Supporting Start-Ups

Tech Hubs In Africa

Second Edition

International Trade Centre

TRADE IMPACT FOR GOOD

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Second Edition

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ABOUT THE PUBLICATION

African tech hubs play an important role in building fledgling entrepreneurial ecosystems and helping start-ups, but they struggle to earn revenue and become financially sustainable.

This second edition has expanded its coverage, adding insights from East African hubs. The report, based on interviews with dozens of hubs across Africa, examines what hubs do, how they make an impact and what they can do to become viable. Learning from best practices on hub operations and business models should help founders think differently about how to achieve financial stability.

This report is also meant as a toolkit enabling governments and funders to invest successfully in tech entrepreneurship support infrastructure.

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FOREWORD

Home-grown information and communications technology companies are supporting the digital transformation of the African continent.

New businesses across the continent are bringing disruptive business models and innovation 'made in Africa, for Africa'. The challenges on their path to growth are numerous, however, and many do not survive the start-up phase.

Research shows that tech hubs can improve the survival rate of start-ups. This publication contributes to the available research, focusing on how hubs can ensure their own viability in order to provide sustainable support to African entrepreneurs.

The publication, a second edition that enriches and expands upon the first report, is not a directory of successful hubs. After all, tech hubs are not automatically the answer, and might sometimes not even be the optimal approach. The International Trade Centre's own analysis has shown that tech hubs without clear value propositions to the ecosystem and the enabling conditions to support them, tend to struggle.

There is also some scepticism about whether high-potential/high-growth start-ups really need tech hubs. Some argue that the most promising businesses do not emerge from these types of institutions, while others see these hubs as contributing to a culture of innovation and digital entrepreneurship, especially in parts of the continent where the digital infrastructure is not as mature as in others.

This report shares insights into how hub practitioners view their ability to help start-ups, and the activities they might want to undertake, but cannot due to resource constraints. It also touches on how tech hubs themselves assess their impact in the support they provide to high-growth start-ups.

Furthermore, this report discusses whether supporting start-ups is financially viable. When the answer is yes, the report provides an overview of the best-performing services. Clearly, there is an expectation that hubs monetize their services to ensure their financial sustainability, and this report aims to outline and present strategies and methods that have proven successful.

Finally, the publication identifies gaps and opportunities for support from both government and the development community. This includes capacity building for tech hubs to fulfil their mission.

Following on the demonstrated interest in the First Edition from many of our partners in both the local African tech ecosystem and the greater global community, ITC has expanded upon and enriched the content of this report. We have expanded the geographical coverage to include East Africa, and more holistically represent the tech hub ecosystem throughout the African continent.

This publication is the result of a joint partnership between the International Trade Centre, Bond'innov, Afric'innov and the Impact Hub Network. I hope it will provide useful insights and advice to tech hub founders and managers, as well as to policymakers looking for efficient and effective ways to invest in trade and investment support institutions of a new kind, to the benefit of their entrepreneurial ecosystems.

The International Trade Centre has substantially increased its support to entrepreneurs and small and medium-sized enterprises in the technology sector, upon the request of our partners. This publication provides additional guidance for where we can make a difference.

Dorothy Tembo
Executive Director a.i.
International Trade Centre

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Acronyms

Unless otherwise specified, all references to dollars ($) are to United States dollars, and all references to tons are to metric tons.

AfDB	African Development Bank
ANDE	Aspen Network of Development Entrepreneurs
GEM	Global Entrepreneurship Monitor
ICT	Information and communications technology
ITC	International Trade Centre
NGO	Non-governmental organization
SME	Small and medium-sized enterprise
VC4A	Venture Capital for Africa
WEF	World Economic Forum

EXECUTIVE SUMMARY

Entrepreneurship, particularly tech-enabled, high-growth entrepreneurship, is a key to African development. Consequently, those with a stake in the future of Africa – its citizens, governments, civil society and the private sector – seek to encourage entrepreneurship as a catalyst for economic prosperity and well-being.

Although there are many ways to judge the value of entrepreneurship, participation in the knowledge economy, job creation and the impact of high-growth firms are central elements. An understanding of which interventions bolster entrepreneurship activity in Africa is also important.

Over the last decade, technology (innovation) hubs have emerged across Africa as start-up creators and tech community builders. This report examines tech hubs in the start-up ecosystems developing across the continent. What are they, and why have they emerged? What do they do, and how do they do it?

To play these roles, tech hubs must thrive financially. Accordingly, how hubs achieve financial sustainability will be a central theme throughout the report.

Building tech businesses, creating communities

Tech hubs are designed to support start-ups and help them succeed, as well as build entrepreneurial tech communities. Although hubs vary widely in structure and services, they are generally places where tech and entrepreneurship community members assemble.

At its core, a tech hub is a space where technology enthusiasts, innovators and entrepreneurs gather to share ideas and build. They are organizations that support early-stage technology innovators by allowing them to establish links to other members of the innovation ecosystem, with the goal to improve their business performance (and thereby the ecosystem's output of innovations).[1]

Tech hubs have two primary purposes: to build businesses and to create community. Several characteristics span both roles, such as building community, welcoming diversity, fostering collaboration and catalysing innovation.

Hubs are flexible institutions with different purposes and functions. They are hybrid organizations that build relationships and networks, boost capabilities and serve as intermediaries.

Ecosystems matter

Hubs operate in ecosystems, based on eight pillars: markets; human capital; funding; support systems; infrastructure; culture; government, policy and regulatory framework; and education.

The condition of the ecosystem matters to both tech hubs and start-ups. For start-ups, ecosystem quality can determine how well a firm manages its relationships with customers and suppliers, and affects its prospects for expansion. A start-up draws key resources and support from institutions and actors within its ecosystem.

The same is true for tech hubs. Hubs and the projects they support are more likely to thrive in well-functioning ecosystems. This means hubs must understand the dynamics – strengths, weaknesses and opportunities – of their ecosystem. Hubs frequently must address ecosystem needs and tackle weaknesses to achieve their missions.

The structural gaps commonly found in immature ecosystems can be closed by creating nationwide information and communications technology (ICT) infrastructure. This makes it easier to provide telecom products and services, stimulate an entrepreneurship ecosystem and encourage the first generation of start-up standouts.

Hubs create value

Hubs support tech business development. They also benefit their communities and the wider world, even as they try to build financially sustainable institutions and assist profitable start-ups.

Much of the impact attributed to hubs stems from their ability to help entrepreneurs create community, rather than influence the outcomes of specific start-ups. Still, budding tech firms are better equipped to raise funds when they have the support of hubs, according to research and interviews in this report.

Hubs also contribute to economic development through job creation.

Keys to financial sustainability: Align aspirations to local ecosystems

Although hubs seek financial sustainability, this topic has been poorly researched. Only one report, by infoDev, explores financial sustainability in any depth.

It covers the type of funding to expect from the private sector and government, the benefits of diversifying income streams and the importance of seeking long-term support for core costs.

The most useful insight is aligning the mandate with the ecosystem quality to ensure financial sustainability.

The degree to which the overarching goals of a hub suit its organizational structure, business model and ecosystem affects financial sustainability. This is why financial sustainability should be considered a multidimensional concept, in which the components that are central to the hub (core purpose, structure, business model, activities, etc.) should align with the needs and capacity of the ecosystem.

It is also critical to explore how tech hub business models are composed, what revenue streams are attractive and what strategies can be used to achieve financial sustainability.

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CHAPTER 1

UNDERSTANDING THE ECOSYSTEM

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Hubs and entrepreneurial ecosystems

Entrepreneurship is a catalyst for economic growth, innovation, job creation and desirable socioeconomic outcomes.[2] Technology-enabled start-ups are a particularly potent conduit of these effects.

Box 1 Entrepreneurship as driver of economic development

'Entrepreneurs are key drivers of economic and social progress. Rapidly growing entrepreneurial enterprises are often viewed as important sources of innovation, productivity growth and employment (small and medium-sized enterprises account for a high percentage of all jobs in emerging economies). Many governments are therefore trying to actively promote entrepreneurship through various forms of support.'

Source: *World Economic Forum (2014). 'Entrepreneurial Ecosystems Around the Globe and Early-Stage Company Growth Dynamics.' Geneva, p. 4.*

Historically, entrepreneurship has taken the perspective of an individual entrepreneur. More recently, it emphasizes the environment (or ecosystem) in which an entrepreneur operates.[3] As a result, 'entrepreneurial ecosystem' has become acommonplace term in management science and business literature.[4] This term helps define the environment in which start-ups operate and balances the focus between individuals and systems. An entrepreneurial ecosystem is 'a system of interrelated pillars that impact the speed and ability with which entrepreneurs can create and scale new ventures in a sustainable way'.[5]

Each ecosystem is different, but most contain several typical players. For example, the Aspen Network of Development Entrepreneurs' (ANDE) ecosystem maps in Africa feature academic institutions, banks or financial institutions, capacity development providers, corporations or corporate foundations, development finance institutions or donor agencies, foundations, government agencies, investors, research and advisory providers, media, sector associations and microfinance institutions.[6] A single country may have multiple ecosystems, with more activity in cities than in rural areas, or ecosystem boundaries that might reach across national borders.[7]

Ecosystems are relevant to hub impact. First, tech hubs are often tasked with filling ecosystem gaps, so understanding the strengths, weaknesses and needs of the ecosystem will help hubs determine where and how to intervene.[8] Secondly, ecosystems are oriented around a purpose.

In Kenya, for example, the ICT ecosystem is associated with building start-ups, economic growth and generating social impact.[9] In Nairobi, where much of Kenya's tech start-up activity is centred, there are two separate, but related, communities. One is composed of social enterprises and targets social impact; the other focuses on ICT and tech start-ups.[10]

Ecosystem mapping helps a hub decide whether to focus on ecosystem building or start-up creation, or perhaps to pursue multiple purposes.[11] Finally, hubs (and start-ups) are more likely to thrive in ecosystems that function well and contain the essential resources.[12] For example, social technology projects that emerge from tech hubs are more likely to succeed when the ecosystems in which they function are healthy. Those that are created within dysfunctional ecosystems are more likely to fail.[13]

Similarly, in the case of infoDev's network of hubs, 'mLabs would only be implemented if the local innovation ecosystem had already reached a certain degree of maturity. When critical inputs such as entrepreneurial and technical talent, early-stage investors, and strong partners with support resources are unavailable, mLabs can hardly realize their full potential'.[14]

Entrepreneurial ecosystems are also extremely important to start-ups. Young companies will struggle to navigate the changing landscape created by new platform technologies such as business-to-business and business-to-consumer e-commerce sites.[15] However, the quality of the ecosystems these start-ups occupy will ultimately determine how well they cope with new technology and renegotiate relationships with their customers, partners and suppliers, as well as how well they navigate the challenge of expanding into new markets.[16]

Diagnosing entrepreneurial ecosystems

Box 2 Creating a culture of entrepreneurship

Although entrepreneurship is becoming more attractive as a professional path, people still favour more traditional roles in business and government. This means that raising the profile of entrepreneurship as a respected and viable option is still an important part of ecosystem building. Due to their high level of engagement in community building, tech hubs have a significant role to play in creating a positive entrepreneurial narrative. Hubs engaged in awareness-raising suggest the following best practices:

Create structured programmes with certification that recognizes the accomplishments of participating start-ups. Many countries, such as Senegal, embrace and value declarations of achievement such as certifications and diplomas.

Help start-ups stay afloat as they develop. The limited availability of early-stage capital in many markets means start-ups often need to take on consultancy projects. Hubs such as mLab South Africa have sourced projects and hired or collaborated with developers and start-ups within their community to deliver them.

Share success stories. Hubs should highlight the success of start-ups within their communities to inspire the next generation of aspiring entrepreneurs. This task may be challenging due to the limited resources of many hub teams; storytelling may fall to the bottom of the priority list. Additionally, there may be cultural barriers to sharing success stories. Within the Kenyan ecosystem, for example, start-ups that had achieved successful exits were reluctant to share information about their deals. Similarly, many angel investors in Zambia preferred to remain anonymous to avoid being targeted for their wealth.

Source: *Treisman, L. (2015). 'Capturing Learning from Tech Innovation Hubs across Africa', p. 12.*

ANDE and the World Economic Forum (WEF) say entrepreneurial ecosystems are based on eight main pillars, which are described below. Ecosystem pillars are interrelated andaffect each other. For example, the pillar associated with government, policy and regulatory frameworks will strongly influence the others.

- **Markets.** Available markets that are conducive to start-up success matter. For example, the presence of 'early adopter' customers who are willing to buy and use new products is an important aspect of a conducive market. Clearly, companies need accessible markets with paying customers and advantageous business environments. Executing a successful business-to-consumer model in Africa is difficult because there are so many low-income consumers and few early adopters. Entrepreneurs also struggle to penetrate markets, even though they can use their networks to identify opportunities.[17]
- **Human capital** refers to the supply of qualified personnel, especially serial entrepreneurs. Managerial, technical and leadership skills are needed to run start-ups, and educational institutions are expected to produce well-trained graduates. Ideally, start-ups would benefit from a well-educated workforce from which they could hire high-quality employees. The scarcity of human capital in Africa remains a serious problem that stems partly from the shortage of educational institutions and the lack of focus on entrepreneurial, management, technical and vocational training. The absence of knowledge-intensive industry where

employees can learn valuable skills on the job is also cited as a challenge. Those with the necessary skills have more lucrative, stable employment options at corporations. As start-up founders enter African markets from more developed ecosystems, however, they bring their experience, skills and access to resources such as networks, mentorship and funding. They transfer their knowledge and connections to those ventures.[18]

- **Funding** such as angel investment, seed-stage capital, venture capital, public markets and debt financing enables start-ups to function. Early-stage capital is scarce across the continent from a global perspective; local venture capital markets are in the beginning stages. Many African start-up founders rely on funds from family and friends to launch their enterprises, and they then face the 'Valley of Death' – the point at which this funding is exhausted, but they are not yet successful enough to attract early-stage institutional capital. Appropriate funding from local venture capitalists, angel investors and crowdfunding remains limited, but is growing.[19]
- **Support systems** are individuals and institutions that guide start-ups, such as mentors, incubators, accelerators, professional service providers and networks. Support structures enable fledgling founders to validate business ideas, learn valuable skills and be part of a community focused on tech entrepreneurship. Activities such as events, workshops and competitions help entrepreneurs learn and stimulate innovation by bringing people together and encouraging exchange. This helps form close-knit communities that foster trust and good business practices, which makes entrepreneurs more comfortable about doing business with each other. Finally, private, public, academic and institutional actors have launched a growing number of initiatives that help organize ecosystems.[20]
- **Infrastructure.** Basic infrastructure such as electricity, internet access and transportation is critical. The high cost and unreliability of basic utilities such as electricity and internet can limit the growth and scalability of businesses.[21]
- **Culture** reflects the embeddedness of entrepreneurial spirit. In other words, is entrepreneurship seen as an acceptable profession with recognizable role models and success stories? Culture reflects societal norms as it pertains to basic entrepreneurship values such as risk tolerance, experimentation and innovation. It also includes attitudes towards entrepreneurship and building wealth.[22] Many African countries have highly entrepreneurial cultures, but entrepreneurship is often considered a low-level profession. There is little trust in institutions and business transactions, and fear of failure causes people to avoid risk. Low trust levels and risk aversion hinder the creation of new ventures. The need to financially support extended family members is another major barrier to entrepreneurship in Africa.[23]

- **Government, policy and regulatory framework.** This indicates how hospitable policies and regulations are (which includes incentives such as tax benefits) and legislation that addresses bankruptcy and labour laws. Weak rule of law, inadequate contract enforcement, corruption and ambiguous government administrative processes damage entrepreneurial ecosystems. Some governments have begun to prioritize private sector development. They have taken steps to improve the ecosystem, such as creating one-stop shops to streamline the process to create ventures and privatizing public agencies focused on small and medium-sized enterprises (SMEs).[24]
- **Education.** Universities are central ecosystem actors and sources of technical and business talent. However, sub-Saharan Africa receives some of the lowest scores on the Global Entrepreneurship Index for start-up skills. This is probably because the quality of education and access in Africa are limited.[25] Young people in sub-Saharan Africa believe inadequate skill is one of the top barriers to creating a venture, according to the Global Entrepreneurship Monitor and the Prince's Youth Business International.

Of the eight pillars, the first three – markets, human capital and funding – are the most important to start-ups. It is obvious that companies cannot survive without paying customers, capable employees and funding to cover the cost of growth and development.[26]

Table 1 What are the key pillars of a thriving entrepreneurial ecosystem?

Markets	Human capital

■ Domestic market:
  ■ Large companies as customers
  ■ SMEs as customers
  ■ Governments as customers
■ Foreign market:
  ■ Large companies as customers
  ■ SMEs as customers
  ■ Governments as customers
	■ Management talent
	■ Technical talent
	■ Entrepreneurial company experience
	■ Outsourcing availability
	■ Access to immigrant workforce

Funding and finance	**Support system**
■ Friends and family ■ Angel investors ■ Private equity ■ Venture capital ■ Access to credit	■ Mentors/advisers ■ Professional services ■ Incubators/accelerators ■ Network of entrepreneurial peers
Government and regulatory framework	**Education and training**
■ Ease of starting a business ■ Tax incentives ■ Business-friendly legislation/policies ■ Access to basic infrastructure ■ Access to telecommunications/broadband ■ Access to transport	■ Available workforce with pre-university education ■ Available workforce with university education ■ Entrepreneur-specific training
Educational institutions	**Cultural support**
■ Promoting a culture of respect for entrepreneurship ■ Playing a central role in idea formation for new companies ■ Playing a key role in providing graduates for new companies	■ Tolerance of risk and failure ■ Preference for self-employment ■ Success stories/role models ■ Research culture ■ Positive image of entrepreneurship ■ Celebration of innovation

Sources: Aspen Network of Development Entrepreneurs (2013), pp. 8–9. 'Entrepreneurial Ecosystem Diagnostic Toolkit.' World Economic Forum (2014). 'Entrepreneurial Ecosystems Around the Globe and Early-Stage Company Growth Dynamics.' Geneva, p. 17.

Resource constraints: A road map for policymakers

What can be done to fill the gaps in start-up ecosystems and increase the likelihood of start-up success? Countries with limited resources can take the following steps as a priority, according to McKinsey consultant Johannes Bramann.[27]

- Create nationwide ICT infrastructure. Build a foundation by privatizing the telecommunications sector, connecting it to global ICT infrastructure and working with international funders to bolster investments.
- Enable the broad provision of telecom products and services. Make basic offerings such as mobile phones, internet and mobile money accessible across the country. Digital literacy, including for consumers to benefit from these products, is also essential. Finally, provide incentives for pioneer entrepreneurs and other key stakeholders to create communities and set up the initial building blocks of a functional entrepreneurial ecosystem.
- Encourage the emergence of the first set of ventures. Assuming minimum enabling conditions are created in the previous phase, the result will be a critical mass of tech start-ups in the ecosystem that will begin to yield ripple effects. For example, entrepreneurs who have successfully exited their companies will contribute financial capital as angel investors or venture capitalists. They will also provide human capital through mentorship, just as the overall talent pool increases in size and quality thanks in part to the number of thriving start-ups. Finally, the emergence and visibility of successful start-ups will begin to change the norms around the legitimacy of entrepreneurship as a career path and perceptions of risk and wealth creation.

Box 3 How hubs cultivate skills through focused networking

Insufficient human capital is a major barrier for African start-ups. For instance, the exodus of technical talent from Nigeria for better opportunities abroad has left start-ups with inexperienced developers and a huge talent gap in the ecosystem. 'The obvious drawback of the developer exodus is the resulting shortage of high-end talent in a tech ecosystem that's relatively still in its early days. With the promise of professional growth and higher salaries – industry insiders say Nigerian developers in Europe and North America can earn 10 times more – proving a big draw, local start-ups in Nigeria simply cannot compete.'

Tech hubs are helping to fill the gap by connecting accessible talent with start-ups, helping start-ups connect with each other and building their capacity through strategic mentorship initiatives. Hubs can host matchmaking events for start-ups to meet developers, designers, companies and other key stakeholders.

Organizing events around specific topics will attract participants with shared interests. For example, JoziHub in South Africa encouraged cross-pollination between start-ups by motivating them to communicate with one another, while leveraging Code School (one of its programmes) to match skillsets across start-ups. Hubs such as ActivSpaces in Cameroon have hired local mentors. Hubs may also collaborate with each other to jointly deploy human capital.

Sources: *Treisman, L. (2015). 'Capturing Learning from Tech Innovation Hubs across Africa,' pp. 11–12. Treisman, L. (2017). 'Capturing Learning from Tech Innovation Hubs across Africa: 2017,' p. 8. Kazeem, Y. (2018). 'Nigeria's tech ecosystem is struggling to keep hold of its best software engineers.'*


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CHAPTER 2

CATALYSING TECH ENTREPRENEURSHIP

CATALYSING TECH ENTREPRENEURSHIP

Tech-enabled, high-growth entrepreneurship is a key to economic growth and development in Africa. Those with a stake in Africa's future—its citizens, governments, civil society, and the private sector— encourage entrepreneurship as a catalyst for economic prosperity and social wellbeing. Participation in the knowledge economy, job creation, and the impact of high-growth firms are key elements of a broader discussion. Which interventions meaningfully support entrepreneurship in Africa is also critical to the dialogue.

Over the last 10 years, technology (innovation) hubs, or tech hubs, have emerged across Africa to serve as start-up creators and tech community builders. This report examines tech hubs as key actors in start-up ecosystems across the continent, including why they emerge, what they do and how. To play their role, tech hubs must thrive financially. Consequently, financial sustainability is a key theme throughout this report.

To understand how tech hubs contribute to economic development, it is helpful to explore how entrepreneurship can stimulate participation in the knowledge economy, create jobs, and encourage high-growth firms to emerge. This is what tech hubs support.

The knowledge economy

The term 'knowledge economy' emerged in the 1960s to mark the transition from traditional economic models to those driven by knowledge production. The World Bank defines it using four pillars

- Institutional structures that provide incentives for entrepreneurship and use of knowledge;
- Skilled labour availability and good education systems;
- ICT infrastructure access;
- A robust innovation landscape that includes academia, the private sector and civil society.

