaming, internet of things, smart home, cybersecurity, blockchain, robotics and drones.

Figure 7: Tanzania's Tech-focused Ecosystem

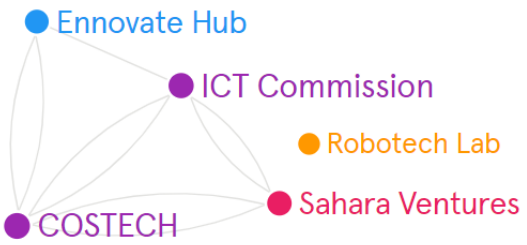
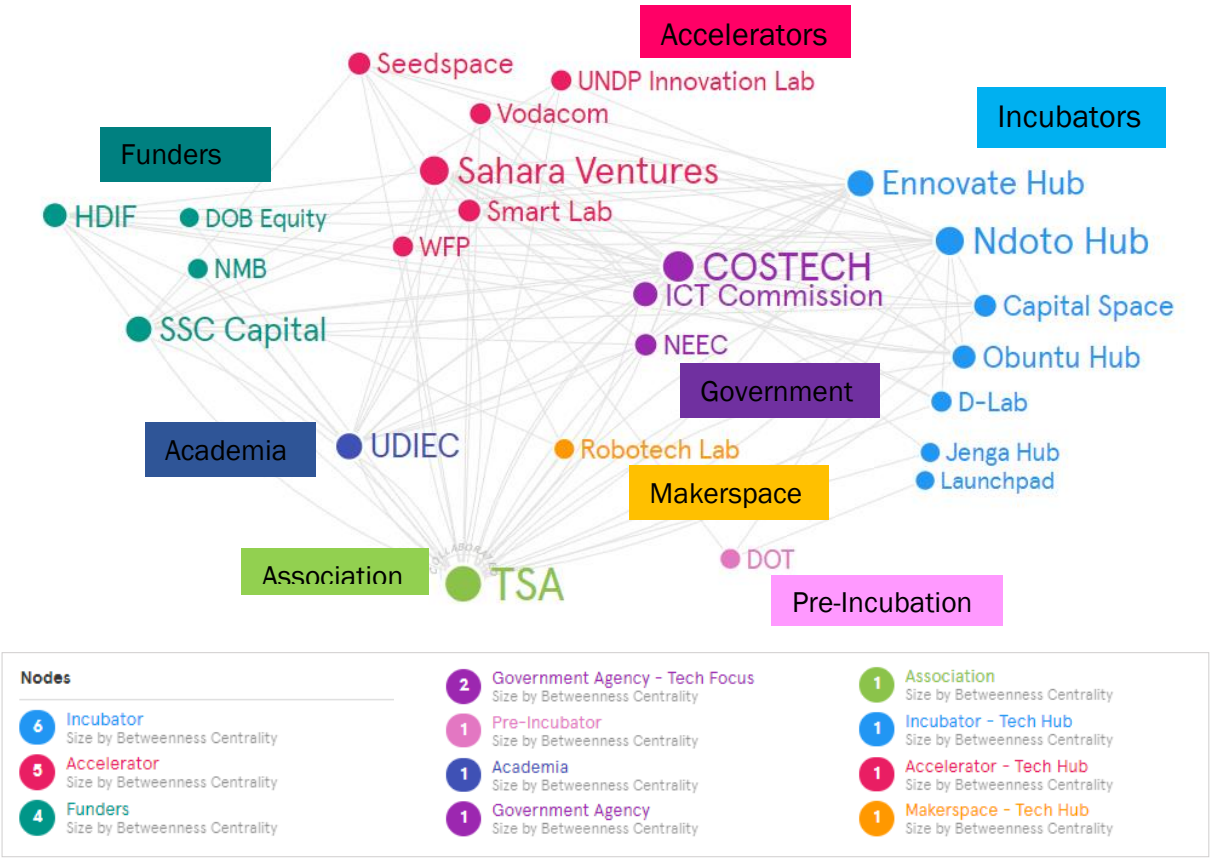


Figure 8: Tanzania's Tech Ecosystem by ESO type



2. What are the different types of connections?

The following table summarizes the characteristics of the linkages (edges) connecting each institution (node):

	Description	Linkages	Main barriers	Potential improvements
Information exchanges	Exchanges such as database of entrepreneurs, referrals, events participation or market intelligence.	High	There is no formalized platform (with a structured plan and coverage) that connects institutions in the ecosystem to monitor activity and upcoming events.	Use of collaborative platform and entrepreneurship forums to ensure regular communication *(see recommendation on "Overcoming silos and strengthening cooperation")*
Service delivery collaboration	Support for trainings, such as training material, training staff and events coordination.	Medium	Ecosystem actors provide very similar services which reduces the need to join forces to offer a more complete service. In addition, competition for visibility and funds hinders further collaboration	Institutions in the ecosystem should address the gaps and overlaps identified in section 1 of this report to improve their positioning and offer unique services in the ecosystem. In addition, the use of collaborative platforms to communicate with other ecosystem actors could potentially address communication gaps *(see recommendation on Extending the existing service offering to cover more entrepreneurial stages)*
Financial collaboration	Exchanges of funds happening between institutions (not funds given to entrepreneurs). This is the case for institutions offering financial support for events to other institutions or logistics support.	Low	Institutions compete for funds due to donor dependency and are reluctant to act as bridge institutions to channel funds and share potential projects.	Collaboration should be included as a requirement to access funds from donors. An ecosystem approach could benefit both the donor agency and the support institutions who would be incentivized to collaborate and therefore explore synergies. Further specialization of ecosystem actors would also increase complementarities between different ecosystem actors. *(see recommendation on Diversifying funding models to ensure long-term stability for ESOs)*