Modern programmers and developers create this knowledge, perhaps by building a search engine, while practitioners use it do their work more efficiently and effectively. For example, a bank might use a risk assessment tool to evaluate start-up founders. The key to this efficient production and exchange of information is the use of information and communication technologies (ICT) that enable information to travel quickly and broadly via the internet.

All countries of the Organisation for Economic Co-operation and Development are transitioning toward knowledge economies. Unfortunately, Africa as a whole is not. On the World Bank's Knowledge Economy Index (KEI), Africa's score is one-third of North America's and 50% of that assigned to East Asia and the Pacific. Africa also performs poorly on key indicators of (digital) knowledge creation and use, such as publishing academic research and filing patents.[28]

A transition to technology-driven knowledge economies seems like an ambitious near-term goal. After all, 'developing countries face tremendous structural barriers to economic growth, and gaps in skills, financing, and infrastructure put a substantial strain on productive, competitive business activity.' In knowledge economies, where resourceful innovators drive output gains (as opposed to changes in inputs) the situation

is acute. Nonetheless, research suggests that the knowledge economy contributes to economic growth, as do technology innovation and high-growth entrepreneurship.

Fortunately, the rise of hub-like institutions, with their bottom-up, technology-enabled entrepreneurship support, offer hope for the future.[29] Tech hubs are key actors in the knowledge economy.They stimulate connection and collaboration between private and public sector actors.[30] Additionally, they help spread the benefits associated with technology, which tend to be less evenly distributed then the technology itself. These benefits can be delivered through nontechnical complements to technology, and contribute to development.[31] Upskilling workers to help them participate in the knowledge economy is a relevant example. Tech hubs also distribute the benefits of technology by serving as nontechnical mediators.[32]

The job creation imperative

Since the 1990s, the global economy has become increasingly less able to create jobs. All over the world, slow growth in the formal sector of many countries has hampered the ability to create work opportunities.

Africa is a young continent with 41% of the population under the age of 15, and 19% between 15 and 24.[33] This 'youth bulge' makes job creation a priority.

While GDP grew 5% per year from 2001–2014 and an estimated 3.5% through 2018, poverty levels remain high in Africa[34] and economic growth has not produced a commensurate number of new jobs.[35] Despite significant growth over the last 20 years, employment growth has only increased at a rate of 1.8% per year, significantly less than the nearly 3% annual labour force growth.[36]

Policymakers seek growth that is robust, inclusive and raises the living standards of African people. Job creation is a key element of this.[37] Between 2015 and 2030, 29 million people will enter Africa's labour market each year.[38] As a result, the number of people in Africa's labour force will increase from 750 million in 2018 to nearly 1 billion by 2030.[39] Of the 13 million young people that enter, only 3 million secure wage labour. The remainder are underemployed or settle for variable work arrangements.[40]

If the low rate of job growth persists, 100 million Africans will join the pool of unemployed citizens. Employment opportunities must be created at scale to accommodate them – 12 million new jobs annually to stem the rise of unemployment. In the words of Akinwumi Adesina, president of the African Development Bank (AfDB): 'This is a huge opportunity for Africa. If we fix the youth unemployment challenge, Africa will gain 10%–20% annual growth. That means Africa's GDP will grow by $500 billion per year for the next 30 years. Africa's per capita income will rise by 55% every year to the year 2050.'

The job creation imperative is predicated on the assumption that the jobs in question are good jobs, or jobs that offer income stability to support workers and their families, and provide opportunities for learning and growth. Unfortunately, such work placements are quite scarce.[41] Further, the prevalence of traditional, long-term career opportunities seems to be decreasing.[42] As a result, entrepreneurship is viewed as a way to allow young people to participate in the labour market while stimulating the creation of jobs.[43]

Fortunately, according to GEM and the Prince's Youth Business International, sub-Saharan Africa boasts the highest proportion (60%) of potential youth entrepreneurs compared to other regions. Similarly, 22% of working age people in Africa are starting new businesses, the highest rate globally.[44] However, approximately 33% of African entrepreneurs (and roughly the same percentage of youth entrepreneurs) start new businesses because they cannot find suitable jobs.[45] This is hardly surprising given the scarity of employment opportunities.

In contrast, 44% of African entrepreneurs launch ventures to pursue business opportunities. Notably, entrepreneurs chasing opportunities are more likely to contribute to growth. As it currently stands, sub-Saharan Africa has high total entrepreneurial activity rates of nearly 30%.

In a study of 70,000 entrepreneurs in more than 60 countries conducted by infoDev in 2015, only 4% were operating high-growth companies. They have high growth potential, that is, the ability to create 20 or more jobs in the next five years. As a result, Africa needs to find more ways to support and cultivate opportunity-driven entrepreneurs.

High-growth tech start-ups

A high-growth firm

'A small start-up in a high-tech sector that grows quickly over a sustained period through some favourable quality inherent to the firm, for example, a new advanced technology, a brilliant marketing innovation, or an extremely capable staff.'

High Growth Firms: Facts, Fiction, and Policy Options for Emerging Economies

In the paraphrased words of economist Paul Krugman, 'firms are nearly everything when it comes to determining an economy's overall performance'.[46]

Why is this the case? High-growth firms play a central role in the economy because of their outsized capacity to contribute to job and output growth, in addition to helping companies around them grow.[47]

High-growth firms in countries studied by the World Bank created more than half of all new jobs – despite comprising just 3%–20% of services and manufacturing companies.[48]

Interestingly, high-growth enterprises are not typically found in technology-intensive sectors. These companies tend to be larger and younger than the average firm, and show signs of high growth potential only after a year or two of operation. They also operate in different sectors, including chemicals, food and beverages, rubber and plastic and clothing.[49]

High growth is temporary and variable – that is, firms experience periods of high growth and lower growth.[50] Many high-growth enterprises lose momentum after showing initial promise.[51]

What stimulates high-growth firms? The primary forces are:

- the ability of an enterprise to enter and exit markets and to share resources via networks;
- managerial, entrepreneurship and innovation skills associated with running a venture;
- connections to global markets and knowledge;
- access to finance and flexible labour markets.[52]

Policymakers tend to support high-growth firms because of their job creation and output growth potential.[53] Selecting these firms effectively means trying to find 'the right firm at the right time' – in other words, identifying ventures just before they enter a high-growth phase.[54]

Catalysing tech start-ups

The 2018 Global Entrepreneurship Index[55] ranks sub-Saharan Africa lowest on start-up skills, risk acceptance and risk capital.[56] This is due mainly to gaps in education access and quality. 'Sub-Saharan Africa is still plagued by significantly lower levels of literacy, poor numeracy skills and high drop-out rates, particularly in secondary schooling, and low level of tertiary enrolments.'[57] Consequently, nearly 35% of young people in Africa lack basic job skills, making it difficult for them to run businesses and compete globally.[58]

The Global Entrepreneurship and Development Institute and the Global Entrepreneurship Network say better start-up skills would improve start-up ecosystems in sub-Saharan Africa.[59] This makes sense. Poor entrepreneurship skills create barriers for young founders to identify and capture business opportunities, reducing the rate of new business starts.[60] Inadequate managerial skills (as well as low-skilled workers) also hamper venture creation and contribute to failure.[61]

'African countries need more institutions and programmes that can actively bridge the gap between industry needs and education, notably focusing on management and problem-solving skills.'[62]

Efforts to improve firm capabilities focus on mentoring, networking and business development.[63] These include financial incentives such as grants and equity financing; recognition awards such as prize competitions; advisory services to enhance technology use and business strategy; and incubators and accelerators that provide foundational support to young companies.[64]

Incubators and accelerators help build the capabilities of high-growth firms because they cultivate early-stage, high-potential ventures.[65] Research suggests that incubated firms generate additional revenue and employment, although the impact on innovation (for example, patents) is insignificant.

Accelerators can increase company survival rates, revenue and (more modestly) employment growth. They can improve deal flow in the regional ecosystems, although the evidence is more limited than for incubators.[66] Tech hubs such as kLab in Rwanda often function as fluid, adaptable, hybrid institutions that blend different capability-building activities. Hubs are also expected to play a broader role in improving ecosystems, which contain the critical resources that young companies require to operate and thrive.

The rise of tech hubs

Over the last decade, tech hubs have become critical actors within African entrepreneurial ecosystems. Active tech hubs increased by 50% in just two years, from 314 in 2016 to 442 in 2018, with new hubs continuously launching.[67]

Hubs have two primary purposes: to build businesses and create community.[68] There have been many attempts to define a tech hub and differentiate between its functions: hub, lab, incubator and accelerator.[69] 'Hubs can take many forms, yet most operate as some combination of a workspace, internet café, coffee shop, training centre, incubator, accelerator, event venue, and/or makerspace. While there is great diversity hub-to-hub with respect to structure, amenities, membership and other factors, the general consensus is that hubs serve as a meeting place for a community.'[70]

Two prominent definitions emphasize who tech hubs serve (mainly entrepreneurs and technology enthusiasts) and what they do (create opportunities to convene and network).[71] At its core, a hub is a space where tech enthusiasts, innovators and entrepreneurs gather to share ideas and build.

A tech hub or innovation space prioritizes skills development and job creation over company building. It may operate an open coworking model that provides space and focuses on creating community and fostering collaboration.[72] Although hubs serve different purposes and operate different models, they share many common characteristics:

Building communities: Hubs stimulate entrepreneurial communities by creating a communal space and a shared sense of identity among members. Tech hub communities are usually self-starting, self-organizing and driven by empowered members. The hub often brings together members who would otherwise not meet; they contribute diverse perspectives and knowledge.

Foster collaboration: Hubs assemble different types of people to share ideas and work together, which often serves to stimulate innovation.

Catalyse innovation: Hubs curate creative and dynamic spaces that inspire innovation.[73]

What do tech hubs do?

Hubs are hybrid organizations that build relationships and networks, enhance capabilities and serve as intermediaries.[74]

Hubs as hybrid organizations: Key elements of a hub reflect their hybrid nature, such as core purpose, business models, funding and partnerships. For example, hubs aim to have a social impact as they aspire to be (and create) profitable businesses. They offer activities as diverse as providing coworking space, hosting events, offering trainings and incubating start-ups. Hubs assume different forms – incubators, accelerators, non-governmental organizations (NGOs) and social enterprises – if and when these models align with their goals.[75]

Hubs as network and relationship facilitators: As hub members, entrepreneurs can find one another and join forces to exploit opportunities and overcome challenges. Hubs also help entrepreneurs connect to stakeholders outside the hub, such as investors and educational institutions. Finally, hubs stimulate innovation by creating proximity, which leads to collaboration and social proximity, which gives entrepreneurs a sense of shared identity that encourages knowledge exchange and learning.[76]

Hubs as capacity builders: Hubs offer formal training to start-ups to build skills and enable managers to exchange expertise. They help to cultivate core business skills, technical skills and 'soft' skills related to management and leadership.[77]

Hubs as intermediaries: Intermediaries bridge system gaps in the institutions and infrastructures that support business:[78]

1. Product market gaps: affect firm relationships with suppliers and customers.
2. Labour market gaps: affect companies seeking qualified employees and partners.
3. Capital market gaps: lack of financial capital that start-ups need to grow.
4. Regulatory gaps: variable or missing rules and norms for doing business.
5. Contracting gaps: lack of formal written contracts.
6. Institutional gaps: weak enabling environment conducive to growing businesses.

Hubs address these gaps by building networks, increasing the pool of human capital, creating trust to encourage business dealings and serving as foundations of ecosystem growth.

Table 2 Tech hubs offer a range of services

Goal	Services
Start-up creation	
Develop growth-oriented start-ups.	■ Mentoring ■ Business and marketing support ■ Seed funding ■ Networking (including with investors) ■ Acceleration-type start-up competitions ■ Deal brokerage ■ Office space
Skills development	
Broaden entrepreneurial and technical talent pool. Train potential start-up founders and employees.	■ Technical and business trainings, workshops and clinics ■ Virtual learning courses and platforms ■ Mobile app testing facilities
Network building	
Bring together stakeholder groups. Activate and organize communities.	■ Regular, in-depth, one-on-one start-up mentorship and coaching ■ Core business support (accounting, legal services, etc.) ■ Business development: brokerage and mediation of formal contracts, grants and partnerships

Source: Adapted from infoDev (2015). 'Business Analytics Toolkit for Tech Hubs' | infoDev. Washington, DC.

How do hubs create value?

Hubs build communities, support start-ups and contribute to well-being.[79]

They offer the greatest benefit by building communities, rather than affecting the outcome of a specific entrepreneur.[80] This is true even though hubs do not always make community building an explicit goal.[81] For instance, networking was the top benefit attributed to infoDev's network of tech hubs, called mLabs and mHubs.[82]

Few start-up founders attribute the launch of their companies to hubs.[83] Many find interactions within the hub superficial, which prevents inexperienced founders from connecting with people they would not ordinarily meet, such as seasoned entrepreneurs and investors.[84] As community builders, however, hubs create a sense of shared identity and purpose that extends beyond basic services such as desks and internet access.[85]

Hubs are traditionally viewed as purveyors of innovation. Consequently, any failure to innovate is seen as a failure to contribute to development.[86] This, however, overlooks contributions such as offering unexplored professional opportunities in tech and entrepreneurship, boosting problem-solving ability, fostering shared identity and creating community.[87] Viewing hubs strictly as 'start-up factories' and promoting policies that connect innovation to economic development may miss or undervalue other important aspects of development.[88] From this perspective, hubs are holistic contributors to economic development.

Hubs support development and job creation in countries such as Nigeria, where the access to electricity, space and mentorship are hard to duplicate. In such a scenario, the hub attracts entrepreneurs and funding, and raises the profile of local start-ups.[89] Additionally, many argue that aiding start-ups generates social impact through their contribution to economic development.

Tech hubs can add value in other ways as well. For example, the World Bank's infoDev programme found that mLabs and mHubs impact start-ups by increasing their life spans, level of maturity, job creation ability and income generation.[90] Venture Capital for Africa (VC4Africa) found that start-ups that participate in an incubator or accelerator programme, or are selected for a pitch event, attract an additional $126,090 in investment on average – 23% more than start-ups that do not take part in these types of activities.[91]

Finally, hubs can affect the ecosystems in which they operate. For instance, mLabs created ecosystem level impact by training the first generation of founders and start-up employees, and connecting firms to funds.[92]

Common challenges for hubs

Tech hubs face a variety of challenges.

Building awareness. The hub concept is still relatively new, and there are misconceptions about how technology can benefit users. Hubs must invest in educating stakeholders, potential partners and the general public about what they are, what they do and how they add value. They can:

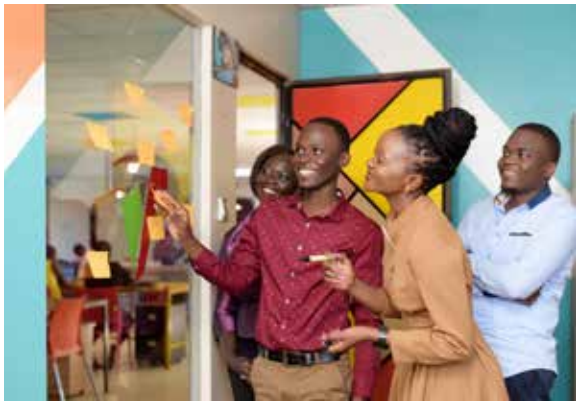
- engage with educational institutions and communities;
- organize events that attract participants such as tech companies, civil society organizations and government;
- host monthly engagement meetings with the main stakeholders.

Equally importantly, hubs can encourage technologists, who often lack social science backgrounds, to move beyond technology and ground their endeavours in the needs of potential customers and users.[93]

Innovation Village, Photo courtesy of CK Japheth

Other common challenges[94] include:

- **Fighting for talent**. Identifying and retaining talent is difficult for hubs and the start-ups they support. Hubs and start-ups often cannot pay well enough to attract and keep high-quality staff. They may invest in training personnel, who later move to competitors who can pay more. Creating a robust institutional culture with a strong value proposition to members and employees, as well as giving them opportunities to shape the organization, can boost commitment.
- **Managing high fixed costs.** Hubs may struggle to afford reliable access to electricity and the internet, which can be prohibitively expensive and difficult to secure. In Sierra Leone, for instance, a 5 MB line costs about $400 a month. Moreover, governments in countries such as Cameroon, Ethiopia and Zimbabwe can turn the internet off. When this happened in anglophone Cameroon, the ActivSpaces community had to relocate to an area that remained connected. Access to power can also be problematic. For example, Hapa Space in Ghana must use generators and batteries due to frequent outages, and in Ethiopia, iceaddis is required by its landlord to restrict its use of auxiliary power.
- **Connecting with rural communities.** Most hubs are based in cities, so engaging with rural communities can be difficult. Reaching them is a priority, however, because most Africans live in rural areas. Hubs can partner with NGOs such as microfinance institutions that have built relationships with rural communities, apply user-centred methodologies and are physically present in rural areas. For example, iceaddis employed a user-centred approach to help beekeepers develop Yenemar, a micro investment platform that raises capital for honey production.
- **Finding a market and competing**. Start-ups struggle to compete with larger companies, win over consumers and convince potential clients that they can deliver. They may have to invest in client education and marketing to counteract the preference of potential customers for larger, better-known companies. Hubs find that it is often difficult for start-ups to attract initial users. Hapa Space addressed this issue by organizing showcases for start-ups to share their solutions, communicating about them via WhatsApp and engaging local technology influencers. These steps encouraged people to try new products and increased awareness of them.
- **Navigating location changes.** Hubs may relocate due to rising rental costs or the need to expand. Such a change can disrupt the community cohesion that is central to so many hubs. For example, when iSpace in Ghana moved, it lost many members who used it primarily for space and internet, but retained those who were dedicated to the community. Hubs may also find it difficult to transition maturing ventures out of their spaces, given the cost of office rentals and legal registration obstacles. In these instances, incubators and coworking spaces may serve as a bridge for start-ups that have outgrown general-purpose hubs, but still need some support.
- **Adapting to changing realities and managing limited capacity.** Tech hubs usually adapt to meet the needs of their ecosystems. Adaptability comes at a cost. Hub teams can be overstretched given the demands of the ecosystems in which they operate, those imposed by stakeholders such as funders, and the demanding roles they play as ecosystem gap-fillers. These teams may not be able to deliver because of limited capacity, overwhelming demands and difficult operating environments.



A framework to measure hub success

Hubs must be evaluated effectively to help understand the ecosystem as a whole. Assessing hub success should be based on more than its contributions to start-up success and economic development, as the core purpose of many ecosystems and hubs is to create social impact. This suggests that a holistic approach is needed. One framework[95] that defines hub impact comprises eight categories:

- **Fostering ecosystem success** means the effect a hub has on the ecosystem it inhabits. For example, positioning Rwanda as an emerging ICT-enabled knowledge economy is a priority for its government. Hubs will be considered successful if they contribute to this goal by building the ecosystem and preparing start-ups to engage with other parts of it (by helping them raise investment funds, for example).
- **Facilitating hub outcomes** refers to the ways that hubs have tangible impacts on the companies they support, and their contribution to content and knowledge development. Launching start-ups is one indicator of success, but helping them create jobs or land a buyer is also important. Hubs also can be rated on how well they help people (especially budding entrepreneurs) build in-demand skills and capabilities.
- **Providing infrastructure** refers to the space that hubs provide. Hubs not only create an environment infused with the spirit of creativity and innovation, but they help start-ups survive by making office space, electricity and internet affordable and accessible.
- **Building community**. Hubs serve as central nexus points for entrepreneurs and other like-minded individuals focused on technology and entrepreneurship to meet and share ideas. Other community-centred sources of value addition include creating partnership and project opportunities for members, exposing them to new ideas and knowledge through events, and building their business and technical skills through training.
- **Making connections**. Hubs help entrepreneurs connect to customers, investors, mentors and partners outside the hub that will help them expand their businesses.
- **Supporting start-up success**. Hubs will be judged on the performance of start-ups, both inside and outside the hub community. Indicators of success include 'graduating' from the hub, acquiring customers, making money, paying taxes, creating jobs, scaling, generating social impact and disrupting industries.
- **Encouraging personal outcomes**. Hubs can influence the growth and evolution of hub members by offering training, introducing them to new ideas and knowledge through events, or directing them to external resources such as online courses to build their capacity. Hubs can also encourage members to work for themselves and build the skills and capabilities of aspiring entrepreneurs so they can launch successful ventures.
- **Fostering status and prestige**. As illustrated by the public profile of the iHub, one of the first and most well-known hubs in Kenya, a well-regarded hub can establish its city or country of origin as a centre of tech entrepreneurship. Belonging to such a hub can raise the status of a start-up, increasing its chances of attracting media attention and investor interest. This, in turn, expands the pool of opportunities available to all hub members.

Despite this useful framework, measuring hub impact is challenging. The biggest benefits of a hub often come from building communities and ecosystems. This makes training and membership activities difficult to measure,[96] as establishing a direct connection to impact is tricky.[97] Additionally, the socioeconomic impact of these activities is hard to measure, due in part to the anecdotal nature of much of the evidence.[98] When metrics are aligned with core purpose and activities, the maturity of the hub's surrounding ecosystem should be taken into account.

For instance, measures in nascent ecosystems in countries including the Gambia and Liberia should probably focus on ecosystem-building activities such as community development, training and skills development. In countries with rapidly growing ecosystems, however, such as Ghana, Kenya and Nigeria, more emphasis could be placed on start-up outcomes. Given the inadequate resources in nascent ecosystems – for example, access to finance, markets and mentoring – selecting a single problem to solve can be challenging.