Table 3: Network edges analysis

3. USER EXPERIENCE ANALYSIS

Analysing the entrepreneurship ecosystem of a country requires not only the insights of its institutional actors but also that of the entrepreneurs or "users". Interviews were conducted with a selected group of young entrepreneurs in the tech sector to complement the above network analysis. This section provides an overview of the user experience in terms of support received, by which institutions, and what is next in their entrepreneurial journey.

The following box presents the profile of the 28 young entrepreneurs who participated in the focus group discussion on 27th February 2021. All of them with a business in the tech sector.

Gender:

M: **46%** W: **54%**

Age range:

-24: **50%**

25-29: **39%**

30-35: **11%**

Sub-sectors:

39 % AgriTech

18 % ICT

14 % EdTech

29 % HealthTech

Based on the insights gathered from the entrepreneur interviews, the following key trends can be outlined regarding the user experience in the Tanzanian entrepreneurship ecosystem. These trends also confirm findings of ESOs interviews and desk research.

Entrepreneurs are seeking for venture building focused programmes

All the entrepreneurs from the focus group noted that most of the support programmes in the ecosystem are short term programmes, which do not provide enough time for them to gain the needed skills, knowledge and guidance to successfully launch and validate their business in the market. The short-term nature of the programmes also does not give the facilitators enough time to cover key business development areas and mentorship that is critical to the success of their ventures. The programmes are mostly focused on classroom trainings without proper market development support from the hubs. To ensure higher success rate of entrepreneurs in Tanzania, there is a need for innovation hubs to rethink and remodel the support programmes to meet the needs of early-stage entrepreneurs, rather than ideation stage entrepreneurs as we have most entrepreneurs in the ecosystem struggling with gaining commercial traction in the market.

Building capacity of hub managers and programme facilitators is critical to the quality of available trainings

Insights from the entrepreneurs showed that although there are available business development training opportunities from several ESOs, but there a question of quality and standardization of training content. The entrepreneurs noted that most hub managers and facilitators are not entrepreneurs, and as such they do not have practical experience in advising or training start-ups. Specific capacity building programmes should be designed to upskill hub managers and facilitators to boost their competency in providing enterprise support to entrepreneurs in Tanzania. They also noted that the hub programmes should be standardized to provide growth guideline for entrepreneurs and to ensure less replication of programmes by innovation hubs in Tanzania.

Business training and mentorship ranked high on the needs of early-stage entrepreneurs

More than half of the founders during the focus group explained that most entrepreneurs do not have the right business knowledge to lead a successful enterprise. Most founders are either tech developers or passionate young person with little or no prior business management experience. This has remained a strong factor that is hindering sustainability and scalability of their businesses. They emphasized the need to have a more sector-focused business management trainings to equip them with key business knowledge, especially in marketing, financial management and leadership. They also mentioned that having sound business competency will be an added advantage while seeking for external investment. Mentorship is also

an area that sparked their interest during the focus group, where they highlighted the importance of getting matched to industry expert to mentor entrepreneurs in their early-stage entrepreneurship journey. The mentorship will help entrepreneurs navigate through challenging process of building their ventures and also support their decision making through partnerships, hiring the right talents and business management.

Government regulations plays a crucial role in the growth of entrepreneurs

Entrepreneurs also mentioned that government regulations are critical to the growth of their ventures. Without the availability of start-up act, tech entrepreneurs are subjected to follow long, complex and high-cost regulatory policies that are not favourable for early-stage businesses. The ecosystem, led by Tanzania Start-up Association, is now working closely with the government to review current policies and explore better regulatory framework that will provide a more business friendly environment for entrepreneurs to thrive. The entrepreneurs highlighted on the need of having sandbox licenses to allow them to pilot their innovations while validating their business models in the market. Policies on tax exemption for bootstrapping start-up was also an area that was noted by the entrepreneurs.

Accessing finance remains a challenge for entrepreneurs

Entrepreneurs from the focus group unanimously agreed that access to finance remains one of the biggest challenges they face on their entrepreneurship journey. They indicated that financing options and opportunities for entrepreneurs remain very limited, especially for early-stage entrepreneurs. In Tanzania's entrepreneurship ecosystem, the major source of funding for most entrepreneurs are still personal savings and funds from family and friends, while some entrepreneurs are able to access grants through competition to continue growing their businesses. External investment deals are still on the low in Tanzania, as we see a deal gap between the type of investment available and the capacity of the start-ups to access such cheque size. Most entrepreneurs in Tanzania are more qualified for angel investment rather than VC funds.