Metrics associated with start-up creation are easier to measure.[99] But when hubs attempt to use traditional incubation metrics such as increased start-up revenue to illustrate their merit, the results can be a mismatch between the activity and the evaluation metric.[100]

This assumes, of course, that hubs collect data – which may not be the case. At least two studies have found that the absence of performance data and tracking of post-programme graduates hampered efforts to evaluate accelerators.[101] Finally, comparing performance measurement across hubs is challenging because of the fluid, hybrid structures and the evolving nature of the environments in which they operate.[102]

Hubs track many different metrics, including outputs and the number of event participants, supported start-ups and training sessions. They also collect data such as participant feedback from training and events, progress made on revenue generation and partnership development, start-up performance and diversity statistics. BongoHive in Zambia has set quarterly targets for its start-ups while iSpace in Ghana tracks the number of women who are organizing and taking part in its events.[103]

Ultimately, the core challenge may be insufficient institutional capacity. Hub teams have some sense of what and how to measure, but they may not have the resources to do so. As a hub manager interviewed by the Institute for Development Studies and Results for Development explained, 'I know our website is a disaster, but I haven't had the resources or the time to fix it. I know I need to tell the awesome stories from our work on the ground, but I've had to focus on actually delivering that work first.'[104]

Zimba Women training at the Innovation Village, Kampala, sponsored by NTF IV Uganda.

WHEN HUBS FAIL – THE HYPERCUBE STORY

Although it is critical to examine how hubs create value and measure success, it is equally important to explore challenges and instances in which they fail.

The Hypercube story helps illustrate the life cycle of a typical hub – how it is founded, grows, tackles problems and, in some cases, closes its doors.

Origins

Hypercube was launched in November 2013 as Harare's second tech hub. The manager of IT Fix, (the local arm of an international tech support company) the founder of ZimConvo (a local media start-up), a crowdfunding expert and three other collaborators joined forces to respond to a call for proposals to launch a socially oriented hub. A consortium of three international organizations, Hivos, Indigo Trust and the United States Embassy in Harare, issued a call for funding.

After a competitive process, the final 'Hypercube Technology Trust' team composed of Munya Chiura, Nigel Mugamu, Nikki Kershaw, Rinesh Desai and Taps Murove won the bid in September 2013. They were initially awarded €150,000 by Indigo Trust and Hivos, and $75,000 from the United States Embassy. Hypercube also received $11,000 from the United Nations Development Programme at a later date.[105]

Activities

Hypercube's mission, as defined by the founding team, was to help structure the tech entrepreneurship ecosystem in Harare and Zimbabwe. This mission was rooted in a community-first ethos, which prioritized the needs of key stakeholders – developers, entrepreneurs, businesses, government, international development organizations, educational institutions and social media outlets – above all else.

Initially, Hypercube focused on hosting large events such as Start-up Weekend and TEDx Harare,[106] as part of its ecosystem-building mandate. The hub also offered training to young people who were interested in learning coding. As a trial, Hypercube offered free coworking services to developers and entrepreneurs for the first year. Nevertheless, most visitors used the space intermittently; no more than 10–20 members occupied it regularly. The space also failed to attract experienced entrepreneurs and developers, who could afford internet access at home.[107]

Challenges

Over time, Hypercube faced criticism about its usefulness. Some people said the hub inability to attract seasoned entrepreneurs and developers limited its value, as aspiring programmers and founders would learn best from those with more experience. Critics also highlighted the limited access to potential customers and partners available through the hub.

Others argued that the fundamental problems facing Zimbabwean entrepreneurs were beyond the control of Hypercube and inadequately understood by the founders because most were not entrepreneurs.[108] Finally, many criticized the high amount of donor funding secured by the founding team to launch the hub, saying Hypercube might struggle to achieve financial sustainability and that ecosystem development should be driven by local tech entrepreneurs.[109]

The Hypercube team noted the criticisms but insisted that the ecosystem was heading in the right direction.[110] But they also recognized the need to refine their approach. The team decided to focus on offering structured support to entrepreneurs geared at improving their performance.

This decision was informed by a desire to create a model that would generate revenue beyond donor support. It was also important to acknowledge that while the pilot year confirmed demand for the hub, the ecosystem

was not yet mature enough to make traditional business models viable. Members had the choice of buying à la carte coworking access or participating in a structured programme with milestones and mentoring. Teams and companies could also rent office space.

Failure and lessons learned

Hybercube closed its doors in December 2015 after its donor funding ran out. The founders were unable to raise new funds after nearly a year of searching, and ultimately determined that they could not make the space financially viable.[111] During its two years of operation, Hypercube hosted 35 events, received 1,300 visitors and engaged 107 start-ups and 75 active members.[112]

One founder said after the shutdown that 'the truth is that Hypercube has been facing challenges for quite some time, including ensuring we had the right team to execute our mandate, underestimating the turbulent Zimbabwe economy, failure in implementing adequate policies and procedures to support our growth, significant delays in the little income we were receiving to cover operational expenses, and adapting our business model quickly enough to reflect the realities of the Zimbabwe marketplace'.[113]

In December 2016, the team behind Hypercube sought to revive the hub by hiring a 'recovery manager'. The recovery manager conducted a three-month audit in 2017 that revealed financial irregularities such as unusually large expenditures for certain personnel, an inappropriate withdrawal of donor funds by a founding team member and dissention among the founders that culminated in the resignation of two members.[114]

In January 2017, three of the founding members – Chiura, Kershaw and Desai – participated in a public question-and-answer session hosted by the United States Embassy to share their perspectives and lessons learned from the Hypercube experience. Key takeaways include:[115]

- **Prototype first**. Hypercube's founding team had a broad, ambitious vision at the outset, informed by robust research on the operating models of hubs in other countries. But it lacked an alternative course of action if plans collapsed and failed to sufficiently localize the lessons learned from other hubs. The three co-founders recommended testing the hub model – clarifying the direction, validating assumptions and generating some early results – before seeking funding.
- **Have a committed board and management team with complementary skills**. Hypercube had a large founding team, with four of the six founders holding full-time jobs leading other organizations. Most likely due to these constraints, the board only met quarterly, rather than the monthly meetings with regular check-ins that they would recommend to others. They also highlighted the need for those in leadership positions to have complementary skills that benefit the hub as well as a deep appreciation of the importance of managing their fiduciary responsibilities and any potential conflicts of interest. In sum, hub founders should create a board and develop its governance and accountability practices above all else.
- **Be forward thinking about revenue generation and cautious about costs**. Hypercube had no source of income beyond donor funding, and efforts to create partnerships and source additional funds were unsuccessful. The hub should have charged for membership sooner, especially given that its monthly operating costs were $10,000. Hypercube offered free membership in its first year. The team piloted a paid membership structure from January 2014 and officially introduced paid memberships a year later. This was too late to save the hub, however. Hypercube also overestimated the demand for space and underestimated the cost of running it. Most of the hub's costs stemmed from renting a space that was too large for its needs because it was 'trying to be all things to all people'. The team also invested in an unnecessary renovation that had little impact on its community members.
- **Invest in active financial and human resources management**. The Hypercube team advises founding teams to develop business plans that they revisit regularly and to hire financial management resources if they do not exist internally. Appropriate organizational performance monitoring and personnel management procedures must be in place.
- **Recognize mistakes and correct course**. The three Hypercube co-founders felt they were too slow to acknowledge the challenges. When they were forced to fight for their survival, they focused on staying afloat instead of doing what was best for the community.[116]

INTERVIEW

INNOVATION VILLAGE — CAPITAL AND EXPERTISE FOR UGANDAN START-UPS

Tech start-ups often struggle to stand out, survive and succeed in Uganda, which has the youngest population in the world and a severe youth unemployment rate. One solution for many young entrepreneurs is to cluster together and join tech hubs such as the Innovation Village Kampala to become part of a community where ideas are encouraged and cultivated.

CK Japheth, who founded Innovation Village to give new Ugandan ventures greater odds of surviving and thriving, describes the hub as a 'launchpad for entrepreneurs solving some of Uganda's biggest challenges'.

'We are at the heart of an interconnected network of investors, public, private, development, entrepreneurs and academia working to deepen the application of technology in solving challenges or driving social benefit,' he said.

Uganda was ranked as the world's most entrepreneurial country in a 2015 study by Approved Index. With a population of 40 million – and about 75% of Ugandans below the age of 30 – what many people see as a youth problem in the East African country is actually an opportunity to 'put the youngest population in the world to work', Japheth says.

'Over the last 10 years, we have mostly seen unsustainable approaches like one-off workshops, conferences and grants, but also innovation competitions that select the top three from a potential 100+ submissions,' he said. 'We built the Innovation Village to be a destination for the 97 who don't normally win such competitions.'

Uganda's ecosystem lacks access to capital and investors, as well as market maturity and experience helping entrepreneurs start and scale. As a result, up to 95% of new ventures in the East African country fail in their first year. But that may be changing.

Innovation Village is one of 16 tech hubs in Uganda, which has benefited as technology giants including Facebook, Alibaba and Google turn a closer eye to Africa. Across

CK Japheth, founder of Innovation Village Kampala. Photo courtesy of Innovation Village.

the continent, the number of tech hubs surged more than 40% between 2016 and 2018, and new spaces are likely to spring up in Uganda.

Japheth's brainchild focuses on education tech, climate, media, fintech and agribusinesses. The community space is home to 130 local, regional and global start-ups totalling 2,000 innovators – 40% of whom are young women, he says. Its service portfolio is known as ACE – an acronym for acceleration, capital and expertise.

'Acceleration for start-ups and for partners, capital through an angel network and a recently formed 97 Fund yet to be operational, and innovation expertise where we build custom solutions for partners from both the public and private sector,' he explained. 'But given the early ecosystem, you can't just build an incubator or accelerate. So over the last three years, we have been building an innovation ecosystem to support our most promising entrepreneurs.'

Investment targets African start-ups, not tech hubs

Total funding given to African start-ups jumped almost fourfold in 2018 to a record $725.6 million, and the number of funding deals more than doubled to 458, according to WeeTracker's 2018 venture investment report. Equally encouraging is that more tech start-ups on the continent are grabbing big ticket financing exceeding $5 million.

Still, capital remains the primary obstacle for most Ugandan start-ups – as well as Innovation Village and other tech hubs in the country. Investors tend to target entrepreneurs rather than tech hubs, many of which remain small and barely make ends meet. One of the Innovation Village's biggest challenges in terms of ensuring its own sustainability is attracting investment – even though its annual revenue jumped 500%.

'We have successfully innovated around what a typical incubator does, but the market is still attached to what a traditional incubator does,' Japheth explained. 'We also struggle to build awareness with the marketplace. This is a first time for potential partners from public, private and academia, so the curve is too long, takes time and is expensive for us. But we have successfully managed to build what can potentially become one of Africa's first self-sustaining hub models.'

Today, Innovation Village generates most of its revenue – 40% – from the innovation services it provides. The remainder is derived equally from three other services: programme development and management, start-up and SME business development, and space and events. ■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CHAPTER 3

BUSINESS MODELS OF AFRICAN TECH HUBS

BUSINESS MODELS OF AFRICAN TECH HUBS

The number of active tech hubs across Africa is growing steadily, rising from 314 in 2016 to 618 in 2019, with more due to launch. Tech hubs and innovation spaces are at the heart of Africa's technological and start-up revolution, but they face serious difficulties monetizing and becoming sustainable.

This chapter, based on interviews with 39 tech hubs in 21 African countries, shows how these hubs have designed their business models and the struggles they face to become financially sustainable. The study provides other hubs and ecosystem leaders with insights on how to better design their own business models and overcome challenges to financial sustainability. It also offers information on how tech hubs function in Africa and suggests ways to assist them.

The patterns of five tech hub business models have been designed, based on the collected data. These patterns could serve as good references for a hub to understand how to start or how to rethink its existing business model. They also help tech hub partners understand and categorize the different patterns.

Table 3 Interviews: 39 hubs, 21 countries

Goal	Goal	Services	Goal
Founders hub	Nigeria	Innohub	Ghana
TVC Labs	Nigeria	Startup Incubator Gambia	Gambia
360 Creative Innovation hub	Nigeria	InnovaLab	Bissau Guinea
kLab	Rwanda	JA Gabon	Gabon
CIPMEN	Niger	ActivSpaces	Cameroon
La Fabrique	Burkina Faso	Ingenious City	Democratic Rep. Congo
Concree	Senegal	MEST	Ghana
EtriLabs	Benin	Akure Tech Hub, FUTA	Nigeria
Harmony Innovation Hub	Nigeria	Impact Hub Dakar	Senegal
Exponential Hub	Nigeria	Jokkolabs Dakar	Senegal
EnovateLab	Nigeria	CapitalSquare Workspace Solutions Ltd.	Nigeria
CodeSpace	Nigeria	Malhub	Nigeria
BongoHive	Zambia	Wecreate	Zambia
22 On Sloan Capital	South Africa	Cape Innovation and Technology Initiative	South Africa
LaunchLab	South Africa	FSAT Labs	South Africa
Innovation Village	Uganda	Sensi	Sierra Leone
iHub	Kenya	Growth Africa	Kenya
DoniLab	Mali	Incubivoire	Côte d'Ivoire
Lab'ess	Tunisia	Flat6labs	Tunisia
Outbox	Uganda		

What is a tech hub business model?

A business model is defined as the rationale behind how organizations create, deliver and capture value. This definition applies to a tech hub as an organization. Business models are not just about generating revenue for hubs – they are also essential for their long-term financial sustainability. The interviews and information collected from the 39 hubs reveal how their business models are structured to:

- Create value by targeting specific customers (e.g. entrepreneurs, start-ups, public/private organizations);
- Organize themselves in terms of human resources and activities to deliver value to their target customers;
- Capture value for themselves so they can become sustainable.

Create: Designing the value proposition for a tech hub

Like any other organization, a tech hub must understand market trends so it can identify customers that will drive value and help it become financially sustainable.

Overview: Start-up Support in Africa

It is no secret that the African start-up scene is thriving. Access to knowledge and technology has never been cheaper for Africans, especially for youth. However, the youth population of 250 million is expected to double in the coming decade, and job opportunities are scarce.

African youth are using technology to create solutions to specific problems and to fulfil needs. Tech hub support through incubation, acceleration and community building is helping youth to turn their solutions into entrepreneurial endeavours.

The success of tech hub leaders in countries such as Rwanda, Nigeria, Kenya, Ghana, Senegal and South Africa has been critical in convincing governments and their technical partners to integrate entrepreneurship into their policy and structure. They are now partnering with hubs and other entrepreneurial actors to create successful start-ups. The success of these entrepreneurs pays enormous dividends to local economies, leading to job growth, positive social impact and increased environmental and economic sustainability. One example of this is the i4policy that is in place in Rwanda, Nigeria, Senegal, Mali and Côte d'Ivoire.

Increasingly, established companies are also approaching the entrepreneurial ecosystem to identify and work with start-ups that can drive innovation, reshape their future or help them enter a new or unknown market. Telcos, MTN Yellow (start-up accelerator) and Orange Digital Venture Africa (corporate venture) are particularly dynamic in this area.

Global tech companies including Amazon, IBM, Microsoft, Google, Facebook and, most recently, Alibaba collaborate with hubs to reach entrepreneurs and create communities around their products. For example, entrepreneurs accepted to the CcHub incubation programmes can receive a $15,000 credit from Amazon Web Services.

Who benefits from tech hubs?

The interviews and data that were collected show that tech hubs work with different stakeholders such as partners and/or clients to generate revenue and become financially sustainable. These include:

- **Entrepreneurs at all stages** (from idea to growth stages). Tech hubs provide support through their training, pre-incubation, incubation and acceleration programmes.
- **Investors** seeking investment readiness and deal flow. Funds have a limited lifetime (10 years on average) and investors want to focus on high-quality start-up deal flow.
- **Established companies** seeking to:
  - Meaningfully impact the local economy, society or environment through their corporate social responsibility, which they can do by collaborating with start-ups.
  - Identify creative solutions and partner with start-ups outside the company to drive innovation when employees may not be as dynamic.
  - Create communities around their product for outreach purposes and to retain future customers.
- **Foundations and NGOs** looking to solve social, environmental and health-related problems, among other challenges.
- **Public and international organizations** willing to solve job-related issues and drive economic development through innovation.

Entrepreneurs are the main targets of tech hubs, whether they are direct, paying customers or beneficiaries of publicly funded support programmes (examples of which include AFIDBA – African Development Bank for Inclusive & Digital Business in Africa, Afrique Excelle launched by the World Bank and Jambar Tech Lab). Tech hubs must understand the tasks that entrepreneurs are trying to accomplish and the challenges they may face during their entrepreneurial journey.

Entrepreneurs have different goals. For instance:

'I want to design the best possible product that will be sold as quickly as possible and generate enough revenue so my parents can sleep well knowing that I took the right decision to quit my job.'

'I want to maximize my chances to raise money and scale my company in Burkina Faso, Ghana and Côte d'Ivoire.'

The needs of start-ups are linked with 'pain points'. A 2017 study on the role of tech in Nairobi[117] found that entrepreneurs usually lack:

- General managerial and soft skills (a challenge for start-ups globally)
- Mindset and social capital
- Skills in fundraising, product marketing, technology and entrepreneurship
- Market Information
- Experience
- Opportunities to access funding
- Access to affordable workspaces

Beyond entrepreneurs, tech hubs should always look for the needs and related pain points of their other customers.

Tech hubs' offer to entrepreneurs

A tech hub must carefully articulate and tailor its offer to the customers targeted in its business model strategy.

Hubs such as Ghana's MEST offer complete support. Assistance from the Meltwater Foundation enables MEST to target entrepreneurs from across Africa in their earliest stages, and get them through the intensive training curricula in Accra free of charge. At the end of the training, the best are accepted into the incubation programme to rapidly prototype a solution and test the market. MEST can then provide early-stage funding and acceleration to the best incubees.

Beyond the high-quality training, funding and support provided by the MEST team and its network, entrepreneurs benefit from the MEST brand. The presence of this brand and its high-quality events in four countries drives interest from investors and partners. This allows MEST to develop a wide network and maximize the potential of its incubees to reach new markets.

An analysis of the way another hub, JA Gabon, structures its entrepreneur support system (see below) reveals how the company tries to design its offerings to help start-ups make progress in their entrepreneurial endeavours.

Entrepreneur's desires	JA Gabon's offer includes
'I have an entrepreneurial project and I would like to make it concrete.'	Training and coaching on business models, online marketing and communication, setting up visual identity, sales, management, business planning, finance, company registration.
'I have a small company and I want to structure it.'	Training and coaching on how to be a great chief executive, how to manage and analyse company financials, how to structure its sales process.
'I want to take my company to a growth stage.'	Training and coaching on business planning, hiring, delegating, time management, managing cash flow, successfully managing the development of the firm, obtaining loans to fund activities, attracting international customers.
'I want to raise money for my company.'	Training on capital investment, what is needed to approach an investor (i.e. a business plan, a well-managed team, good financial management) and how to contact and manage one's relationship with the investor.

Deliver: Getting the message across

Marketing

Few tech hubs have well-articulated marketing strategies. All use communication channels on social media platforms, and they communicate very well about their activities, events and success from collaboration with entrepreneurs. It is unclear, however, if the communication setup is effective in attracting targets such as entrepreneurs and companies and converting them into customers.

One tech hub manager even said she often reminds herself to use the same marketing and communications techniques that she advised an incubee to use.

Although tech hubs are usually methodical when it comes to attracting entrepreneurs, they typically draw other types of customers through one-off opportunities. There is rarely a well-articulated marketing strategy specifically to identify and catch the attention of organizations that give grants, or companies and other public and private groups that need the hub's consulting services.

Tech hubs including 22 On Sloan Capital use Global Entrepreneurship Week and similar events to gather large databases of potential entrepreneurs to incubate or accelerate. These events also shine a spotlight on the activities and achievements of hubs themselves, so they can attract the attention of other customers, such as governments, enterprises and donors.

BongoHive and iHub emphasize the importance of participating in international events as well as local meetings with private sector stakeholders. These events are instrumental for reminding authorities and others of their existence and ensuring that the hub's meaningful activities on entrepreneurship, technology and innovation speak for themselves.

From a positioning point of view, CcHub (Nigeria) and iHub (Kenya) are excellent examples of tech hubs that have well-defined positions and mission statements. The welcome pages of their websites receive many daily visits because they produce content (inbound marketing).

The mission statement of CcHub – 'We are an innovation centre dedicated to accelerating the application of social capital and technology for economic prosperity' – is designed to appeal to public and private organizations that believe in using technology to drive economic prosperity. This is enough for them to engage with the CcHub team, which can transform them from partners to customers.

Tech hub teams

The success of a hub depends to a large degree on the external or internal teams that are responsible for delivering services to entrepreneurs and other clients/beneficiaries. During the African Tech Hub Summit organized by Jamlab in Johannesburg in November 2017, it emerged that many hubs struggle to find the right talent to join their teams.

CcHub founder Bosun Tijani recalled that 'we needed to boil the ocean' to find the right people. He said success came from leadership that conveys values. 'People want to do jobs that make them feel like they have a purpose, so representing what is important to the tech space is key to attracting the right type of people,' Tijani said.

EtriLabs has structured its team to match its two customer segments: public and private organizations for which the Beninese hub designs tailor-made solutions, and entrepreneurs for whom it provides training, incubation, acceleration and coworking services to help them grow and become successful.

Senam Beheton leads the EtriLabs team of product managers, developers, user experience/user interface designers, marketing and communication experts, and financial managers to deliver value propositions to public and private organizations. The team also has a head of incubation and an acceleration manager who oversees the entrepreneurs' support system.

Beheton can tap into the technical and managerial expertise of the team to help entrepreneurs. EtriLabs also brings in high-profile, experienced mentors from outside the organization to complete the team's skillset where needed.

Few of the tech hubs that were interviewed have sector-focused expertise in areas such as health, agriculture and energy. Hubs including kLab, MEST, Startup Incubator Gambia and JA Gabon have tried to fill this gap by setting up an advisory board. Beyond sector expertise, this board is crucial in building trust with funders, prospective clients and other partners.

To deliver high-quality consulting services, Niger's CIPMEN opted to develop and work with a pool of independent and experienced consultants with a revenue-sharing model. La Fabrique of Burkina Faso recently decided to bring in a new team member to manage consultancy projects. Because La Fabrique has struggled to deliver sufficient value for its customers, this tech hub focuses primarily on delivering training, incubation and acceleration services to its incubees.

ActivSpaces is among the hubs that lack adequate human resources. The Cameroonian hub recently launched an internship programme that aims to attract young people with project management backgrounds and to transform them into incubation managers.