Some entrepreneurs identified the lack of training opportunities and programmes to build market traction as a barrier to accessing finance. They indicated that many young entrepreneurs are denied funding by investors and financial institutions, mainly because they are not equipped enough to present the commercial value of their business to an extent where investors are interested to stake their funds. Investment readiness programmes should focus more on engaging investors during the programme to better help entrepreneurs understand the needs of investors and how they can work on improving their business value proposition, to become successful in raising funding from investors.

Entrepreneurs' connection with institutions and other start-ups

Entrepreneurs from the focus group mentioned that they are either receiving or have received some level of support from hubs in Tanzania. About 75% of the entrepreneurs started their entrepreneurship journey from incubation programmes.

The entrepreneurship journey in Tanzania ecosystem is mostly daring and challenging from the inception, where most entrepreneurs will have to compete to join ideation programmes to shape their ideas. With low inflow of external investment into the ecosystem, most entrepreneurs result to using personal/family savings and friends support to launch out their business, which limits their ability to scale up quickly.

The hubs highlighted by the entrepreneurs as more active in service provision were Ndoto Hub, Ennovate Hub, COSTECH, ICT Commission Accelerator, University of Dar Es Salaam Innovation and Entrepreneurship Centre (UDIEC), DOT Tanzania and Seedstars (Seedspace). The entrepreneurs also highlighted that institutions should amplify promotion of their programmes to reach more entrepreneurs that are not connected to the ecosystem.

Just a handful of entrepreneurs are collaborating with other start-ups within the ecosystem to do business. The collaboration culture among start-ups in Tanzania is low because entrepreneurs do not have the flexibility in exploring mutual value proposition to work together. Just about 7% of the entrepreneurs from the focus group confirmed that they are partnering with other start-ups to do business.

4. RECOMMENDATIONS

Based on the service mapping, identified gaps and overlaps, network analysis and user experience analysis, this section summarizes the six key high-level recommendations to support the growth and success of the Tanzanian tech entrepreneurship ecosystem. These recommendations are intended as guidance to the local ecosystem actors.

1. Overcoming silos and strengthening cooperation

Tanzania has a wide range of institutions active in the country. The network analysis shows that some of them have strong, long-standing, personal connections with each other. Others, however, are situated on the periphery of the network. To stimulate innovation, strengthen (regional) connections and foster a collaborative spirit, institutions are encouraged to engage and connect to form a cohesive network of supporting institutions. This could be achieved through an online platform which brings together all actors of the ecosystems. An example is the Ye! community, where hubs are able to exchange experiences and discuss challenges with peers, receive targeted advice and expert support. Moreover, they will have access to different events and various opportunities.

About ITC's Ye! Community

The Ye! Community is a global community supporting youth entrepreneurs (35 years old or younger) to build sustainable and resilient ventures.

The Ye! Community not only supports a global community of youth entrepreneurs but also hosts a network of more than 400 hubs. The hubs are active in a variety of different sectors and countries. The online community platform provides a space for connection and networking, while also providing access to experts, resources, tools, learning materials and more.

From the List of services by institutions, it becomes visible that many of the institutions provide a similar portfolio of services which are designed for similar target groups. This can partially also be attributed to a strong growth of the ecosystem in the past years which has not yet led to a consolidation of services. At the moment, there are only a few dedicated institutions with a sector-specific focus – most of them remain sector agnostic. Such a setup might lead to competition for clients and funding as well as to the training fatigue of entrepreneurs. Therefore, institutions are encouraged to sharpen their current offering and value proposition, internally and externally, to clearly communicate their value-added and core expertise. Capacity building for hubs should aim to support in (re-)defining organisational strategy and value proposition for hubs based on the entrepreneurial needs and individual expertise as well as improving outreach capacity.

Using a platform and sharing information, could lead to a deeper understanding of the current status quo of entrepreneurial support trainings - replications, overlaps and gaps could be identified. Through a stronger cooperation and complementarity in selecting, designing and delivering programmes, these could be overcome, the value-proposition sharpened, and the depth of the provided support could be promoted. The ecosystem should appoint a Network actor to play a leading role in the initial engagement in such a platform.

2. Extending the existing service offering to cover more entrepreneurial stages

To increase the success rate of startups, the current service offering of ESOs needs to be expanded towards more technical and needs-targeted training, especially regarding general business and management skills. The need to increase business knowledge leading to a successful enterprise was particularly mentioned in focus group as often founders are strong experts in their fields but not necessarily well-equipped managers.

Developing more targeted and longer-term programmes, requires at the same time that the personnel engaged in the training have the required skill set. There are many possibilities to increase the technical expertise of hub teams. Partnering with high-profile, experienced professionals from outside the organisation, engaging with previous clients on a sporadic or pro-bono basis. Similarly, institutions can focus on engaging experienced experts and independent consultants who can deliver in a credible manner the respective training content. These experts could also be engaged in a Training of Trainers (ToT) to upskill hub managers and facilitators.

The objective to provide better targeted and specialized programmes, is closely linked to an improved segmentation of the current entrepreneur groups. Identifying and recognizing different entrepreneurs' needs and adapting service offer accordingly will translate into more targeted and diverse programmes, including the support at growth and internationalisation stage.