Qualified employees are expensive and the talent market is highly competitive, so tech hubs including Growth Africa and Wecreate increasingly train their own talent. These hubs recruit young, motivated, 'diamond in the rough' workers who are passionate about innovation and entrepreneurship, and help them strengthen their technical skills and capacities to fit well into the organization.

These newly trained professionals are sometimes recruited by other, more established organizations, which sounds like a loss for the hub. However, hubs such as BongoHive, which recently lost two trainees to the central bank of Zambia and a fintech start-up, see these moves as evidence of the quality of the their training capacities. BongoHive leverages those cases as proof of its capabilities to future clients.

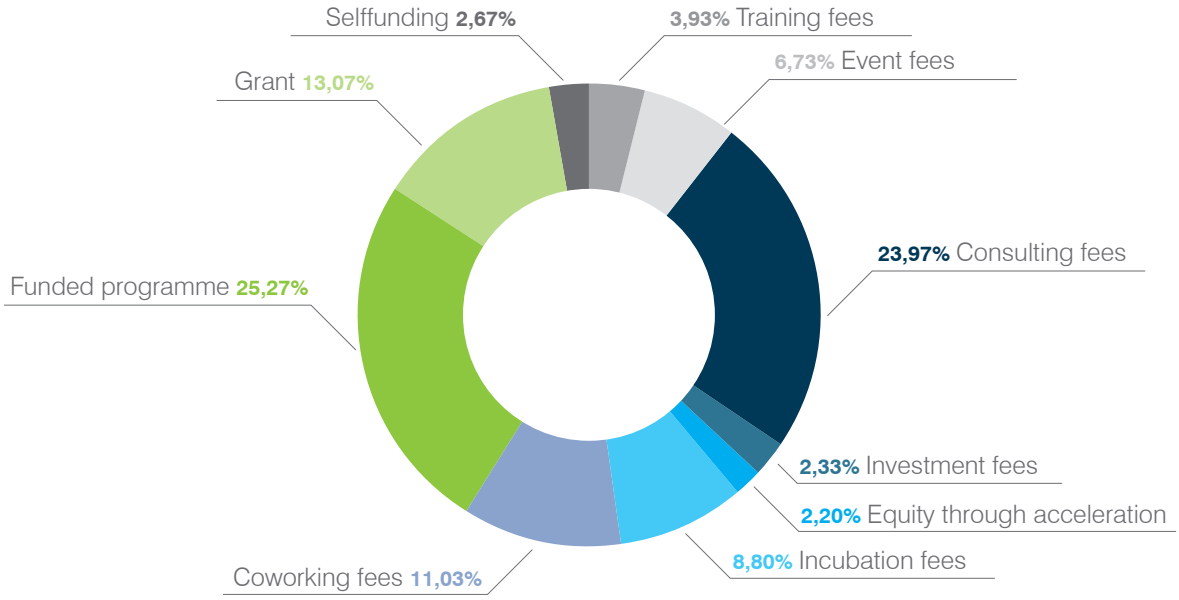
Another innovative strategy for tackling staffing shortages mentioned during interviews is to recruit previous clients. Smart, driven entrepreneurs often fail because of external factors not related to their own capacities. These people can be valuable recruits to tech hub teams, as they bring not only valuable entrepreneurial skills, but experience and familiarity with the hub's methods and capabilities.

Capture: Securing funding

Revenue models

Interviews with tech hubs helped generate a broad view of the revenue streams through which they fund their activities, at least in part. Figure 1 shows that most revenue comes from funded programmes (specific initiatives funded primarily by government and development organizations), consulting activities, grants and coworking fees.

Figure 1 Consulting fees, funded programmes generate most revenue



Source: Afric'Innov

Grants

Definition: Free resources provided by a public or private organization to a tech hub. These resources are meant to help establish or strengthen a hub. Grants are usually financial, though they can be non-financial, such as human resources, buildings, or equipment. In return, tech hubs are expected to meet the granter's objectives and provide periodic reports.

Grants are the third most important source of revenue for tech hubs, especially at their launch. Grants are not easy to obtain, but they allow hubs to focus on their primary mission of supporting entrepreneurs.

Grants also give tech hubs enough space to develop an effective and sustainable business model.

This was the case for CTIC in Dakar, which secured sufficient funding and support from InfoDev and Orange Senegal Public Digital Agency so that it could concentrate on becoming financially sustainable. This happened within five years. CIPMEN in Niger took the same approach with funding and support from Orange, Total, Veolia and Synergie.

Two years after launching as a coworking space, ActivSpaces received grants from the International Organization of the Francophonie, the Government of Israel and IndigoTrust. Table 4 below shows how the hub used that money.

Table 4 How does ActivSpaces use grants?

Grant provider	Use of the grant
International Organization of the Francophonie	■ Awareness raising on entrepreneurship ■ Events ■ Salaries for project managers
Government of Israel	■ infrastructure equipment for the Douala and Bouya hubs
IndigoTrust	■ Salaries for the management team ■ Cost of the incubation and acceleration programmes

IndigoTrust and the Open Society Initiative for West Africa have been particularly dynamic in terms of providing grants to tech hubs. They have supported hubs including iSpace in Ghana, Hive Colab in Uganda and CcHub in Nigeria.

Indigo Trust's grant to CcHub supported operations and facilitated the opening of its office space in 2011. Additional grants went to CcHub's pre-incubation unit to develop businesses such as Budgit, the Constitution app and Efiko, to name a few. Indigo Trust's support has helped the hub secure additional funding from groups such as the Omidyar network.

The International Organization of the Francophonie has actively supported tech hubs in French-speaking countries since 2014, providing funding to CTIC, La Fabrique, Jiggen Tech Hub, JA Gabon, EtriLabs and ActivSpaces, among others.

Triple Jump recently gave a $500,000 grant to EtriLabs that was instrumental in the start of the hub's acceleration programme, EtriStars. EtriLabs is building on this, preparing the launch of a €1 million fund for start-ups in Benin and other West African countries.

Some hubs have benefited from non-financial grants. The Government of Gabon provided a fully equipped building to JA Gabon for a multiple-year exploitation contract, without any financial return since 2016. Germany's GIZ has supplied a free, highly qualified human resources manager to CTIC for four years. That person has played a key role in catalysing start-ups at CTIC.

Insights collected from BongoHive show that, to take full advantage of grants, tech hubs should have personnel dedicated to finding and managing grant opportunities. Especially dedicated staff with the set of skills to write proposals and conduct the following up to transform the grant's opportunity to a funding.

Younger hubs in particular need a process to pursue grants and help bring in quality entrepreneurs and qualified staff to ensure early success and attract interest from other key players and funders.

Programme-based funding

Definition: Revenue generated from programmes by development organizations, governments or other public sector/nonprofit actors that seek to empower start-ups or ideas that can solve social, environmental or economic issues. These programmes usually focus on specific topics or sectors that matter to the funding organization (for example, digital inclusiveness of farmers). These organizations call for proposals and select the hubs or hub consortiums with the best offers regarding their criteria.

Thanks to this type of revenue stream, JA Gabon received funding from a European Union initiative to stop irregular migration. The funding enabled the hub to expand its presence in Gabon with the launch of 14 incubators by the end of 2019.

A consortium coordinated by two French NGOs (Bondy Innovation and Positive Planet International) and comprising five African incubators (La Fabrique, Make Sense, Innohub, Numa Casablanca and Concree)

and international partners will run a three-year programme that focuses on digital and inclusive business, through a subvention from the Agence Française de Développement.

Another example is Afrique Excelle, the francophone version of XL Africa, a World Bank programme to position top digital scale-ups for global growth. A consortium composed of Suguba, Sahelinnov and VC4Africa manages Afrique Excelle.

Through its entrepreneurship development activities, Sensi runs a GIZ-funded programme that assists agribusiness entrepreneurs across Sierra Leone with local and international procurements. It also develops systems and processes to help entrepreneurs effectively manage their businesses.

The programme is working to digitally map the agribusiness industry to help donors, suppliers and investors identify funding and partnership opportunities. The platform is expected to be extended to other industries such as entertainment and fashion.

Programme-based funding usually goes towards human resources, office rent and materials.

Consulting fees

Definition: Revenue generated from services offered by tech hubs to clients such as governments, enterprises, foundations and other international and public organizations.

Consulting fees are the second most important revenue stream of the hubs that were interviewed. Hubs including kLab, EtriLabs, Concree and CIPMEN focus deeply on offering consulting services to a variety of clients as a way to fund free pre-incubation and incubation services for entrepreneurs.

kLab is an example of a financially sustainable hub that has weened itself off of grant- and programme-based funding, yet still provides training and support services to entrepreneurs and start-ups for free. This is possible because kLab provides 'prestige' consulting services to customers such as the Food and Agriculture Organization of the United Nations.

La Fabrique concentrates its consulting services on market research and research for public and private organizations. Kenya's iHub offers consulting services in the areas of software design, user experience, data science and research.

CIPMEN used to consult on migration in Niger for the International Organization for Migration. Its methodology is to identify a challenge and design a proposal to persuade a partner to fund the project. CIPMEN then mobilizes a pool of consultants to deliver value. EtriLabs is designed as a tech company that can develop solutions for enterprises and any sort of public organization.

The main barrier identified during the interviews is that consultancy teams also provide support services to entrepreneurs. They struggle to deliver quality in both areas. Some entrepreneurs also fail to understand that hubs spend time supplying services outside of start-up incubation/acceleration, and that hub employees must also dedicate time and resources to consulting activities to maintain revenue streams. CcHub, kLab and La Fabrique have addressed this issue by hiring a dedicated consultant so other team members can take care of start-ups.

Coworking fees

Definition: Revenue generated from space rental. It derives from four sources:

- Office rental: usually a start-up team that rents an entire office
- Desk rental: usually for individual entrepreneurs or innovators
- Meeting room rental: for external people who want a place to meet
- Training room rental: for individuals or organizations seeking a space to hold a training or a workshop.

A rental can be periodic (for a specific number of days) or permanent.

Coworking fees are the top revenue stream (in terms of percentage) among the tech hubs that were interviewed. Jokkolabs has built its business model on this revenue stream, creating a community and diversifying by organizing events and offering consulting services.

Office rental can drive profitability at tech hubs. This is the case for Jokkolabs, for instance. However, it is risky to rely exclusively on this source of revenue; office rentals used to provide half of the Senegalese hub's revenue, but that has fallen to 30% because two offices are vacant.

For BongoHive, coworking fees only generate enough revenue to cover half the rent, but this is still a significant contribution to the hub's financial sustainability. As such, BongoHive is considering a spinoff service entirely dedicated to coworking. Two proposed models include coworking spaces housed entirely within the tech hub itself, or splitting space into one coworking environment within the hub and another space outside of the hub for more autonomous clients. While the latter model restricts the amount of space available within the hub, more autonomous firms can often pay top dollar for quality coworking space that fits their needs.

Incubation fees and revenue sharing

Definition: Revenue generated from the support provided to entrepreneurs. This revenue can be a fixed fee or calculated hourly/daily. It also can come from royalties, meaning the tech hub gets a percentage of the start-up's future revenue.

In some cases, revenue is generated through a public or private sponsor that pays part or all of the total amount.

Tech hubs such as kLab and JA Gabon opted to offer training and incubation services to entrepreneurs for free. To do so, they provide prestige consulting, mobilize grant funding, and participate in programmes funded by public and development organizations.

ActivSpaces charges a small, symbolic amount to keep entrepreneurs engaged, even though the incubation programme is fully funded by partners such as Indigo Trust. The Centre of Innovation and Technology Initiatives (CITI) provides incubation services free of charge, but entrepreneurs are required to pay a symbolic amount to have access to the laboratories and spaces.

CIPMEN charges a fixed monthly amount of about $104 for physical, in-person pre-incubation services, and $69 for virtual pre-incubation. The hub created a revenue-sharing model for incubation, charging 5%–10% of the future revenue. This model is similar to CTIC's.

La Fabrique permits entrepreneurs to defer paying incubation fees until they start generating revenue. The hub also looks for sponsors that can subsidize entrepreneurs' incubation costs.

Flat6labs (Tunisia), which is focused on accelerating start-ups, generates most of its revenue from management fees that are deducted from the amount of funding given to the accelerated start-ups.

Investment success fees

Definition: Revenue generated from matching investment-ready start-ups with investors. Tech hubs usually apply 5% on the amount successfully raised by the entrepreneur.

This study found that only tech hubs in developed entrepreneurial ecosystems (Nigeria, in the current case) have been able to generate revenue from investment success fees. Doing so is particularly difficult otherwise, because start-ups/entrepreneurs are generally not mature enough and the number of investors is limited.

Equity through acceleration programmes

Definition: Tech hubs that run acceleration programmes often take equity in accelerated start-ups. The revenue is usually generated when the hub exits during a later investment round. However, hubs sometimes retain their equity and wait for a bigger investment round to maximize their profit.

EtriLabs and MEST have acceleration programmes through which they provide capital to help entrepreneurs speed up their growth. MEST and Flat6labs are among the few hubs that have had only a small number of exits.

The survey found that revenue has been generated only in ecosystems that allow rapid exit, which enables a hub to sell its equity and invest the money back into its own activities. This has been the case for MEST.

In late 2018, kLab launched a fund with a 2% management cost. This fund will enable the hub to fund start-ups directly and to take equity in the start-ups they support.

Event management fees

Definition: Revenue generated in one of two ways:

1. The hub designs its own event, raises money from sponsors and keeps a percentage as management fees.

   Examples: Sahelinnov, organized by CIPMEN; Journées Entrepreneuriat Social, organized by La Fabrique; and Global Entrepreneurship Week in Senegal, organized by Jokkolabs. On average, these tech hubs keep 10%–15% of the amount raised.

2. A public or private organization wants to arrange an innovation/tech event and subcontracts with a hub.

   Examples: CTIC manages tech events for Orange/Sonatel in Dakar and Jokkolabs manages tech events for Société Générale in Senegal as part of its open-innovation programme. Sensi of Sierra Leone has worked with multilateral and bilateral organizations like the World Bank and GIZ to organize innovation and technology events in sectors such as mobility and open data, and their applications in key sectors including health disaster management.

Training fees

Definition: Revenue generated from charging fees for training services. These fees can be paid directly by the participants, or fully/partly subsidized by a public or private organization.

BongoHive relies on the experience it has gained in supporting new ventures to design and run trainings, known as masterclasses, on innovation for companies. The fees it charges for participating in those classes represent a source of revenue for the hub.

Start-up studio

The start-up studio is a trending model that can be developed within a tech hub. By definition, it is a structure that aims to repeatedly build companies, and not just support them. Thanks to its infrastructures and resources, the start-up studio increases a start-up's chance of success and optimizes its creation and growth.

Oser Innover, based in Guinea and Ghana, has developed a mobile app called OZE that makes it easier for merchants to manage sales and taxes. OZE was transformed into a company that is generating revenue and recently raised $800,000 from investors in the United States. The tech hub owns shares of the company, which funds its training and incubation activities.

Pros and cons of tech hubs revenue model

Table 5 Each revenue model has pros and cons

Revenue Model	Pros	Cons
Grant	■ Brings short-term (2–3 years) financial stability and serenity for the hub to focus on providing value to entrepreneurs (often for free). ■ Offers the opportunity to design, test and validate a business model. ■ Brings credibility to the hub and helps attract partners.	■ Some hubs lack the skills to raise funds, making it difficult for them to obtain grants. ■ Requires patience while the hub is struggling and mostly looking for short-term solutions. ■ Being too focused on achieving the granter's goals can distract the tech hub from focusing on its primary mission. ■ Frequent activity reports can be time consuming for a small tech hubs.
Programme-based funding	■ Provides good references and confidence to the tech hub. The collected revenue is usually used to strengthen the hub team and infrastructure, which allows it to deliver better-quality support to entrepreneurs.	■ This source of revenue is uncommon and many hubs compete for it. ■ The programme funder typically asks the hub to provide an average of 10% to the funding. Few African tech hubs can afford such a contribution. ■ Some entrepreneurs believe too much money goes towards programme management, which can be costly depending on the level of salaries in the country where the programme is managed. ■ This revenue model usually assumes that support for selected entrepreneurs should be free. Sometimes, entrepreneurs don't value or pay enough attention to programmes when they are free. One possible solution is to apply a symbolic fee, as ActivSpaces has done.
Consulting fees	■ An effective way to reach financial sustainability and independence. This can allow tech hubs to support entrepreneurs for free (as kLab does) with fewer reporting requirements than in the case of grants. ■ The consulting revenue stream brings more professionalism to the team and a commitment to improve its knowledge and know-how. This ultimately benefits the entrepreneur support system.	■ Too much focus on consulting services can mean less attention is paid to supporting entrepreneurs. ■ If the team is not well organized, it could be difficult to deliver good value to consulting customers. This is why La Fabrique recently hired a dedicated chief of consulting service.

Coworking fees	■ The coworking revenue stream is a recurring revenue model. An efficient coworking revenue stream means the hub's network is large and wealthy enough to create value for members.	■ Coworking unit economics are relatively small. This means the hub must fill the space to maximize its chances of becoming sustainable. A downside of this is that crowded spaces can be less appealing work environments and cause entrepreneurs to look elsewhere for a quieter place.
Incubation fees	■ Entrepreneurs who pay for an incubation service are more focused and demanding. This keeps hubs accountable and motivates them to provide better value.	■ This is a very complicated business model, partly because entrepreneurs in most African countries usually cannot afford to pay for the service. ■ Regarding the revenue-sharing model, it can take time before the start-up begins to generate revenue.
Investment success fees	■ These fees create trust among investors and entrepreneurs. They also complete the skillset within the hub (financial and non-financial support)	■ They require considerable involvement to make the start-up as attractive as possible and are risky because of the low number of start-ups funded. This is particularly true in nascent and emerging entrepreneurial ecosystems.
Equity through acceleration programmes	■ Depending on the maturity of the ecosystem, exits from subsequent rounds of investment can bring a good amount of money to the hub. ■ A tech hub that achieves exits proves the quality of its support system. It boosts its brand and attracts the best start-ups. MEST and CcHub are good examples.	■ Entrepreneurs may be reluctant to give equity. ■ Exits are nearly impossible in nascent entrepreneurial ecosystems and very difficult in emerging ones.
Event management fees	■ The larger the event, the more important it is in terms of revenue for the tech hub. ■ Events strengthen the network and branding of the hub and place it among the leaders of the ecosystem on a countrywide or continent-wide scale.	■ Organizing an event is time consuming and requires human resources. This can be to the detriment of entrepreneurs or other hub customers.
Training fees	■ This revenue is important if it primarily targets aspiring entrepreneurs and seed entrepreneurs and if public or private organizations sponsor the training. ■ The skills developed within the tech hub in terms of support for entrepreneurial and innovative projects can appeal to large companies wishing to educate and train their employees in innovation, among other related subjects.	■ Unless relying on a network of trainers, this revenue model is hard to grow/scale. ■ Entrepreneurs often believe they do not need training, so it can be difficult to attract them and persuade them to pay for training, especially if they cannot afford it.

Five Business Models

Data collected from tech hubs has been consolidated and cross-analysed, producing four major business model patterns: the grantee, the networker, the consultant and the agent.

Based on the interviews with Oser Innover (Guinea) and Impact Dakar (Senegal) and a review of the Rocket Internet start-up studio strategy, a fifth business model pattern, the builder, was also identified.

'A couple of years ago, we discovered that for us to survive, we needed to do more than one thing. I know that some hubs think you either need to be consulting firms or hub membership or entrepreneur support entity, etc. But we decided to be multiple revenue stream. We do apply for grants that help us execute certain programmes, we also look for contracts from companies. We are able to charge people for the services we provide. They pay us more fees to attend our programmes, and we also have coworking for people to access the space.

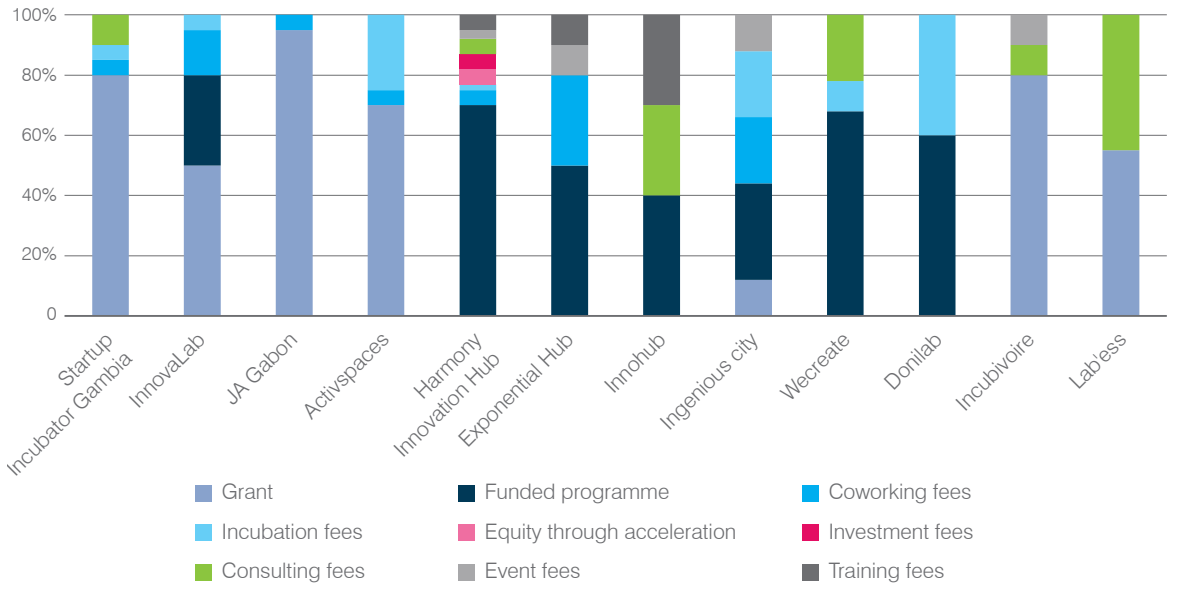
However, our most important revenue source is called BongoHive Consult. With that we are able to build technology platforms and also run masterclass to corporates.

For the last activities we have run, we were able to generate about 45% from BongoHive Consult and the other 55% comes from the grant on the nonprofit side.'