To provide high and added value, programmes could also be co-designed with other hubs (based on their expertise and value proposition to the ecosystem) or with the support of emerging academia initiatives such as innovation programmes hosted at universities. A successful transition to the later stage of start-up support with a focus on making start-ups investment ready will render the Tanzanian ecosystem more visible and attractive in a regional comparison. Further, this might also create more success cases to be showcased which encourage more youth to take the entrepreneurship route.

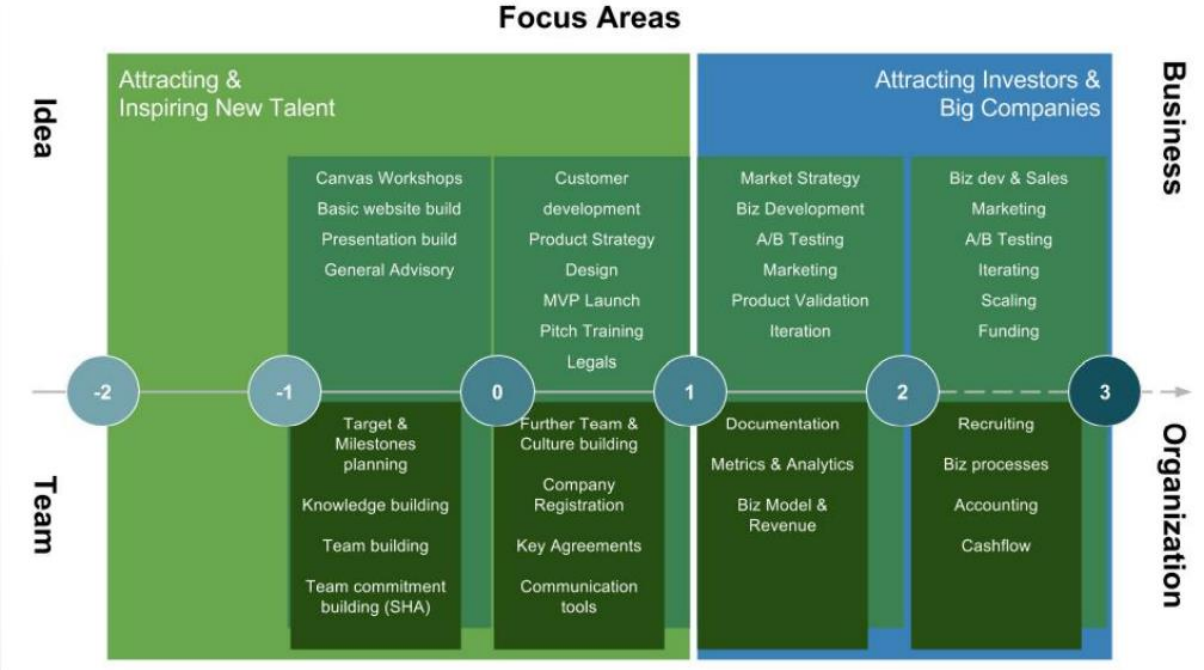


Figure 8: Focus areas for hubs based on startup growth stages

Source: Startup Commons

Examples of online resources for Accelerator programmes curriculum development:

- 500 Startups https://www.growth.500.co/
- Open Accelerator Program https://openaccelerationprogram.com/
- Startup Commons https://www.startupcommons.org
- Young Foundation https://youngfoundation.org/

3. Building entrepreneurial mind-sets

Involving Academia

The network analysis highlights that academic institutions in Tanzania are not sufficiently involved in the promotion and support of entrepreneurship as there is a strong lack of connections between Tanzanian universities and entrepreneurship support institutions. At the same time, certain institutions already have strong connections to academia, particularly the ones located in Dar es Salaam or Arusha. To inspire entrepreneurs from an early age and focus on technical skills required to start-up and succeed with a business, institutions could engage with universities and colleges, especially in rural areas. Opportunities to collaborate lie in the setup of innovation and entrepreneurship centres, extra-curricula activities as well as in in-class interventions, career fairs or challenges to connecting students with entrepreneurs and to support institutions, build the respective mind-sets and promote an entrepreneurial spirit. To increase outreach and foster collaboration, this cooperation could also be implemented with several hubs. The different start-up cohorts could also share best practices and learn from failures and success stories. In cases where universities themselves plan to set-up new innovation and entrepreneurship programmes, they should also take into consideration a primary analysis of the current support offering in their region to avoid duplication and instead developing innovative methodologies and unique offerings which further enhance the current offering.

Promoting a gender lens

As the tech sector still is mostly a male-dominated industry, the engagement of women could be promoted further by providing dedicated services and safe spaces to develop and encourage their ideas. Existing offerings such as the Shefound acceleration programme for women could be replicated.

Four key steps to improve support for women entrepreneurs:

1. Improve access to and development of financial and human capital
   - Creating incentives for individuals and organizations to invest in women-owned companies through venture funds, corporate venture, private equity and social capital
   - Modernizing existing government certification, grant and loan programmes that help women-owned businesses compete to reflect changing investment models
   - Creating new sources of capital, such as crowdfunding and impact investments
2. Facilitate connections by increasing access to local and global networks and markets
   - Support mentorship efforts, through financial support; encouragement of multiplier platforms such as accelerators; continuing education and training programmes; and facilitated networking events
3. Help entrepreneurs embrace diversity in their hiring, culture and thought
   - Incentivizing leaders to approach diversity as a core business strategy, and to integrate diversity with other priority business drivers and talent management strategies
   - Encouraging leaders to recognize and address the role of bias - both conscious and unconscious - through training programmes
   - Promote positive success stories of female founders and diverse business owners through the media, conferences and leadership movements
   - Encourage diversity on boards, in venture partnerships and on executive teams
4. Support women's entrepreneurial growth in the face of changing technology
   - Emphasizing science, technology, engineering and mathematics subjects (STEM) and digital literacy in education and early training programmes
   - Increasing awareness among women of the hardware, software and digital resources they can access to scale their companies

Source: https://www.weforum.org/

4. Diversifying funding models to ensure long-term stability for ESOs

To generate income beyond donor and grant funding, there are several options to diversify revenue streams internally such as membership dues and training or service fees as well as externally through as consulting and research. There are also options such as engaging in collaborations with the private sector to source partners to subsidize running costs, charging for (the management of) events as well as renting out co-working or event spaces and asking successful entrepreneurs for a (small) return after they have started

creating revenues, is also an interesting stream to create income. A sound financial and human resource management is indispensable to ensure long-term sustainability and independency of third parties.

Whilst it is critical that ecosystem hubs find alternative sources of funding, donors and development agencies have also a role to play to ensure collaboration and hubs sustainability. Development agencies providing grants should actively encourage collaboration between hubs to deliver projects. For example, requesting joint proposals where hubs must clearly assign themselves an area of expertise or clarify their institution's positioning within the ecosystem. Agencies providing funds could also aim to diversify their beneficiary institutions, looking at the ecosystem and finding a balance between high performant institutions and those with growth potential. Supporting and promoting less well-known hubs or organisations afar from the main entrepreneurship clusters could lead to an increased inclusion and more innovation by creating new ties and connections.

5. Diversifying funding opportunities for entrepreneurs

As mentioned in section 3 on user experience, entrepreneurs themselves also struggle to sustain their business and find funding opportunities.

1. One key barrier identified is the inactivity of the Tanzanian Angel Investor Network. Despite being created, the network is not currently active nor promoted within the network. Hubs in the ecosystem could offer support to reactivate the network, create awareness around angel investment, partner with other international hubs or networks to learn best practices and support the training of angel investors to generate appetite and increase the understanding of key roles and responsibilities of angel investors.
2. Another unexplored source of funding for entrepreneurs, where hubs can offer support with, is the creation of linkages between start-ups and established private sector companies. The increasing presence of CSR funds within big corporations is an untapped opportunity, especially for tech entrepreneurs. More linkages and connections could be created to pitch opportunities to corporates and to identify synergies between corporate needs and start-up ideas being developed.
3. Other alternatives being consider but not fully explored in the ecosystem are: crowdfunding platforms, results based financing, seed capital, venture debt, convertible notes, equity investment, scholarships.

However, funding opportunities need to be accompanied by additional training to entrepreneurs to build their case in front of investors and funding institutions.

6. Strengthening policy coordination to foster an enabling ecosystem

To promote a conducive institutional ecosystem and foster entrepreneurial success, government regulations should further aim to support innovation and approaches to create an enabling regulatory framework.

In this regard, the Tanzania Startup Association (TSA), as an entrepreneur-led institution, has the potential to take the lead to echo the voices of entrepreneurs and to collect and coordinate voices from other supporting institutions in the ecosystem. TSA is currently engaged with i4policy[5] to improve the overall policy framework in the country with regards to innovation and entrepreneurship. However, further support is needed to establish a roadmap for the ecosystem to cover the current policy gaps. The coordination and dialogue with other ecosystem actors will become critical in the upcoming years in other to translate the entrepreneur needs into actionable recommendations.

[5] i4Policy emerged from a gathering of innovation hubs from across Africa, to co-create a manifesto of innovation policies for the continent – the Africa Innovation Policy Manifesto. i4Policy is an iterative policy-making process that has been implemented nationally in more than a dozen countries. Source: https://i4policy.org/

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ANNEX I: INSTITUTIONS MAPPED

Incubators, Accelerators and other Capacity Development Institutions

Capital Space

Capital Space is an Innovation and Entrepreneurship space aim to empower the community in areas of technology, entrepreneurship, innovation and skills. Capital Space Incubator groom innovative ideas from young entrepreneurs, innovators and start-ups and work through to the business development stage.

http://www.capitalspace.co.tz/

Tanzania Commission for Science and Technology (COSTECH)

Tanzania Commission for Science and Technology (COSTECH) was established by the Act of Parliament No. 7 of 1986 as the successor to the Tanzania National Scientific Research Council (UTAFITI) as a parastatal organization with the responsibility of coordinating and promoting research and technology development activities in the country. It is the chief advisor to the Government on all matters pertaining to science and technology and their application to the socio-economic development of the country, and is under the ministry responsible for science and technology. It is also entrusted with the responsibility of coordinating and promoting science and technology development activities in the country. Since 1988, COSTECH has been the principal advisory organ to the government on all matters relating to scientific research, innovation, technology development and transfer, and recommends its implementation.

https://www.costech.or.tz/

DOT Tanzania

DOT is a youth-led movement of daring social innovators who have the tools, knowledge, and networks to create opportunities and transform their own communities.