Lukonga Lindunda
co-founder and executive director
BongoHive

Business model pattern #1: The grantee

Figure 2 The grantee business model



Tech hubs that use the grantee model intentionally choose to work with public organizations, foundations and the corporate social responsibility departments of companies, among others. The assistance they receive usually comes in the form of grants or granted programmes that are fully funded and ready to be executed. Grantee tech hubs provide free training and support to entrepreneurs.

Webcreate Zambia is the sole women-focused tech hub interviewed in this study. It exists in several countries and originates from public-private partnership between the United States Department of State: Bureau of Economic and Business Affairs and StartUp Cup. This origin is helpful in raising grants from development organizations such as GIZ, United States embassies, the CITI foundation and company corporate social responsibility departments to support the development of inclusive businesses in water – sanitation – health and to support communities in rural areas.

Thanks to grant funding, clients enjoy free mentoring, business connections, specialized training, connections to the community, media attention, access to markets and capital, and technical tools and resources.

FSAT Labs does not compel the entrepreneurs it supports to give up equities or pay fees. The incubator is financed by South Africa through the Small Enterprise Development Agency and by Methys, a digital consulting company that provides a range of services to entrepreneurs who need resources (e.g. software development).

Incubivoire of Côte d'Ivoire used grant funding from the International Organization of the Francophonie to successfully start and maintain the hub's activity. Like many hubs in West Africa, however, Incubivoire has struggled to generate enough revenue by itself to become financially sustainable.

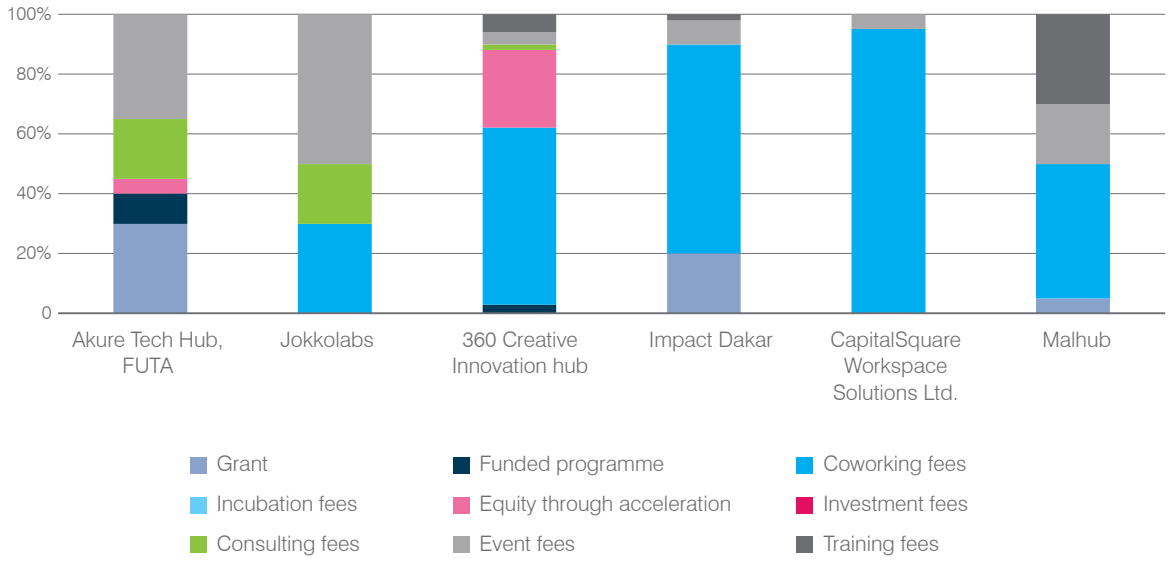
This case demonstrates how it is critical for a hub to have a well-articulated plan towards sustainability and to execute that plan as early as possible – even if it secures a grant. Like all hubs, grantee hubs must test different, sustainable business models and commit to the one that best fits their DNA and generates enough revenue to achieve sustainability.

The interviews revealed that not-for-profit organizations such as CITI find it easier to attract grants. This is why Jokkolabs of Senegal and other for-profit hubs plan to change their legal status to nonprofit.

As mentioned before, to take the full opportunity of grants, tech hubs should have dedicated personnel with the right skillset to identify grant opportunities, write proposals and conduct follow-ups to transform opportunities into funding projects.

Business model pattern #2: The networker

Figure 3 The networker business model



Networker tech hubs are usually ecosystem builders. They offer coworking services to entrepreneurs, and access to a network to help them grow.

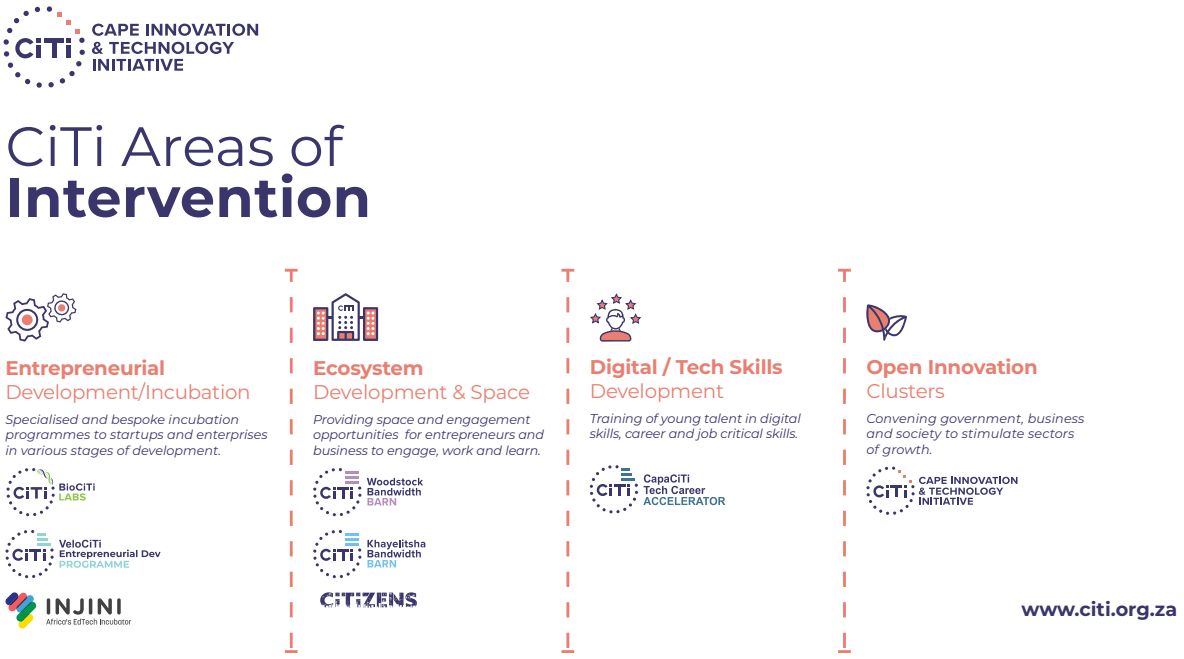
Effective networker hubs orchestrate an ecosystem of freelance talent, peer entrepreneurs, companies, investors and other business development service providers to realize the best outcomes for all parties. Networkers target other organizations to provide them with services that ultimately benefit the networks and partnership potential of entrepreneurs, investors, service providers and other ecosystem actors.

Jokkolabs is a prime example of the networker model, in which revenue comes from coworking, training and project management fees. The Senegalese hub works with Société Générale of France through its open innovation programme. Figure 3 presents more information about this model.

Capitalizing on 20 years' experience and inspiration from the work of Michael Porter on cluster theory, CITI (South Africa) is a strong example of the networker model. The South African hub has formed open innovation clusters that link stakeholders from government, business and society with entrepreneurs and digital talent to increase the productivity of all parties.

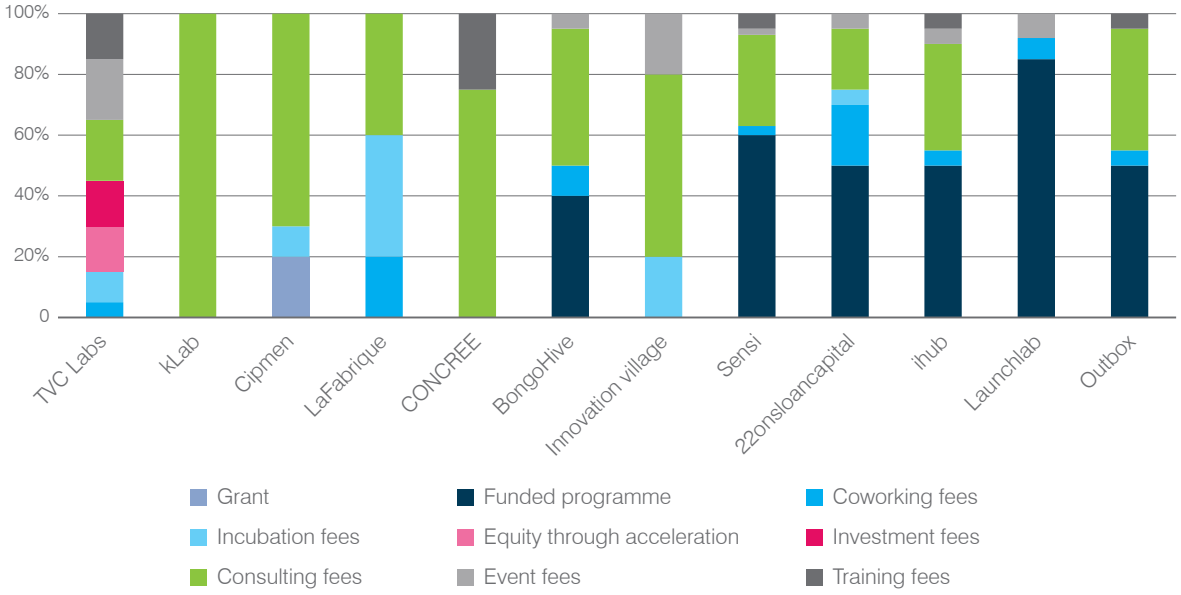
These clusters drive innovation and stimulate new businesses in each field. CITI's clusters centre on FinTech, EdTech, BioTech, TravelTech and DataTech.

Figure 4 CITI is involved in four main areas of development



Business model #3: The consultant

Figure 5 The consultant



Almost half of the tech hubs that were interviewed fall into the consultant category. They tend to choose multiple revenue stream strategies by highlighting their offer of consulting services to public and private organizations in the form of:

- Digital solutions services. Hubs including Outbox (Uganda), Sensi (Sierra Leone), EtriLabs (Benin), Innovation Village (Uganda) and iHub (Kenya) rely on their own technical teams or collaborate with start-ups to deliver services to entrepreneurs and public and private organizations.

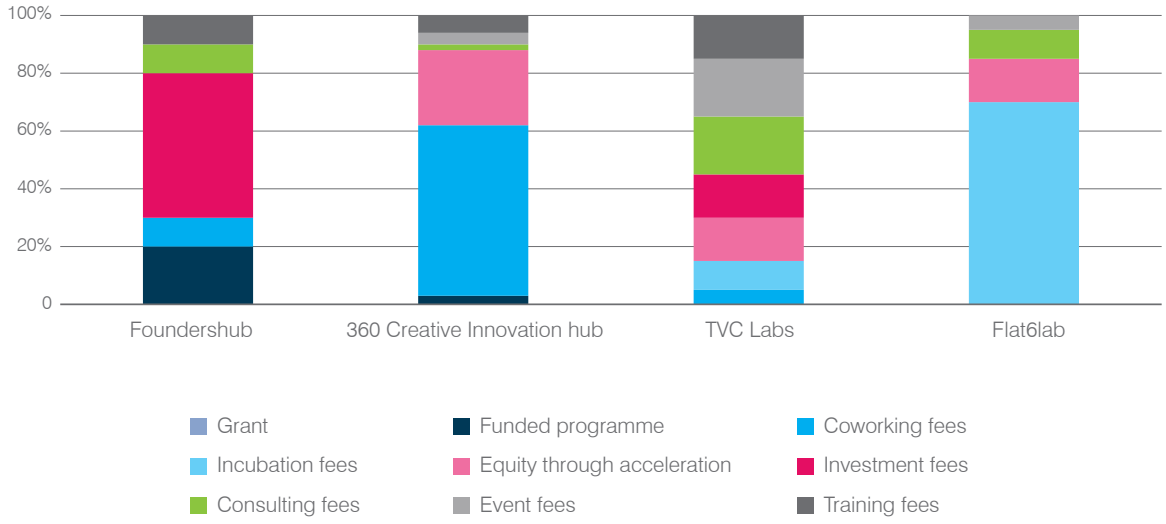
- Access to data for governments and development organizations. Hubs such as Sensi help public organizations decide how to invest in entrepreneurship or better understand key areas like inclusiveness, access to health and agriculture. Sensi was especially helpful to GIZ in terms of accessing live data during the Ebola crisis.
- Trainings (masterclasses) on innovation for organizations seeking inspiration from how start-ups are developed. BongoHive is an excellent example of this in Zambia.
- Open innovation consulting services such as FSAT Labs (South Africa) advise leading corporates that want to develop a strategy to set up acceleration programmes for start-ups.
- Providing advice to development organizations, foundations and companies' corporate social responsibility programmes on how to design effective programmes to engage and collaborate with entrepreneurs and start-ups for objectives such as job creation, innovation, inclusiveness, women's empowerment, etc.

Consultants are tech hubs that want to become sustainable as quickly as possible while supporting entrepreneurs at little to no cost. This is the case of kLab, which (like the other organizations cited above) works with businesses and organizations to deliver high-value consultancy.

La Fabrique and CIPMEN have supported start-ups with grants from the International Organization of the Francophonie, Orange and Veolia. Along the way, they have developed consulting services that help them become sustainable. They differ from kLab in that they charge entrepreneurs for their incubation services.

Business model #4: The agent

Figure 6 The agent



Agents are usually acceleration-orientated tech hubs. They help start-ups that are investment ready by connecting them with investors. These hubs generate revenue from exits, success fees and fund management fees. This model is difficult to develop in immature entrepreneurial ecosystems.

Apart from Flat6labs, the only surveyed hubs that have started to generate revenue from exits are located in Ghana (MEST), Kenya (GrowthAfrica) and Nigeria, which are classified as mature ecosystems.

Flat6labs has earned revenue from one exit, even though the ecosystem in Tunisia is not yet as mature as Nigeria, Kenya, South Africa. The growth strategy of the hub in the Middle East North Africa region facilitated Flat6labs' exit by supporting the acceleration of a large base of interesting and investment ready start-ups. This improved the likelihood of follow-up investment, and/or acquisitions by interested companies.

CIPMEN and EtriLabs have also opted for the agent's revenue model to balance their business model. They have not yet generated any revenue from it, however.

Business model pattern #5: The builder

The builder refers to tech hubs that have start-up studios as a revenue stream so they can fund (fully or partially) their own budgets. As mentioned earlier, Oser Innover (Guinea) created an app and developed it as a start-up that recently raised $800,000.

The previous section on business model pain points describes the difficulties that hubs such as Impact Dakar face in generating revenue from entrepreneur support services. To overcome these challenges, Impact Dakar created a programme called Entrepreneur 9 under which the hub supplies business ideas to attract high-skilled, experienced people eager to implement them like a start-up. The hub offers to cover up to 80% of the previous salary of participants who quit their jobs to join the programme.

The builder model fits well and is worth combining with other revenue streams to accelerate the journey to financial sustainability.

INTERVIEW

JEAN-PHILIPPE GIREAUD, FSAT Labs (South Africa)

Can you briefly describe your hub?

The French South African Tech Labs (FSAT Labs) is an incubator and accelerator for French and South African tech start-ups based in Century City, Cape Town. It offers 400 square metres of incubation and acceleration space. FSAT Labs is a nonprofit organization. Based on the partnership between Seda (the Small Enterprise Development Agency) and Methys (Methys and FSAT Labs have the same founder), FSAT Labs is a new service for entrepreneurs who desire to become powerful change makers. Twice a year, we select and support a new class of entrepreneurs.

How would you describe your hub's business model?

We do not require the entrepreneurs we support either to give up equities or to pay cash. The incubator is partly financed by the South African state through Seda and partly by Methys, a digital consulting company which, in return, propose a wide number of services to the entrepreneurs in need of resources (e.g. software development). We also propose consulting activities to some leading corporates looking to develop an open innovation strategy and set up acceleration programmes for start-ups. The programmes are time limited and aim to help the start-ups to find their product market/fit by getting advice, free-of-charge resources and valuable connections (mentors, corporates, investors).

How has the business model evolved since your debut?

The initiative to launch the incubator was taken by Methys Consulting, as part of the development of the French tech community in Cape Town. Following an interest from the South African state, the FSAT Labs contracted with Seda. The FSAT Labs aims to support in priority entrepreneurs from underprivileged communities.

How do you attract/create demand from customers/partners/funders?

We organize some events to promote the incubator, such as workshops. We have strong connections with the local government (WESGRO), the city of Cape Town, the Cape Town tech community (Silicon Cape) and other activities inside the Methys Group such as AfricArena, which has become the premier deal-flow platform for tech start-ups on the continent.

What is your cost structure?

Most of the money is used to provide offices and pay teams to support entrepreneurs on the day-to-day development of their start-ups.

What are the challenges you face running/sustaining/scaling your business model?

We are not looking to scale and support a much higher number of start-ups and prioritize a strong hands-on approach to the start-ups we currently support. Obviously, as per our size, we are limited in terms of how many internal experts we can hire and we need to work with corporates to finance the innovation programmes.

One of the key points is our ability to rely on a large skillset available inside the Methys Group. We are now opening an accelerator dedicated to scale tech start-ups in Johannesburg, which will work closely with our new fund Digital Ventures Africa, recently announced, and dedicated to empowering primarily young black entrepreneurs using technology to solve the biggest issues of the country.

What are your thoughts regarding African tech hub business? Where are the good and less good examples?

1. There is a need to clarify when we are talking about hubs, since 25% of the active hubs in Africa are no more than a coworking space (GSMA Study).

2. There is a need to distinguish accelerators from incubators and coworking spaces. Accelerators take high-growth tech companies and reduce the business cycle from 2–3 years to 6–9 months. The top five accelerators for African start-ups are Y Combinator, 500start-ups, Start-upbootcamp, Afritech and Grindstone. Incubators are helping start-ups to design the idea and set up the product, and usually do not have an end date.

3. The question of real efficiency of the tech hubs came out of the Unconference that we organized in Cape Town in November with leading investors in Africa. How many viable businesses are coming out of the key players of these tech hubs? If we consider that a good indicator of success is the amount raised by the start-ups coming out of these incubators and accelerators, we observe that there are actually very few [successes] across the continent. As an example, out of the 169 accelerators across South Africa, there are less than 10 accelerated start-ups that raised more than $1 million. Incubator and accelerator managers need to be upskilled and financially supported.

In our opinion, the good examples are the ones that are able to raise money for the start-ups they support and to bring valuable connections with leading corporates. There is a strong need for well-trained players to support the entrepreneurs and connect them with venture capitalists and major corporates.

At this point, we are seeing more and more accelerators raising funds and even venture capital funds setting up their own accelerators – such as Grindstone, by Knife Capital. There is a need for more B2B accelerators well connected with corporates such as Telco's, healthcare networks, banks and insurers.

More effort should be made in general on the continent for leading companies to work with start-ups. ■

The financial sustainability of tech hubs

CIPMEN is the only interviewed consultant tech hub that is not yet financially sustainable. However, the hub manager indicated that CIPMEN is 80% of the way towards financial sustainability.

Collected data and interviews suggest that tech hubs that become financially sustainable have diversified their customer targets and designed a clear marketing strategy to attract and retain these customers. Examples of these hubs include BongoHive, JA Gabon, TVC Labs, Concree, CcHub, iHub, Exponential Hub and EtriLabs.

Figure 7 Builder and consultant hubs are the most financially viable

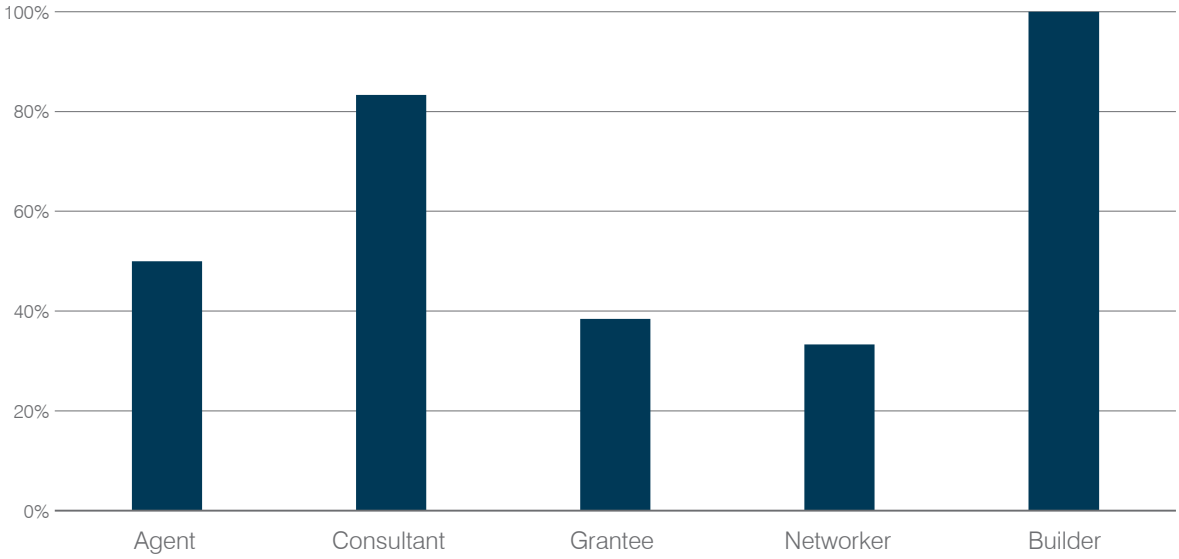


Table 6 Which hubs are financially stable?