DOT Tanzania supports youth to become innovators and leaders, and to create and apply digital solutions that have positive impact in their communities

They work with youth, the private sector, governments, and community-based organizations towards a collaborative vision of communities shaped by daring social innovators. DOT Tanzania has been running youth-led programs focused on sustainable economic growth since 2013.

https://tanzania.dotrust.org/

Ennovate Hub

Ennovate Hub is a transformative venture building tech hub that is supporting emerging companies from ideation to commercialization of their unique ideas. Ennovate Hub is born out of the desire to support emerging young entrepreneurs by supporting them with proven tech-driven business development methodology; from ideation, idea validation and developing minimum viable product and launching in the market.

https://www.ennovatehub.com/

Human Development Innovation Fund (HDIF)

The Human Development Innovation Fund (HDIF) is catalysing the development of new models of service delivery, the use of new technologies, the involvement of new providers and establishment of new partnerships, with a focus on the private sector and public-private partnerships.

HDIF's goal is to improve human development outcomes for people in Tanzania by funding sustainable solutions for improving the quality and impact of basic services in health, education and water, sanitation and hygiene (WASH).

https://hdif-tz.org/

Ndoto Hub

Ndoto Hub is a marketplace of business ideas and opportunities to socially and economically empower young women, bringing them together to access workspace, information, knowledge, markets and networks curated for their business and personal growth. The hub is supported with a digital learning platform and member led community groups. Ndoto Hub not only provides access to a workspace, business development and compliance information and services but also incorporates information and mentorship support for young women's personal growth, which is pertinent to their professional growth. Empowering a woman requires a holistic approach that cannot separate the different dynamics that women face throughout the day to enable them to thrive as family members, mothers and business people. To achieve this, it is important to leverage existing research and involve the target users and beneficiaries to create both the physical hub and a digital community that together, form the Ndoto Hub.

https://www.ndotohub.com/

Obuntu Hub

Obuntu Hub is inspired by the notion of "obuntu" which can be translated as "collective progress." We conceived the hub as a catalyst to drive collective progress for entrepreneurs and the community at large. Our focus is on empowering young entrepreneurs who innovate through tech or unique business models.

https://obuntuhub.co.tz/

Robotech Lab

Robotech Lab is an organization that aspire to build a generation of innovators and change makers through hands on learning and application towards impact in community.

https://robotech.co.tz/

Sahara Ventures

Sahara Ventures is building a stable innovation, technology and entrepreneurship ecosystem in Africa through consultancy and investment. Their long-term vision is to become Africa's largest consultancy and investment firm. We believe the best way to solve a problem and create impact is by building a business around it.

https://saharaventures.com/

Tanzania ICT Commission (ICTC)

The Information and Communication Technologies (ICT) Commission is established by the Presidential Decree Government Notice (GN) No. 532 published in the Government Gazette No. 47 Vol. 96 dated 20 th November, 2015. Genesis of the Information and Communication Technology (ICT) Commission is the National ICT Policy 2003 approved by the Government in March 2003 that directed to establish a body in the institutional framework of the sector to coordinate and facilitate policy implementation in the country.

The current National ICT Policy approved by the Government in May 2016 also mandates the ICT Commission a role of coordinating and facilitating implementation of national ICT initiatives countrywide. This will be done through promoting the ICT sector, recognizing and build capacity and skills of ICT Professionals, providing foresight and trends in ICT through research in collaboration with ICT stakeholders and foster strategic investment in ICT

https://www.ictc.go.tz/

Tanzania Start-up Association (TSA)

TSA is an umbrella membership-based organization which bring together stakeholders of start-up ecosystem in Tanzania to drive the agenda that ensures the growth of the start-up ecosystem.

TSA facilitates advocacy and lobbying for policies and legal framework that fosters the growth of the start-up ecosystem, building capacity and exchanging best practices among start-up companies and nurturing collaboration, and also work with different players of the Tanzania's start-up ecosystem to produce data and insights of the ecosystem.

https://tsa.co.tz/

The National Economic Empowerment Commission

National Economic Empowerment Council (NEEC) is a Government Agency established by an Act No. 16 of 2004 as a way forward to speed up the process of empowering the Tanzanians economically. The Council is charged with the responsibilities of facilitating designing, planning, supervising, monitoring and evaluation and coordinating all economic empowerment activities. It is also charged with mobilizing resources and managing special funds for economic empowerment activities. Economic Empowerment is one of the vehicles to achieve the MKUKUTA, the MDG and ultimately the Vision 2025.

https://www.uwezeshaji.go.tz/

UNDP Accelerator Lab

UNDP Accelerator Lab identifies and supports proven solutions for targeted issues which can catalyze wider benefits for social, economic and environmental spheres.

The accelerator focuses on issues of the circular economy, including turning waste to wealth; agricultural marketing systems and addressing challenges while harnessing the opportunities of urbanization. They also focus on ensuring that youth and women are full participants of their programs.

https://www.tz.undp.org/

University of Dar Es Salaam Innovation and Entrepreneurship Centre (UDIEC)

The University of Dar es Salaam Innovation and Entrepreneurship Centre was established in 2015 to address observed challenges between generating knowledge generation and research at the University of Dar es Salaam vis–a–vis application of the knowledge and research output. In addition, the Centre addresses challenges related to imparting practical entrepreneurship skills to students, academic staff and Small and Medium-sized Entrepreneurs (SMEs) in the country aiming at formation of new start-ups and increased competitiveness of existing companies.

UDIEC seeks to realize University – wide strength and competitive advantages by making cross-cutting services like business, legal and management skills available to all University Units including but not limited to sciences and engineering. This is in line with UDSM Vision 2061, which among other things, aims at maintaining its leading position in knowledge creation and sharing.

https://www.udsm.ac.tz/

Investors

DOB Equity

DOB Equity is an evergreen fund with all proceeds from investments being reinvested, making DOB Equity a true long-term growth partner for its portfolio companies.

DOB Equity invest in businesses that positively contribute to a more social and sustainable society and deliver long-term profitability. They work with entrepreneurs to mitigate potential risks related to environmental, social and governance matters, whilst creating value and social impact for the company and its communities.

https://www.dobequity.nl/

SSC Capital

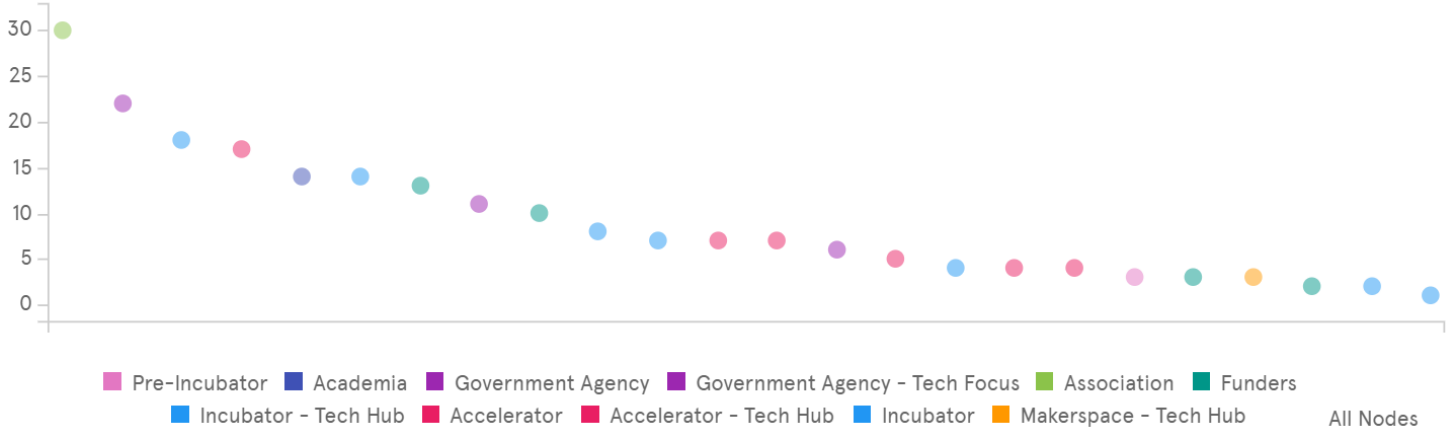
SSC Capital is a corporate advisory and investment management firm with 10-year industry experience in creating value to our clients, investors and local community.

They offer hybrid solutions in Consulting, Investment Banking, Financial Services, Private Equity & Venture Capital, Training, BPO Services and Sustainability Advisory.