Tech hub	Type	Financially sustainable?
Foundershub	Agent	NO
TVC Labs	Agent	YES
360 Creative Innovation hub	Agent	NO
Flat6labs	Agent	YES
kLab	Consultant	YES
Cipmen	Consultant	NO
La Fabrique	Consultant	YES
Concree	Consultant	YES
EtriLabs	Consultant	YES
iHub	Consultant	YES
Innovation Village	Consultant	YES
Sensi	Consultant	NO
22 On Sloan Capital	Consultant	NO
LaunchLab	Consultant	YES
Outbox	Consultant	YES
FSAT Labs	Consultant	YES
Harmony Innovation Hub	Grantee	YES
Exponential Hub	Grantee	YES
Innohub	Grantee	YES
Start-up Incubator Gambia	Grantee	NO
InnovaLab	Grantee	NO
JA Gabon	Grantee	YES
ActivSpaces	Grantee	NO
Ingenious City	Grantee	NO
MEST	Grantee	NO
Wecreate	Grantee	NO
DoniLab	Grantee	NO
Incubivoire	Grantee	NO
Lab'ess	Grantee	NO
CITI	Grantee	YES
Akure Tech Hub, FUTA	Networker	YES
Impact Dakar	Networker	NO
Jokkolabs	Networker	NO
Oser Innover	Builder	YES

Note: The information in this table was accurate as of December 2019.

Strategy to achieve financial sustainability

About half of the hubs that secured grants have become financially sustainable. To do so, they have focused on acquiring programmes funded by governments and development organizations.

JA Gabon has taken advantage of European Union programmes to set up 14 new hubs in Gabon. It has also decided to commercialize training services to entrepreneurs and employees from companies that want to drive innovation internally. In addition, JA Gabon will charge membership fees to generate more revenue from the facilities.

ActivSpaces aims for financial sustainability by imposing a management fee on angel investors for whom it designs an acceleration programme. CIPMEN intends to become 100% sustainable by setting up offices that can generate substantial rental revenue.

Hub networks play a vital role

Tech hub networks are fundamental for the development of the African entrepreneurial ecosystem. Hubs join these networks for various reasons, including:

- Ability to network with other tech hubs
- Technical assistance (training, attending events, etc.)
- Peer learning
- Access to funding opportunities
- Collaboration that helps entrepreneurs scale their business outside their domestic market

Examples of hub networks in Africa

AfriLabs: AfriLabs was founded in 2011 to build a community around rapidly emerging tech hubs. Its mission is to support the growth of technology hubs and their communities to raise high-potential entrepreneurs that will stimulate economic growth and social development in Africa. It does this by providing capacity-building resources as well as financing, mentoring and networking opportunities. www.afrilabs.com

Afric'innov: Initiated by Bondy Innovation Association and funded by the French Development Agency, Afric'innov was launched in 2016 with the help of a consortium of hubs in Africa (mostly French-speaking) and French organizations involved in innovation. Afric'innov is a community of African hubs that aims to professionalize members through capacity building, financing and networking. www.africinnov.com

NINE: This is the largest network of tech hubs in Nigeria, specifically working with the Government and hubs on impact-based monitoring and evaluation metrics. www.nine.org.ng

ANDE: The Aspen Network of Development Entrepreneurs is a global network of organizations that supports entrepreneurship in emerging markets. ANDE members provide critical financial, educational and business support services to small and growing businesses in the expectation that these enterprises will create jobs, stimulate long-term economic growth and produce environmental and social benefits. www.andeglobal.org

Silicon Cape initiative: A community of tech entrepreneurs, developers, creators, angel investors and venture capitalists who are passionate about entrepreneurship and its role in the future of South Africa. Silicon Cape is a not-for-profit organization and an ecosystem enabler for tech-enabled start-ups in the broader Cape Region of South Africa. It works to connect stakeholders, curate ecosystem data, amplify the stories coming out of the ecosystem and advocate on behalf of stakeholders through its membership programme. https://www.siliconcape.com

Tips for hubs and supporting organizations

Tech hubs

1. Think like a start-up

- Create and run your tech hub like a start-up. Start by analysing the entrepreneurial ecosystem and identify the gaps where entrepreneurs need support.
- Choose the most appropriate business model and use lean start-up methodologies to test and validate every aspect of this model.

2. Customer focus and marketing

- Treat every stakeholder generating revenue for the hub (even grants) as a customer and have a well-articulated marketing plan for each customer.

3. Community effect

- Join communities of tech hubs such as NINE, Afric'innov and AfriLabs to learn from other hubs about business model management.

Organizations that support tech hubs

1. Business model technical support

- Provide funding and technical support to bodies such as NINE and Afric'innov to further the research on the business models of African tech hubs and organize training on the subject.

2. Stronger collaboration with tech hubs

- Advocate to convince more developmental and public organizations to work with tech hubs.
- Make these organizations aware of the capacity of hubs to help them achieve their objectives in terms of job creation, social and environmental impact, the United Nations Sustainable Development Goals and economic inclusivity. Support entrepreneurs who can develop, scale and financially sustain solutions that tackle these challenges.

3. Access to funding and revenue opportunities

Build an online platform with three major features:

- E-learning on how to design a business model and achieve financial sustainability.
- Forum/discussion section to help African tech hubs learn from each other and build partnerships to strengthen their business models.
- Connect hubs with funding and customer acquisition opportunities.

Impact Hub Bamako. Photo courtesy of Impact Hub Network

CHAPTER 4

IMPACT HUB: LOCALLY ROOTED, GLOBALLY CONNECTED

IMPACT HUB: LOCALLY ROOTED, GLOBALLY CONNECTED

Originally founded in London in 2005, the concept of 'The Hub' was to open a space dedicated to bringing together impact-driven entrepreneurs, innovators and like-minded individuals. Change makers could use the space and connections of The Hub (as it was known before becoming Impact Hub in 2013) to collaborate, learn and grow.

This simple idea met the needs of impact makers and spread to other cities and countries, where new spaces became rallying points for people passionate about building a better, more sustainable world.

As this idea transformed into a movement, Impact Hub became one of the world's largest networks, focused on building entrepreneurial communities for impact at scale. Today, it inspires, connects and catalyses impact in more than 100 cities in over 50 countries with an eclectic mix of better than 16,000 members.

There are more than 1,400 change makers at 11 Impact Hubs in Africa and the Middle East: Accra, Bamako, Bujumbura, Dakar, Dubai, Harare, Johannesburg, Khartoum, Kigali, Lagos and Lusaka. A new Impact Hub in the making in Dar es Salaam.

In 2017, Impact Hub hosted 11,000 events and indirectly engaged a broader community of 250,000 people. Its members served 21 million clients and beneficiaries, and reached 150 million people globally.

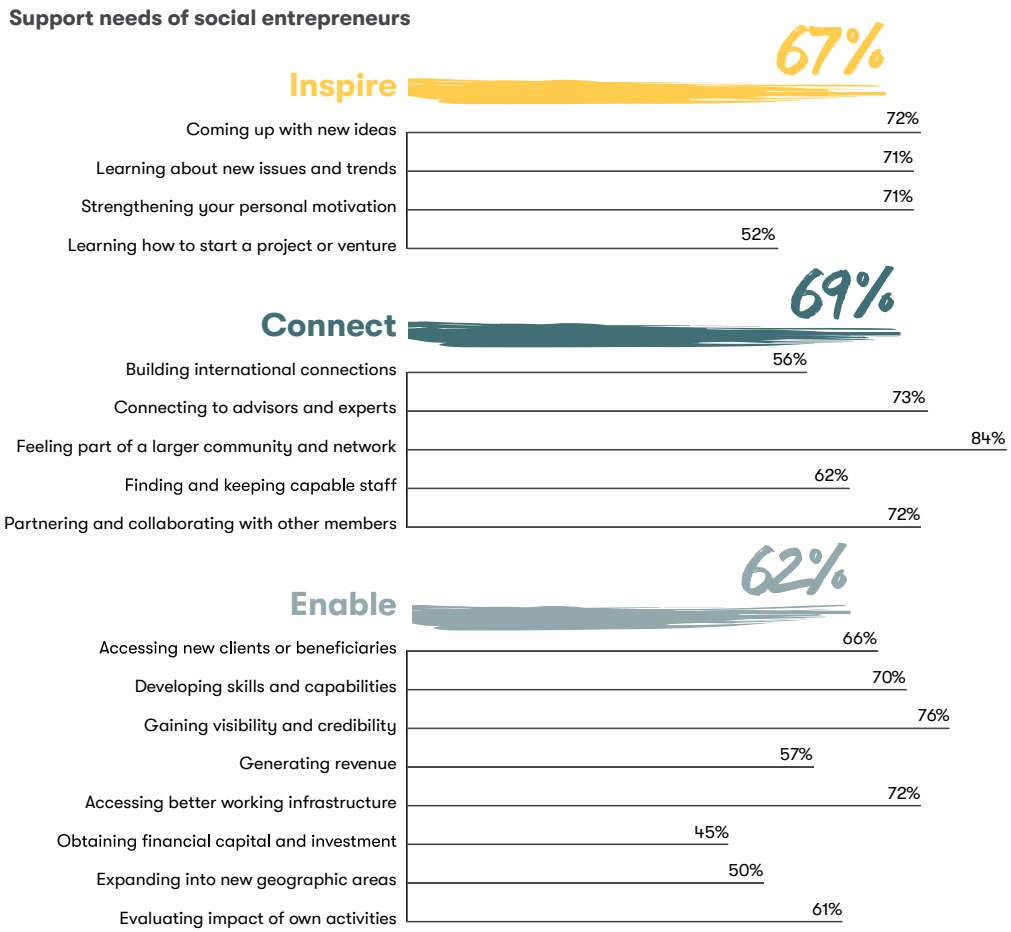
The Impact Hub network now delivers more than 200 acceleration programmes annually. It is one of the world's largest multi-stakeholder organizations and accelerators for positive impact, with a unique global reach across developed and emerging markets.

Impact Hub seeks to pioneer a just and sustainable world, in which business and profit are used to serve people and the planet. The network aims to support the development of ecosystems that drive collaboration and entrepreneurial innovation around the Sustainable Development Goals.

To achieve this, the Impact Hub network and its 100 locations work with partners and allied networks all over the world – including Africa and the Middle East.

As Figure 8 shows, the top expectations of Impact Hub members in these two regions is to feel part of a larger community and network.

Figure 8 A community of change makers in Africa and the Middle East



Source: Impact Hub Association (2018). Global Impact Report 2018.

Community is the basis for all Impact Hub activities. It is the foundation on which new connections and projects emerge. Building communities for impact at scale is about 'creating safe yet challenging environments for people to showcase themselves and their projects, get feedback, consider other perspectives, invite creative tension and take risks. This is achieved by enabling virtual and physical spaces of high value creation, where members are engaged and are actively contributing to the whole'.[118]

Impact Hubs in Africa and the Middle East bring together 1,400 change makers from diverse backgrounds and across various stages: Social entrepreneurs, professionals in start-up or small businesses, intrapreneurs, investors, activities, representatives from the nonprofit sector and academia as well as artists are part of Impact Hub's community in this region.

The community is very young and highly educated: More than 93% of members are under age 35 and more than 85% hold a university degree. With 14.7% of members in intention formation, 12% in idea development and 40% in the start-up phase, the Impact Hub community reflects the early stages of social innovation ecosystems within the region.[119]

'Feeling part of a larger community and network,' 'gaining visibility and credibility' and connecting to like-minded individuals locally and globally are among the most important support needs of the Impact Hub community

Members in Africa and the Middle East need the most support within the Impact Hub community. An average of 86% of members in this region rate the support areas as important, compared with 70% globally.[120] In particular, more support is needed to obtain financial capital and investment (+34%), build international connections (+29%) and learn how to start a project or venture (+26%). Impact Hub's business model is built for exactly these purposes.

The Impact Hub business model in Africa

A local entrepreneurial team initiates, develops and runs every Impact Hub, so it is deeply rooted in the local market and community. This ensures that each Impact Hub is designed to reflect the local context and the support needs of its community, while preserving the core Impact Hub DNA and its multifaceted business model approach. The way the network adapts its business model locally drives its success.

All Impact Hubs provide a multifunctional workspace. Each supplies a safe space for its community, offering essential business services and space-related opportunities such as private events hire, meeting room bookings, virtual offices, mini-offices and team desks.

Impact Hubs work with a diverse community of enterprises, practitioners, investors and organizations. They connect members, enabling them to collaborate and support each other's ambitions. They excel in peer-to-peer learning, incubate impact ventures and host events to fuel innovation through collaboration.

Another essential element of the Impact Hub business model is entrepreneurial support – delivering incubation and acceleration help via programmes, services and educational events, and providing access to mentors, expert coaches and other supporters. This is also the fastest-growing revenue stream of the Impact Hubs locally.

Impact Hubs in Africa and the Middle East are creating markets for impact-driven entrepreneurs within their communities. The following conditions affect the business model:

- Maturity of the market
- Lack of business pipeline
- Inflation
- Economic instability

The traditional Impact Hub business model relies heavily on membership and space-related offerings (globally 40+%). African Impact Hubs focus more on programme-related offerings, with fewer space-based services than the global average (30% in African Impact Hubs). These programmes are crucial to building entrepreneurial resilience, promoting innovation and raising entrepreneurial skills and capabilities within the ecosystem.[121]

Impact Hubs in Africa and the Middle East offer a range of programmes to help shape the future of businesses connected with key Sustainable Development Goals. In addition to Decent Work and Economic Growth (SDG8), these include Zero Hunger (SDG2), Sustainable Cities and Communities (SDG11), Good Health and Well-Being (SDG3) and Partnerships for the Goals (SDG17). Through the Impact Hub community framework, change makers across the region can address these issues in their own, bottom-up approaches, customized to empower their local innovation ecosystems.

The flexibility of this business model means local Impact Hubs usually reach operational break-even in less than two years. The drivers of success are:

Big and bold community – The business model needs a strong and meaningful community of at least 100 members. This not only supports the sustainability of the space aspect of the model, but it also helps Impact Hubs better position themselves to partners and different stakeholders.

Flexible space and membership options – Offering membership packages adapted to the needs of entrepreneurs is essential. From virtual memberships, to part-time and full-time access to the space and offices, the needs of entrepreneurs in different stages vary and should be met. Moreover, spaces with dedicated offices, search engine optimization and technology platforms are more likely to be profitable. Having too many meeting rooms leads to unprofitability.

Business model diversification – Impact Hubs in Africa and the Middle East adapt the Impact Hub model to the local context. They also diversify and increase revenue lines that are not space-related, such as programming, consulting, corporate entrepreneurship and innovation services, events and other services. External partners and funders are crucial for the programmatic approach, and access to a large multi-stakeholder community and senior sales and business development capacity are essential.

Cross-location activity and joint business opportunities – Building relationships with other ecosystem players and engaging in offerings with other locations, cities or countries creates new opportunities for community members and makes the offering to members more competitive.

African Impact Hubs in action

The following programmes run by Impact Hub communities in Africa indicate the kinds of ventures that thrive in this framework. These efforts, in turn, play a significant role in nurturing the broader social innovation ecosystem across the continent.

Impact Hub Bamako - Next Economy

Next Economy enables young Africans to develop their talents, gain self-confidence and acquire the skills they need to succeed, whether as employees or entrepreneurs. The programme, which supports more than 400 youth, prevents migration by better equipping young people to obtain jobs, back the creation of new business ideas and expand their skills and knowledge via mentorship, coaching and connections to partners.

Impact Hub Harare - Communities4Change

Impact Hub Harare, in partnership with the Massachusetts Institute of Technology's Presencing Institute and five Impact Hubs, facilitated a six-month project with an intensive eight-week Communities for Change workshop designed by the institute. This programme educates and mobilizes stakeholders and the general public in an action-oriented innovation process that brings about social change in the community and aims to solve issues confronting local communities. Impact Hub Harare has used this approach to tackle the challenge of affordable, sustainable energy in Zimbabwe.

Impact Hub Lagos - Siemens MakerSpace

A MakerSpace is a digitally connected community workshop and lab open to entrepreneurs and anyone interested in learning, designing and creating in a collaborative environment. Impact Hub Lagos collaborated with Siemens to set up a Siemens MakerSpace Program to located and support early-stage entrepreneurs, finding people with innovative and bold ideas or businesses and turning them into thriving impact enterprises.

Impact Hub Kigali and Johannesburg - Africa Energy Marketplace incubation programme

In collaboration with the World Wildlife Fund, the hubs support solar energy entrepreneurs through the Africa Energy Marketplace incubation programme. This programme takes a new approach by supporting early-stage solar ventures that have yet to generate revenue, but are highly motivated to change the African energy market through widely accessible, environmentally friendly energy offerings.

Taking collaborative action for a better world

Impact Hubs in Africa help members to achieve impact by building vibrant communities, providing inspiring spaces and delivering high-quality content. The Impact Hub community created more than 6,400 ventures around the world in 2012–2016,[122] according to Impact Hub's annual global member survey, developed and evaluated with the Vienna University of Economics. In 2017 alone, the network at large had:

- Created more than 5,200 full-time jobs
- Provided more than 400,000 hours of peer support by the community
- Enabled 63% of its members to achieve double-digit revenue growth
- Helped 76% of its members increase the number of products and services offered.[123]

This study also reveals that collaboration among Impact Hub members in Africa takes many forms, from joint projects to peer support and creating new opportunities:

- 77% of members identified new opportunities for creating a social venture
- 56% of Impact Hub members worked on at least one joint project or activity
- More than 31% began a new project or organization with another member

For example, in May 2018, innovation communities across Africa came together co-create and endorse the continent's innovation policy manifesto. In response to Africa's public policy challenges, The African Innovation Hub Convention was held to accelerate digital transformation in the region, and contribute to more equitable, inclusive and sustainable development of its economies and societies.

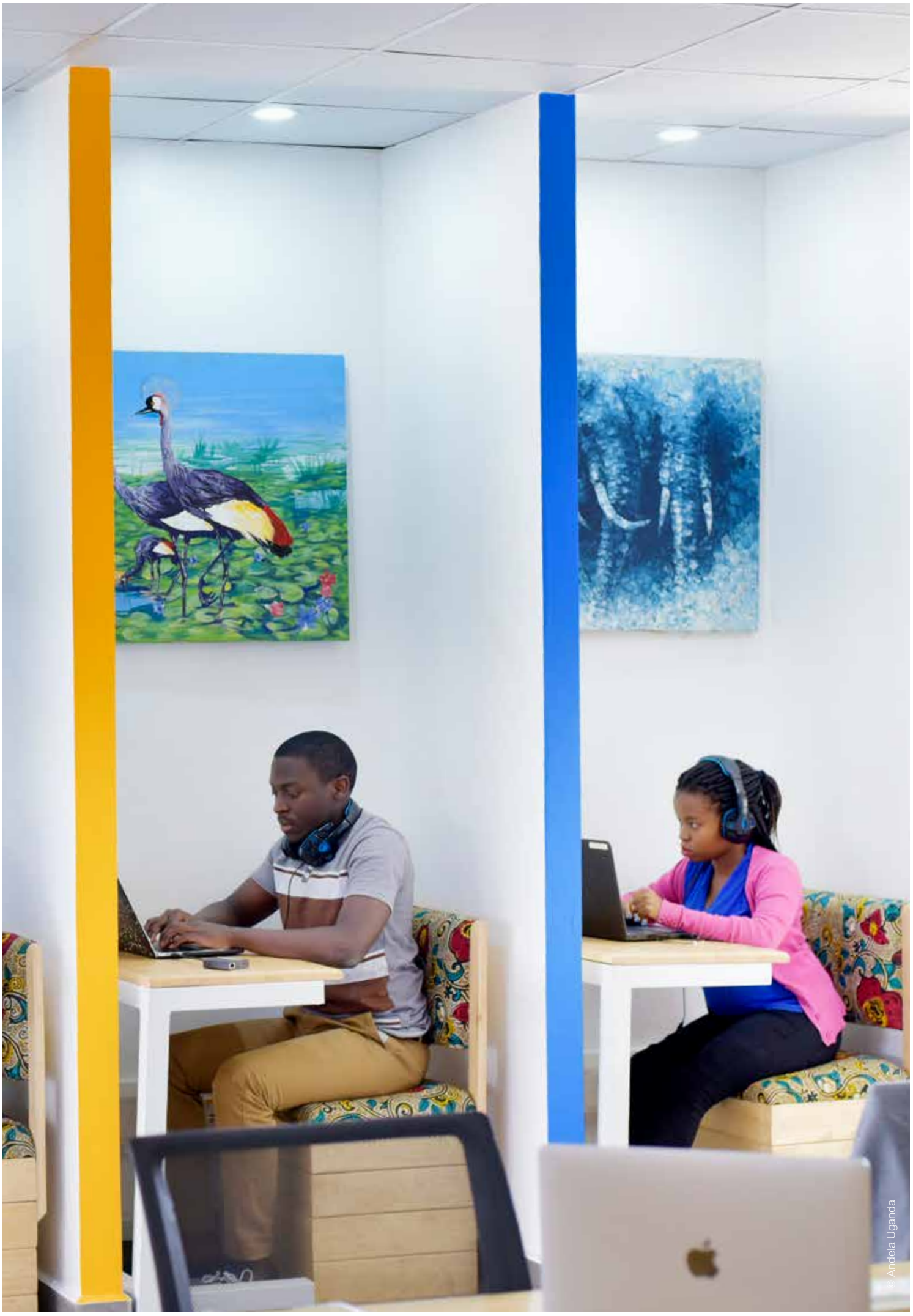
At the event, leaders and managers of 45 African communities and 25 African countries convened at Impact Hub Kigali to co-design better innovation and entrepreneurship policies, culminating in a joint policy manifesto called the 'i4policy vision' that targets African national and regional policymakers. Just 24 hours after it was endorsed by the innovators gathered in Kigali, 90 innovation communities from 32 countries came out in support of the manifesto – representing more than 450,000 people.

The annual global member survey revealed that being part of the Impact Hub community in Africa brings personal and professional social support, with 98% of members receiving valuable information from the community. This translated to each member receiving an average of 6.6 hours a month of mentoring, advice or feedback from other members.

This culture of collaboration and innovation appears to have created a ripple effect on other like-minded communities worldwide, setting an example for the rest of the network and inspiring further collaboration across borders and between ecosystems.

In 2017, Impact Hubs in Africa implemented 40 programmes with more than 3,700 participants, helping them gain visibility, credibility and access to new clients or beneficiaries, and obtain financial capital and investment. Some 56% of members created new jobs that year and 64% reported double-digit revenue growth.

This shows that member organizations in this region are growing faster in terms of staff and identified new opportunities than the global average. Not only do individual entrepreneurs and organizations on the ground feel this impact, but there is a significant impact on the ecosystem at large – the results of which are inspiring change makers around the world.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CHAPTER 5

FINANCIAL SUSTAINABILITY: THE CHALLENGE

FINANCIAL SUSTAINABILITY: THE CHALLENGE

There is little research on African tech hubs, and even less on their financial sustainability or business models. Reports, articles and blog posts comprise most of the literature, rather than evidence-based academic work. Additionally, much of the content highlights success stories or offers opinions, rather than providing critical analysis.[124]

Where critique does emerge, it falls into three categories: (1) how to evaluate the success of hubs, (2) the durability of hubs and the emergence of the start-ups they support, and (3) how well the dominant models supporting start-ups (incubation, acceleration, etc.).[125]

The most comprehensive account of the financial sustainability of hubs is infoDev's 2014 report, 'The Business Models of mLabs and mHubs – An Evaluation of infoDev's Mobile Innovation Support Pilots'. This document 'analyses the business models that mLabs and mHubs have implemented – how they generated value for stakeholders and income for themselves'.[126] The report examines the main activities of hubs (creating start-ups, building skills and community) and highlights how strategic focus (i.e. start-up creation and ecosystem building) affects impacts financial sustainability.

There is no universally accepted definition, benchmark or set of conditions indicating when an African tech hub should be considered financially sustainable. The most straightforward interpretation is that a financially sustainable hub can cover all of its overhead costs, such as rent, electricity and access to internet, as well as the cost of its activities and programmes. However, many hubs partner with private companies to provide in-kind internet access in exchange for brand visibility and access to the community, or with government to donate a space to house the hub.[127]

Box 4 Launching a hub as a minimum viable product

Like start-ups, hubs find it difficult to raise start-up capital. To compensate, a hub may take a 'lean' approach to launching a space, conserving resources and leveraging creativity wherever possible. The Office in Kigali took a frugal and innovative approach to building community, funding the space and expanding as it grew.

The Office focused on building and engaging its community before securing a physical space. Several months before the proposed launch date, the hub created a launch page and distributed flyers describing the proposed space. It also invited prospective community members to provide input and share their ideas about the concept. This pre-launch campaign enabled The Office to secure an anchor tenant for its first six months, which in turn provided the revenue to rent a small room to house the hub. Other paying members joined before The Office officially opened its doors.

In anticipation of the need to expand, The Office negotiated a long-term lease with certain flexibilities. First, it secured a rent discount on the initial room for the first few months. Secondly, the team included in the lease several 'first right of refusal' options on other rooms so expansion into the entire building would be possible. The hub could then lease those rooms once it had secured enough revenue to cover the expansion.

Matching its rental costs to expected revenue enabled The Office to grow 1,100% in its first year, without external capital.

Source: *Molyneux-Berry, A. (2018). 'Hub In A Box: A Global Movement to Crowdsource Business Models for Sustainable Innovation Spaces,' p. 85.*

Additionally, African tech hubs operate in different environments. The community served by a Lagos-based hub will differ considerably from that served by a hub in Monrovia. As a result, core purpose, value proposition, business model and activities will be tailored to the environment, and will affect the hub's prospects for financial sustainability.

Hubs seek to deliver social impact

Although tech hubs are viewed as catalysts for start-up creation, ecosystem development and community building, they also have a strong desire to generate social impact, a goal closely associated aligned with community building.[128] Hubs organize a variety of activities, but they are committed having a positive impact on the communities they serve and the world at large.[129]

Hubs maintain this commitment even as they pursue financially sustainable business models and focus their support on profit-focused start-ups rather than social enterprises. 'These hubs and communities see themselves as going well beyond the simple "incubation" and "acceleration" of individual start-ups, perceiving one of their primary roles as seeding and nurturing the entire process of local social entrepreneurship,' the Institute for Development Studies and Results for Development said in a report.[130]

Hubs that marry social purpose with the potentially more profitable accelerator model are still likely to face financial sustainability challenges. A study by ANDE and Village Capital found that most social accelerators (74% of those they assessed) are supported by philanthropic capital, which comprises 54% of their total budgets. Unfortunately, this funding did not seem to affect start-up success. These findings suggest that social accelerators are not financially sustainable.[131]

Core purpose matters

This emphasis on social impact is important because it has implications for what activities hubs choose to offer and to what extent they can monetize those activities. Actions typically associated with ecosystem building, such as organizing trainings and hosting events like hackathons and conferences, may also be difficult to monetize. They might reflect a lack of clarity somewhat characteristic of ecosystem boosters, which are prone to grappling with their status as for-profits or nonprofits, and how they might make money (through investment or grants) as a result.[132]

Ecosystem-building activities may be difficult to monetize because hubs become providers of public goods when they try to fill ecosystem gaps. Governments provide public goods, such as education and healthcare, for the well-being of the general population. Private actors are not incentivized to offer these goods and services.

For example, many Africans remain unbanked – meaning they have no bank account or access to credit, insurance, pension schemes or any other financial service – partially because the cost that a bank incurs to build brick and mortar branches to serve 'last mile' customers outstrips the profit potential. The failure of governments to provide such resources creates the gaps that hubs attempt to fill in pursuit of their goals of supporting start-ups and building ecosystems.

Consequently, many of these activities will be difficult to monetize. InfoDev found, for example, that mLabs could not cover their core and activity costs solely by selling services.[133] Subsidies from funders and governments were needed to fund these costs over long periods of time. As a result, mLabs was expected to take longer, up to 6–10 years, to achieve financial sustainability.[134]

Ecosystem-building activities, of course, are more inclusive – enabling young people, inexperienced entrepreneurs and women to learn about technology, entrepreneurship and innovation. According to Indigo Trust, 'it's also necessary to invest in initially unprofitable activities such as building a strong community …

establishment of strong partnerships and outreach initiatives to ensure that society at large understands the role that technology can play in addressing their challenges and to ensure that the communities that hubs support have the necessary skills to develop successful businesses and social projects and to take on work opportunities made available to them'.[135]

However, focusing on ecosystem building is unlikely to stimulate high-growth, profitable businesses,[136] which require more customized, sophisticated forms of support. Despite these challenges, purely profit-oriented approaches seem like a poor fit for many African start-up ecosystems because they probably have few high-growth start-ups, low valuations and limited investment capital relative to more mature markets.[137]

Inasmuch as hubs need to strike a balance between start-up creation and ecosystem building, certain risks must be managed to achieve this balance. As was the case with mLabs, hubs may operate in environments where it is difficult to pursue both goals simultaneously because ecosystem constraints necessitate a specific approach.[138]

For example, it could result in conflicting revenue streams, such as fees associated with managing accelerator investments versus grant funding secured for delivering skills training.[139] Or in cases where hubs set up consulting services to subsidize their ecosystem-building activities, they may suffer mission creep as they struggle to balance seeking profitability and serving the community.

Nonetheless, the needs of an ecosystem are likely to change as it evolves. BongoHive, the first Zambian tech hub, was launched in 2011 at a time when there was no permanent home for Lusaka's tech community. It started as a series of informal meetups and evolved over seven years to include an idea-stage programme, an incubator focused on business model validation and an accelerator designed to help more mature start-ups grow. BongoHive now aspires to create a fund to invest in start-ups that complete the accelerator programme.

Alignment matters

The connection between the core purpose of a hub and its business model suggests that alignment between a hub's key components is important. The World Bank's 2016 report 'How Tech Hubs Are Helping to Drive Economic Growth in Africa' highlights disconnects that can lead to hub failure or problems with financial sustainability.

- *Hub failure*. Hubs are more likely to fail if their overarching goals do not match their structure or fail to meet the needs of the ecosystem. For example, Plug and Play Egypt attempted to provide comprehensive start-up support services, including mentoring, training and investment, without adequate funding and while confronting an increasingly inhospitable environment for emerging ventures.[140]
- *Hub sustainability challenges*. When the goals of a hub do not align with its business model, it will probably face difficulties with financial sustainability.[141] This is also the case when its approach fails to address the needs and constraints of the ecosystem. For example, the debate continues as to which start-up support model works best in Africa. Accelerators align incentives between a hub and its start-ups through investment, focusing on the most competitive start-ups with the greatest potential. This may be perceived as focusing only on the strongest companies rather than investing in improving the overall pool of emerging ventures.[142]

It is critical to ensure that fundamental elements of a hub's architecture are aligned. Selecting an appropriate core purpose creates a foundation, while the business model can be used to link the principal goal to the hub's services, value proposition, financial requirements and the needs of its ecosystem.

Box 5 BongoHive aligns projects with goals

BongoHive regularly received requests to develop websites, applications, products and services, and training events. Organizations typically approached because they saw the Zambian hub as a 'one-stop shop' for technology, had experienced poor outcomes with other service providers and were enticed by its strong reputation, were looking for local service providers as part of a broader strategy to support local start-ups, or had sourced hub services elsewhere and wanted to do the same in Zambia.

In response to these needs, BongoHive developed the following set of criteria, which enables it to determine whether a particular opportunity is a good fit:

- Accept projects that enable BongoHive to leverage the experience of its community and that of other hubs;
- Avoid competing with start-ups in the community with similar competencies by taking projects that require a broad and diverse set of skills;
- Engage in projects that help the hub expand its suite of services, and develop skills in areas such as design thinking and UX design, as well as generate positive social impacts in Zambia;

Deliver projects that are scoped to include work from concept design to implementation.

Source: *Molyneux-Berry, A. (2018). 'Hub In A Box: A Global Movement to Crowdsource Business Models for Sustainable Innovation Spaces,' p. 85.*

Funding sources and revenue streams

Clearly, there is no universal, 'one size fits all' path to become financially sustainable. Yet there are several useful insights about funding sources, income diversification, core cost coverage and the influence of external conditions.

- **Funding sources.** Some mLabs secured private sector sponsorships for specific activities or programmes such as hackathons. But they were less likely to receive core cost support from private companies. Government entities tended to provide this type of funding.[143] Additionally, start-ups that received support from mLabs were willing to respond in kind by paying for goods and services. They were reluctant, however, to exchange equity shares for mLab support because they doubted the quality and impact of the services.[144] Many hubs still depend on donor funding to enable them to deliver social outcomes such as building skills through coding programmes and training.[145]
- **Income diversification.** Many hubs rely on several different income streams to survive financially. This includes internally generated revenue streams such as membership dues as well as externally generated sources such as consulting and research. Some hubs even earn consulting fees for advising on the launch of other hubs.[146]
- **Core cost coverage.** No model was found among mLabs to cover both core operating costs and the costs of running programmes and activities. Similarly, most successful hubs receive core cost support.[147] According to Indigo Trust, 'revenue generation often has to be accompanied by donor income, particularly if hubs are keen to support less profitable endeavours including upskilling their communities, social innovation, outreach in schools/universities and women in tech programmes'.[148]
- **External conditions.** A functional, healthy entrepreneurial ecosystem creates the conditions necessary to support a thriving hub. In the absence of such an environment, hubs struggle to provide significant value to key stakeholders. For example, they are not profitable enough to attract traditional investors, but they lack the resources to produce output that would be useful to soft capital providers such as NGOs.[149] Also, although philanthropic funders have contributed significantly to the survival of hubs, longer-term support for projects that take financial sustainability into account might help hubs achieve similar goals.[150]

Table 7 Hubs bring in revenue from donations, philanthropy and fees

In-kind donations and philanthropy	Fee for service
■ Donations ■ Grants ■ University funding/in-kind support ■ University-government-industry funding/in-kind support ■ Activity-based partnerships with governments (foreign, national, provincial, local), universities and the private sector ■ Programmes	■ Membership fees ■ Consulting fees ■ Course delivery and training fees ■ Space rental fees ■ Fees for event management

Sources: De Beer, J., Armstrong, C., Ellis, M. and E. Kraemer-Mbula (2017). 'A Scan of South Africa's Maker Movement,' p. 27. Treisman, L. (2015). 'Capturing Learning from Tech Innovation Hubs across Africa,' pp. 5–6. Treisman, L. 'Home-grown Innovation: We Ask the Experts.' *HuffPost*, 12 September 2016. https://www.huffingtonpost.co.uk/loren-treisman/home-grown-innovation-we-ask-the-experts_b_8171392.html?ec_carp=1237371629868462376

Box 6 Best practices for engaging the private sector

Approaching private sector partners can be daunting, but with some foresight and preparation, hubs can take a strategic approach to building relationships. Barbara Birungi, director of Hive Colab in Uganda, said: 'Sometimes it can be hard to source the business development services that start-ups need. It took time to engage the private sector, but they now provide pro bono support to our community.'

Do your homework. Before approaching a potential partner, it is important to know and understand the strategic priorities of the company and how it might want to engage. Some will want to support the community by providing access to their training and tools, while others will want to fund events or support specific programmes that will allow them engage with the hub community.

Offer a specific value proposition. A proposal or offer to a potential partner should articulate clear goals and a value exchange. For example, CcHub in Nigeria and JoziHub in South Africa were able secure free internet from mobile telecommunication companies by communicating the marketing value of the arrangement and the impact on market share. JoziHub managed to engage a large company by developing an application to help manage entry into its parking complex.

Invest in building relationships with the private sector. It may take a lot of time and effort to develop robust private sector relationships. As such, it is helpful to assign a specific staff member to cultivate these relationships. Ghana's iSpace invested two years in educating potential corporate partners about what it did and how it created value for companies both locally and internationally. Eventually, iSpace secured free internet, financial support for events, funding for start-ups and unsolicited requests from large businesses for partnership.

Work with partners to host events. A hub can design and host events for partners that can help them get to know the community. But event management can be demanding in terms of time and resources, so the events must complement the broad goals and objectives of the hub to avoid mission creep.

Solicit in-kind contributions. Companies may be willing to offer time- and resource-based in-kind contributions to a hub, such as training and mentoring. For instance, Hive Colab persuaded the corporate social responsibility departments of local businesses to contribute four hours of support each month.

Leverage your start-ups. Introduce corporates to relevant start-ups within your community. For example, BongoHive found that corporate interest increased when it shared information about its start-up support efforts. Similarly, JoziHub introduced the South Africa Automobile Association to start-ups working on new transportation solutions.

Source: *Treisman, L. (2015). 'Capturing Learning from Tech Innovation Hubs across Africa,' pp. 6–7.*

Archetype business models

Several archetypes illustrate the range of possibilities for hubs, as well as the types of decisions that must be made to match operating models with business models. The models described in Table 8 reflect the general landscape of hubs in Africa, though each region of the continent has its own specificities.

For example, hub creators pay a lot to hire staff and buy or lease a building.[151] As already mentioned, it is difficult to fund all hub costs through fee-for-service revenue. Also, building a self-sustaining hub tends to take a long time and requires some sort of subsidy or private investment. The three main business model archetypes, private models, public models and hybrid models, are briefly described below.

Private models are driven by the revenue that hubs earn through fee-for-service activity, including income obtained by providing space and delivering services to entrepreneurs, external stakeholders.[152]

Public or associative models are contingent upon subsidizing a hub's delivery of programmes and services. Sources of support may include international donor agencies, corporations and government (local or national).[153]

Mixed models reflect the difficulty of becoming financially sustainable through fees for services or securing subsidies, especially over the long term. They also indicate the combination of for-profit and nonprofit activity, presumably delivering valuable services such as consulting and research to cover (or cross-subsidize) the costs of free trainings and reduced-price memberships.[154]

Table 8 Hub models and revenue streams

Type of support structure	Example of possible source of revenue	Characteristics
Coworking space	Rental of equipped workspaces: office space and/or meeting rooms	Costs are determined by: ■ period and frequency of use (day, week, month, quarter, etc.) ■ position: open plan or enclosed space Associated services: Administrative support, access to computers, Wi-Fi connection and printing, other documentation and organized events, etc.
Incubator	Mentor support	The cost will be determined by: ■ frequency of meetings ■ expertise of mentors ■ location of experts, etc. The client entrepreneur can cover financing, though early-stage entrepreneurs rarely have the financial means to pay for such services themselves. Mentors therefore occasionally provide their services pro bono, though incubators will generally have identified partners to fund this service.
	Percentage charge on turnover of beneficiaries	The revenue of incubators is determined by that of the businesses they support. When growth is zero, the incubator takes nothing.
Accelerator	Equity investment in the start-up	Investment is based on: ■ value of the start-up at the time of the deal ■ percentage of shares negotiated The entrepreneur always remains the majority shareholder. The accelerator will be able to sell its shares later and value its investment (or not) according to the performance of the start-up on the market.

Source: Reproduced from Hanff, E. and C. Jekinnou (2018). 'Challenges and opportunities of incubators in West Africa: A guide to understanding support structures for entrepreneurs in West Africa,' pp. 50–51.

A network-based approach to financial sustainability

Financial sustainability is an expectation typically applied to a single organization. But when dialogue about tech hubs turns towards collaboration, the concept of 'strength in numbers' surfaces. In viewing hubs as undercapitalized institutions that are managed by overstretched teams, questions emerge about what hubs can do together. Hubs, particularly those in more mature ecosystems that require them to differentiate to survive, develop distinct value propositions and core strengths.

As such, it makes sense for hubs to consider how to collaborate in ways that create and capture more value. For example, a network of hubs such as AfriLabs, Impact Hubs or Jokko Labs could offer a larger consolidated market for potential partners to engage, whether the objective is to train developers or run sector-focused accelerator programmes. The same logic might be extended to cutting costs.

For several years, iHub was based in a single building, sharing space with other organizations and start-ups including Ushahidi and Kopo Kopo that wanted to interact with the hub. The Office in Kigali still follows this model by hosting the hub on one floor while leasing space to companies and international organizations as anchor tenants on other floors.

It is worth exploring how this collaborative value logic might extend to financial sustainability. No clear conclusions can be drawn from previous efforts within and between hub networks to address financial challenges.

AfriLabs hosted a series of online 'hangouts' about hub sustainability in 2014. These conversations tackled questions such as whether hubs should be sustainable and what type of funding (core or programmatic) would be most useful. The following year, AfriLabs, iceHubs and Impact Hub joined forces to host Hub in a Box, a co-creative workshop designed to crowdsource insight about the financial sustainability of hubs. It brought together 12 hubs from around the world, with an emphasis on African hubs, to share the best of what they knew about building self-sustaining hubs.

The focus of all of these activities was on the financial sustainability of a single hub, not the collective sustainability of a network of hubs. But what might financial sustainability look like for a collection of incubators?

InfoDev created such a model from the early days of incubator development in Africa.[155] This model for sustainable and replicable ICT incubators has three parts: a network of hubs, a financial model composed of a short-term loan fund and a venture capital-style incubator investment fund.

Part 1: Network of incubators

The network of incubators would operate according to a shared set of standards, exploit economies of scale and spread costs. The underlying principle is that a model based on developing incubators as a system, with standard operating procedures, sufficient funding and targeted support, would be better equipped than an under-resourced organization operating alone. Single incubators tend to be undercapitalized because they are funded by local or regional public sector organizations that are underfunded by agencies that operate on annual budgets, and do not easily accommodate multi-year projects.

The network could adopt one of four different operating models, all of which assume that land and/or the building that houses the incubator(s) is the primary cost driver. The network approach is based on the assumption that the public sector, i.e. national government, local government or a university, will donate a desirable location for the incubator in the central business district or near a technical university.

Other important elements of the network approach include:

- corporate sponsors willing to provide in-kind training and support to incubated companies that could become part of the corporation's value chain;
- the hub's brand identity signifies credibility for start-ups;
- ongoing support is made available to start-ups after they leave the incubator;
- coverage of core costs as the incubators establish themselves.

The four possible models for the network approach are:

1. new construction, in which the incubator building is built from scratch;

2. renovation, in which a structure is rebuilt, i.e. a university building is repurposed;

3. virtual incubation, in which support services are provided online, but entrepreneurs periodically visit a location with office and training space; and

4. a hybrid model that integrates components of the previous models, but combines the skills and experience of an institutional investor with those of a construction management company that has a track record in building technology parks and an incubator management company.

Part 2: Loan fund

Young companies need working capital because, unlike large enterprises, they cannot fund their operations while waiting for customers to pay. This is why the model proposed by infoDev would create a working capital loan fund that provides debt financing to companies within the incubators. The government would underwrite the fund, which would consist of contributions by partner banks with SME-focused loan funds. Repaid loans would be returned to the fund to support other start-ups.

Part 3: Incubator investment fund

This fund would be designed to meet the longer-term debt and equity investment needs of start-ups supported by the incubator. An institutional investor would capitalize the fund, setting aside a fixed amount annually over several years to help build the capacity of incubators in the network.

Other elements of the financial model

The primary revenue streams for each incubator would include fees for services such as space rental, access to mentors and coaches, training and business development services, as well as a 5% gross revenue share paid annually after start-ups graduate from the incubator. Each incubator would run on an annual budget of $500,000–$700,000, and most likely operate at a deficit for several years. Finally, total costs for each incubator – including retrofitting a building, furniture, telecom connectivity, staff and so on – would amount to $1.5 million.

Evidence of network-based financial sustainability

InfoDev's report was published in 2009, just before African tech hubs began to emerge in large numbers. It is therefore useful to explore whether signs of a network-based model for financial sustainability (or elements of it) have emerged in the last 10 years. It is important to note that the infoDev model specifically applies to incubators that support mature, revenue-driving start-ups. AfriLabs, Jokkolabs and the Impact Hub network all engage members that may be involved in, but are not strictly limited to, incubation activity.

For example, AfriLabs is a pan-African network of tech hubs that examined the financial sustainability of hubs in the past. While it does not appear to have a collective strategy for financial sustainability, it does have an approach to generate revenue for the secretariat or the coordinating body that serves its members.