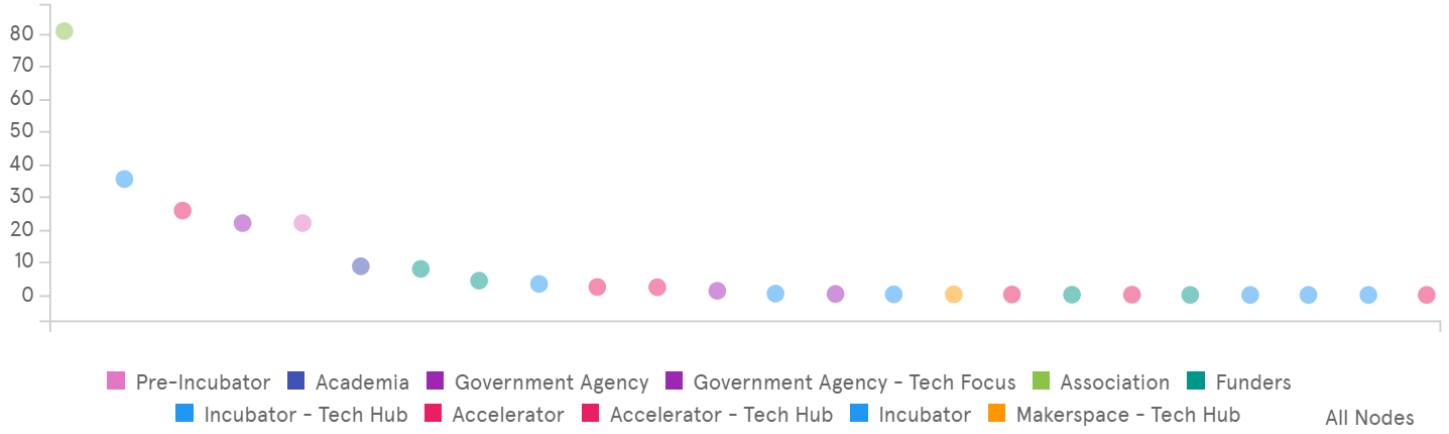
https://ssc.co.tz/

ANNEX II: ADDITIONAL NETWORK DATA

Distribution of nodes by Degree Centrality:



Distribution of nodes by Betweenness Centrality:



Access the interactive Network map here. Or scanning the following code:

ANNEX III: TECHNICAL ANNEX

ITC Network Analysis Methodology

Questions to Institutions

Ecosystem roles and linkages

1. Who are your main target beneficiaries for the services you offer?
2. What's the average age of the entrepreneurs your organization support?
3. Which business lifecycle stage does your organization target (e.g. incubation support, business acceleration support, export support)?
4. How many businesses are you working with? How many graduates (if incubator programme)?
5. What services do you offer?
6. If you provide training, how did you design the training content? How much do you focus on technical skills vs. soft skills? Do you evaluate the satisfaction of entrepreneurs after the trainings?
7. What sectors do you cover? What sub-sectors (STEM, AI, IoT, etc.)?
8. What geographic regions inside your country do you work with?
9. Where are your office locations?
10. Do you have specific projects/initiatives to support tech entrepreneurship? What is your specific approach (financing/training/coaching/mentoring/investments/incentives)?
11. Do you have specific projects/initiatives to support women in tech? What is your specific approach (financing/training/coaching/mentoring/investments/incentives)?
12. Do you have a focus on international markets? Who do you partner with for delivery?
13. Do you have links with Academia? If so, with who and what is the nature of the partnership?
14. Do you organize events for entrepreneurs? If so, who do you partner with? How do you follow-up after the events?
15. Who provides your funding? Do entrepreneurs/clients need to pay a fee for their services?
16. Do you have a strategy? If yes, who do you have to ask for permission to change your strategy?
17. Is there any other institution providing services similar to yours?
18. Of the following organisations, who do you have formal connections with?
19. Considering this list, is there any other organisations that you give funding, information or coordinate for service delivery that is not on this list? Are you aware of any incubators/accelerators or other entities that support entrepreneurship for tech entities in Tanzania?
20. Considering the network as a whole, do you sense any overall trends in the way it operates? (should be free text but if prompting necessary: eg more or less silos with groups of institutions becoming more or less apparent, more or less concentration of power in a single institution etc)

Ecosystem Actors

21. From your perspective, which are the most relevant actors in the local entrepreneurial ecosystem in terms of influencing entrepreneurial success in a significant way? What do they do?
22. From your perspective, who are the key actors providing support to tech entrepreneurs? Who are the key actors providing support to women in tech? What has worked? What could be improved?
23. Do you think there are important players or services missing in the entrepreneurial ecosystem?
24. In your experience, which are the main barriers to effective interaction between actors in the local entrepreneurship ecosystem?
25. To what extent do the players/actors in the ecosystem endeavour to synergise/combine efforts (rather than duplicate the efforts) to build a robust ecosystem that effectively promotes entrepreneurship?

26. What are the main positive attributes of the ecosystem?
27. What are some of the success factors/challenges that you can point to in your role in the ecosystem?
28. Are there any strategies for mitigating the risks/challenges associated with your role in the eco system?
29. Are you aware of any tech enterprises that are providing products/services for export?
30. What support services would you like to also provide for tech entrepreneurs?
31. What funding models do you think could be most effective in supporting tech entrepreneurs?

Questions to Entrepreneurs

Out of the following institutions (entrepreneurship support organizations in the sample):

1. Which ones have you heard of?
2. Which ones do you contact weekly / several times per year / annually?
3. What is the nature of the connection? What do you receive from them? What do you give in return?
4. Which 3 have the most impact on the success of your business? Why?
5. Which 5 would you consider the most trustworthy and efficient? Why?

Of even more value is an informal discussion about the ways in which the network supports and constrains business. To get the conversation started you could pose a business challenge, and ask the network user:

- who they would approach for help
- how they would interact with the support network to resolve the problem.

Examples of possible business challenges are:

1. You have a new business idea and want to test its viability. What are the steps involved in moving from idea stage to start-up stage? How do you test the viability of your business idea? How and from whom do you attract initial funding to turn your idea into reality?
2. You are beginning to receive enquiries from potential customers from around the world and you would like to internationalize your business activities. What would be your internationalization strategy? Who can support you in following this strategy?
3. You would like to build your knowledge about latest technologies relevant to your business sector. How do you ensure that your business is keeping up with current trends and technologies? Where do you get this information and access training opportunities?

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