This involves a three-pronged strategy focused on engaging partners, implementing projects and collecting membership fees. AfriLabs runs an affiliate programme through which organizations can buy sponsorship packages that offer access and visibility to the AfriLabs community. The hub also collects fees for managing multi-location programmes and events by its members. AfriLabs also plans to apply a paid membership structure.

Similarly, the Impact Hub funds the operations of its global team (Impact Hub company), which provides products and services to members, through a joining fee paid by new hubs, membership fees and fees earned through programmes or partnerships.[156]

Based on the above, it appears that infoDev's network of incubators model has yet to be realized, and there is much to discover about the financial sustainability of hub networks and their coordinating bodies.

Financial sustainability as a multidimensional concept

The success and financial sustainability of African tech hubs depends, at least in part, on the alignment of elements such as core purpose, organizational structure, business model and the needs of the ecosystem. Other factors, such as how a hub is classified and its activities, also play a role. Viewing these elements together suggests a multi-dimensional framework for understanding hub sustainability.

Categorization

If the alignment of a hub's core components matters and its central purpose is alignment, then how a hub is categorized affects how it is evaluated. Much of the literature on African hubs implicitly or explicitly classifies them as companies. One publication defined a 'company hub' as a single organization[157] and rejected categorizing hubs as companies given their community-building orientation.[158]

This type of classification also subjects hubs to the same financial performance expectations as high-growth companies – profitability within 3–5 years rather than the 6–10 assumed for infoDev's mLabs, for example.[159] In other words, the organizational label a hub gets or gives itself is expected to complement its operating model and the profitability of that model.

Goals and impact

Similarly, the objectives of a hub will affect its financial sustainability prospects. Ecosystem building is typically more difficult to monetize than start-up support, and hubs pursuing this path will probably take longer to reach financial sustainability. Environmental conditions may prevent hubs from pursuing both goals simultaneously.

Finally, many hubs aim to have a social impact, much of which happens through community building, rather than activities such as building start-ups that are more likely to contribute to sustainability.

Organizational structure

Hubs may pursue multiple goals that are each associated with a certain structure. Accelerators, for instance, are designed to support high-growth start-ups. But the way a hub is structured, or legally registered, is another point of alignment.

Hubs that are involved in activities with high profit potential (ideally aligned with core purpose) are likely to register as for-profit organizations. Those that focus on social impact may be more inclined to register as nonprofits. Hubs that select a hybrid approach might need to explore multiple types of registrations.

Business model

As mentioned previously, a hub's business model is derived from its core purpose, and can be used to align this purpose with the hub's services, financial requirements and operating model.

Box 7 Managing cash flow when a business model includes revenue sharing

For hubs that are focused on directly supporting high-growth start-ups, revenue sharing (taking a percentage of the revenue that start-ups earn) may be part of their business models. In such cases, when start-ups have difficulty collecting payment from their clients and customers, hubs will also struggle to collect a share of revenue from their start-ups.

Given that these funds are often used to pay for the human resources needed to deliver quality services to start-ups, it might be tempting to take an aggressive approach to fee collection. But given the mandate of hubs to support start-ups, finding a creative way around the problem may be a better approach.

For example, CTIC Dakar opted to meet its cash flow needs by commercializing event management as a new service line. CTIC had organized well-attended events in the past, so it packaged event management as an offering and pitched it to several potential clients. The event planning was so successful that CTIC was averaging 20 events a year by 2014 and became Orange's digital events management partner.

Source: Molyneux-Berry, A. (2018). 'Hub In A Box: A Global Movement to Crowdsource Business Models for Sustainable Innovation Spaces,' p. 121.

Activities

It follows from the above that the activities of a hub affect its prospects for sustainability. As mentioned before, ecosystem-building activities and models can be difficult to monetize compared with start-up creation activities. Yet service provision (to start-ups and other key actors) usually cannot on its own cover a hub's operational costs and programmes.

Ecosystem

Ultimately, the state of the ecosystem and the needs of key stakeholders should determine what core purpose a hub selects. All other important decisions regarding the hub's architecture – such as goals, business model and activities – flow from this foundation.

In summary, financial sustainability appears to require alignment between central elements that are internal (goals, activities, business models) and external (classification, ecosystem needs, state of the ecosystem) to hubs. Consequently, financial sustainability cannot be understood simply by looking at revenue streams and business models.

A more holistic perspective encompassing a hub's classification, goals and impact, business model, activities and ecosystem is necessary. These elements should complement one another to set the stage for financial sustainability.

Seeing financial sustainability in terms of alignment

Researcher Nicolas Friederici has explored assumptions about the value that hubs are meant to create.

'Once hub implementations began, leaders realized they needed to adapt their vision to local conditions. The issues that arose resulted specifically from tensions between aspirational hub visions and thorny hub realities.'

Nicolas Friederici

A recurrent theme across much of the literature and dialogue about African tech hubs is the belief that connecting entrepreneurs and helping them build community with each other and major stakeholders will enable them to help build Africa's digital and innovation economies.

However, this belief can shatter on the complex reality of what it actually takes to build a community and develop enabling ecosystems.

The key to this insight is the founders and start-ups themselves, whose perspectives are often missing from formal discourse. Friederici's case study exposes the many disconnects and tensions that emerge in the space between the vision of a hub founder and the path to implementation. He highlights four important issues, each of which has implications for financial sustainability, if one assumes that a hub's core purpose, activities and business model should align with the needs of the community and ecosystem it serves.

Community is primary. This has been emphasized through this report. However, it is important to emphasize how much the community development process varies from hub to hub. Although there will be common experiences and obstacles, a hub's path to community formation will depend on the distinctive characteristics of the involved people, institutions and environmental conditions.

Perhaps more importantly, community building is a complex process that brings to the surface tensions and inconsistencies that may require difficult choices by hub founders. The dynamic nature of the hub development process and the evolving nature of start-up ecosystems mean the funding requirements and financial sustainability prospects of a hub will change.[160] This suggests that hub sustainability is not a final destination, but a journey that will mirror a hub's life cycle.

Community characteristics and hub purpose are related. The alignment and connection of core elements is another recurring theme. For example, the link between core purpose and financial sustainability is evident in the connection between ecosystem-building activities and how difficult it is to monetize them. What causes this difficulty? To some extent, it is about the choices that hub founders make about inclusion.[161]

Ecosystem-building activities are typically less lucrative, because they seek to address market failures, such as developing the skills and capabilities of aspiring entrepreneurs. These activities are generally left to the public sector, as private sector actors do not see enough profit potential in them.

Not surprisingly, these activities engage a wide variety of participants, because the goal is to broaden or deepen the pool of talent, for example. In contrast, activities to create start-ups may be less inclusive because they aim to identify high-growth start-ups, which involves a competitive selection process.

This level of rigour is necessary to find such start-ups, which in turn increases the likelihood that the best ventures with the most potential to generate returns for investors (and hubs through revenue or equity sharing) are selected. However, the choice between inclusion and exclusion may pit community building and start-up creation against each other as goals, and force difficult choices about whether to pursue a less lucrative, more inclusive path, or a more profitable, less inclusive one.

Community-produced value. The members of a hub, many of whom are entrepreneurs, inform and shape its identity. They often express what they value through the degree of their participation in hub activities.[162] For instance, large companies often support specific hub activities, such as hackathons and pitch competitions, because they provide access to a desired target audience (entrepreneurs and developers).

It is reasonable to assume that corporations and other stakeholders would pay for greater insight about hub communities, specific consumer segments and technology markets at large.[163] From this perspective, hubs may be able to invest in building their communities while generating revenue and contributing to their longevity.

Founder vision and hub purpose interconnect. The personal vision, goals and motivations of hub founders will inform and shape the purpose of the hubs they create.[164] As the architecture of the hub – activities, business model, etc. – follows from the purpose, the influence of the founder permeates all aspects of the hub, including how it perceives and pursues financial sustainability.

To summarize, the biggest problem with an alignment-focused perspective on financial sustainability is the difficult nature of creating and maintaining alignment across the key components of a hub. Just as the community-building process is dynamic and can be difficult to navigate, the same is true for aligning key components of a hub. Examining the hybrid nature of hubs, the impact of time and the organic nature of hub development helps explain why this is the case.

Aligning key components of hubs is difficult

The hybrid nature of hubs makes alignment difficult. When hubs have multiple purposes, experiment with different business models and offer different activities, aligning these elements is tricky. It will also be challenging for the teams that run hubs to identify and deliver the most impactful activities given the vast array of choices and the limitations of their own capacity.

Nevertheless, many hub founders choose missions that prioritize social impact due to their personal beliefs, as well as what is required in immature, resource-scarce environments. As a result, a model for financial sustainability must accommodate a multidimensional approach and the simultaneous pursuit of different, sometimes conflicting, goals.

Evolving hubs require evolving business models

Much of the discussion until this point assumes that the core purpose, activities and business model of a hub are appropriate at a specific point during its development. But hubs are dynamic, evolving organizations, and their fundamental characteristics will also change over time.

For example, the community and skills building activity that is critical in the very early stages of an ecosystem's development may become less important (and valuable) as the ecosystem matures. The core purpose and activities of a hub will change as a result, and these changes will affect its financial sustainability prospects.

Business models may be discovered, not imposed

Box 8 How a cross-subsidy model affects a hub's financial sustainability

In 2014, Olufunbi Falayi returned to Nigeria from India, where he had been studying how the Government invested in building the capacity and skills of entrepreneurs. He connected with an old friend, Taiwo Ajetunmobi, to discuss building an incubator that would create employment opportunities for young Nigerians. With their mission set and armed with seed funding from the Kanthari Institute (where Falayi had conducted his research in India), the two men launched Passion Incubator.

The incubator sought to help young founders 'validate their start-up ideas and refine their business models' via 'cashless incubation'. In other words, it would help start-ups with their business strategy and product development, and receive equity in exchange for this support. Once the business model of the start-up is proven, Passion Incubator brokers investor linkages.

After reviewing more than 100 applications, Passion Incubator assembled a group of six start-ups with no prior entrepreneurial experience. The hub faced many challenges early on, including the difficulty of working with inexperienced founders, high operational costs such as rent, the need to boost human resources to meet the needs of evolving start-ups and the limited pool of high-potential companies. Falayi and Ajetunmobi then revamped the hub's business model and launched LeadSpace, a coworking space for budding entrepreneurs.

Renting space was Passion Incubator's biggest cost, and because the hub did not run its programme throughout the year, the space was sometimes unused. Passion Incubator realized that it had to develop revenue streams to become financially sustainable. Creating LeadSpace transformed a significant cost into a meaningful source of revenue. It also helped offset the operational expenses of fledgling start-ups by offering shared access to space and internet.

LeadSpace was able to secure initial support in the form of a seed investment, usable space and office equipment in exchange for equity. The concept took off immediately, with Passion Incubator selling out availability within two months. Falayi and Ajetunmobi opened a second location in 2017 and planned to open two more in 2018.

Sources: Oluwafemi, B. (2014). 'Passion Incubator's Cashless Acceleration Model.' Retrieved from https://techcabal.com/2014/03/24/passion-incubator/ and Falayi, O. (2018). 'Passion Incubator: The Journey So Far.' Retrieved from https://medium.com/@olufunbifalayi/passion-incubator-journey-so-far-e9bfa6ac7c27 .

Building communities and creating hubs have been characterized as messy, difficult and dynamic processes.[165] Many founders settle on an operating model only after years of experimentation, trial and error, and short- to medium-term failure. If this is the case, one must assume that inflexible frameworks will fail to help hubs think strategically and critically about financial sustainability.

From this perspective, a meaningful contribution to the process of achieving financial sustainability may be less about issuing instructions about which revenue streams and business models to pursue, and more about presenting a road map of key issues to consider and questions to ask. This should be supplemented by crowdsourced information on what has worked or failed for hubs operating different models in different contexts.

INTERVIEW

CONCREE: TOOLS FOR VIABLE START-UPS

Some people spend their entire lives without ever being the first to achieve anything. Babacar Birane and Abdoul Sy have done it twice already – and that was before they even celebrated their 30th birthdays.

Birane and Sy scored their first 'first' in 2014, when they cofounded Concree, Senegal's first virtual incubator. Three years later, the two men and their partners pulled off their second 'first' by designing and launching the world's first entrepreneur relationship management (ERM) software as a service.

Concree began as the dream of seven young Senegalese, then living and working in Grenoble, France, to do something to help their national economy. Birane and two others quit their jobs and returned home to create a web-based company to help Senegalese start-ups grow. The name Concree combines the first letters of the French words for 'connect' and 'create' and tells the story of entrepreneurship, 'which always starts with the abstract to become concrete', Birane said.

Unlike accelerators, which guide entrepreneurs from 'adolescence to adulthood', incubators are tools for the 'childhood' of a start-up. Virtual incubators are catalysts for socioeconomic development, providing the process for developing early-stage ideas into viable, sustainable ventures.

'It was initially meant to be an online platform that connects entrepreneurs with cofounders and also mentors to help them on their entrepreneurial journey,' Birane explained. 'We then added resources to help them work on their business models and to help them connect to investors.'

Business model rethink proves successful

Concree began a physical incubation pilot phase with 15 start-ups – four succeeded, and one now has annual revenue of 2 million euros – but 'we were not able to generate revenue for ourselves as the start-ups couldn't afford to pay us', he says. Although Concree added a training component, funding issues prompted the company to change its business model.

'I met someone who had a start-up mentoring programme in Reno, Nevada, and he wanted to scale it and he needed a platform to do that,' Birane said. 'There was no software specially designed for entrepreneur-support organizations, so we built an ERM. The man in Reno became our first customer.'

Others joined, and the ERM (named LezGo) is now used in 20 countries in Africa and abroad, including Brazil, Switzerland and the Middle East. One of those clients is the International Trade Centre (ITC), whose Netherlands Trust Fund IV (NTF IV) programme works to enhance the export competitiveness of tech companies in Senegal and Uganda. Concree is also a beneficiary of NTF IV, which is based on a partnership agreement between ITC and the Dutch Centre for the Promotion of Imports from developing countries (CBI).

For entrepreneurs, Concree offers two types of services: trainings and a quick follow-up – a service Birane's team has already provided to more than 300 companies – and in-depth support including coaching and progress tracking. Concree also has 15 incubator customers.

The company's online space gives start-ups access to tools such as business models and methodologies to build their companies. They can also connect with investors, business angels and public funds. And focusing

on virtual incubation means Concree doesn't need a large office – the eight employees work in a space consisting just of a meeting room, a training room and an incubation room – which helps keep costs down.

Most of the company's revenue comes from public and private organizations that want the full package: design and management of an entire entrepreneur support programme, in addition to the ERM software on a subscription basis.

'We have five such customers, all in Senegal,' Birane said. 'They are our most important customers because it's really the whole package and the biggest part of Concree's revenue.'

Growth plans hinge on fundraising

Still, the company is looking to grow, and that means more funding is needed. Concrete already secured a $40,000 loan that Birane expects to have repaid within five years. But he needs cash to realize his plans of expanding his staff to 15 people by the end of 2020 and then to double that within two years.

He faces two challenges in this respect: finding qualified staff and obtaining the money to hire them.

'It's hard to get high-quality human resources when you're a tech hub,' he explained. 'We lack the resources to attract the best people, because we are competing with big consulting firms to attract the best talent, and they have the money to pay for these people.'

Nevertheless, Concree is planning to raise funds in early 2020. 'It will be a much larger round of fundraising than before,' Birane said. 'This will be particularly hard. So if we're not able to raise that amount, the hiring plans may change.'

In the meantime, his main aim this year is to continue validating Concree's business model. ■

Babacar Birane. Photo courtesy of Concree.


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CHAPTER 6

RECOMMENDATIONS

RECOMMENDATIONS

This report offers insight into what hubs are, what they do and why, as well as the capacity and sustainability challenges they face as they support start-ups and build ecosystems. Yet, there is still much to learn about what difference hubs make and how they can remain financially viable long enough to achieve their goals.

There are also many unanswered questions about the strategic choices that tech hubs make about core purpose, what types of start-ups to serve and how support should be delivered. InfoDev's 2014 study poses many questions about how mLabs and mHubs interact with start-ups – questions that are likely relevant to most tech hubs. But other questions regarding hub success, support, expectations alignment and inter-hub collaboration are equally important. Additional research on the role of African hubs in start-up ecosystems, as well as practical interventions, should attempt to answer the questions posed below.

How can hub success be defined?

This report has explored what core purposes hubs choose and how a choice to create start-ups and/or build ecosystems affects how straightforward it is to measure impact. It also presents a research-informed framework for categorizing this impact. Naturally, the outcomes of some activities are easier to measure than others. This can result in measuring what is easiest instead of what is most appropriate.

Fundamentally, hubs aim to stimulate economic development and social progress. As a result, success might look like prosperous, educated and healthy citizens acting to create a thriving and inclusive economy. Hubs may contribute to this future by supporting participation in the knowledge economy, job creation and the success of high-growth firms.

The assumptions underpinning this narrative are untested, however, and on-the-ground realities will shift faster than they can be understood. Even so, it is worthwhile to examine how African tech hubs might serve as conduits of socioeconomic change.

Should tech hubs focus on building ecosystems or creating start-ups?

Hubs tend to be adaptable, flexible organizations that take on elements of ecosystem building and start-up creation, depending on the needs of the ecosystem and its stakeholders. But the decisions that hubs make about purpose have consequences and affect their ability to have an impact and achieve financial sustainability.

In terms of impact, ecosystem-building activities promote inclusivity and allow more fledgling founders to build their skills and experience entrepreneurship. The outcomes of this approach are difficult to measure. With respect to financial sustainability, hubs may need to build both start-ups and ecosystems. This means they may pursue multiple goals and explore several sources of revenue to survive.

These revenue streams may not be complementary, however. What is the best way to resolve such difficult choices? The key may be in selecting the approach that best fits the ecosystem and has the greatest impact on the overall level of entrepreneurship activity.[166]

What is the best package of support for tech hubs?

There is some understanding of the activities that hubs carry out to create start-ups and build ecosystems. But there are no minimum operating requirements and conditions for hubs, even though it is known that they are influenced by the quality and maturity of their ecosystems. This is illustrated by the desire of the World Bank to launch mLabs in minimally enabling environments. But given that hubs operate in such different contexts, it can be difficult to determine what each needs at any specific point, and throughout its entire journey.

Not unlike start-ups, hubs probably require technical assistance as well as funding. It would therefore be helpful to understand how to provide the best combination of resources at critical junctures throughout a hub's life cycle. Insight into when and how to adjust as conditions change would also be instructive.

How can the expectations and goals of hubs and funders be aligned?

The extent to which the core purpose, activities and business model of a hub align with each other and ecosystem conditions may affect its financial sustainability prospects. Community needs are often primary, but the goals and expectations of funders will figure prominently because they are important sources of support to hubs.

This can create tension between a hub trying to achieve its mission based on knowledge of local context and a funder with its own agenda and ideas about how to create impact. Uncertainty about how best to evaluate hub performance aggravates this situation. Aligning the interests of both parties would allow the outside perspective, networks and resources that funders can provide to enrich the locally grounded insight of the tech hub.

Is a hub network better equipped to reach financial sustainability than a single hub?

Chapter 2 presented a blueprint for the financial sustainability of an incubator network. Assumptions contributing to the model's financial success included exploiting economies of scale, spreading fixed costs across multiple locations, instituting standard operating procedures to ensure optimal use of resources, creating venture and loan funds to support start-ups, and setting aside an annual budget for building hub capacity.

This model does not seem to exist on the ground, however. Associations such as AfriLabs and the Impact Hub network support their secretariats primarily through fee-for-service revenue and membership fees. Without in-depth understanding of these networks, solid conclusions cannot be drawn about what is possible.

Yet it stands to reason that pooling together financially challenged hubs would not create a financially stable whole, unless the aggregation unlocked new opportunities to generate revenue. As a result, exploring how hubs might collaborate to open up opportunities, such as co-bidding for multimillion-dollar projects, would be informative.

At what stage of start-up development can tech hubs engage most effectively?

This question is closely related to the question about core purpose, because ecosystem building tends to focus on nascent, inexperienced entrepreneurs while start-up creation may attract and yield seasoned founders. The needs of the ecosystem and its stakeholders should inform the direction of a hub.

As a result, the quantity and quality of potential founders and start-up teams should strongly influence the choices a hub makes. This means hubs must consider the negative impact that inadequate start-up skills have on start-up success.

Hubs need to decide whether to fill this gap or focus on high-potential start-ups that may contribute more directly to its financial viability. In the end, the answer may be found in better impact assessment. Evaluations of hub effectiveness should take a long-term view and account for ecosystem conditions that are beyond a hub's control.[167]

Should hubs invest directly in start-ups or focus on easing access to investors?

The argument in favour of investing directly assumes that a combination of business and financial support is most effective for start-ups, especially as seed-stage funding is limited. However, there are several reasons why the 'hub as investor' approach might face difficulties.

Funding used for investment may be distortive, crowding out private investors, because many tech hubs benefit from philanthropic support. As agents of donor capital, hubs may best address market failures by bridging the gap between start-ups and financiers without filling it directly. In this case, however, hubs would have to decide when and whether the development of their start-ups is best served by facing market realities on their own, or leveraging curated access to investors.

In addition, many hub teams may lack the skills and expertise needed to value start-ups and facilitate investment. Even if they could broker deals successfully, the hub would have to decide how to compensate them.

Finally, a hub may not be equipped to manage an in-house fund without external help.[168] Therefore, its approach to investing in start-ups should reflect ecosystem needs as well as its own capabilities and limitations.

Recommendations for hubs

There is still much to learn about how tech hubs can maximize their contributions to start-up ecosystems. As hubs evolve to respond to dynamic, rapidly changing environments, understanding their landscapes, building the capacity to be responsive, defining success and learning from peers could contribute to their longevity and effectiveness.

- **Tech hubs should conduct thorough feasibility assessments before launching.** This process should include mapping and assessing the state of the ecosystem (including strengths, weaknesses and gaps); determining the core purpose of the hub based on this assessment; and proposing a structure, activities and business model that align with these elements.

- **Ecosystem mapping.** The success of a tech hub and its projects hinges greatly on ecosystem health. It is at least as important to understand the needs of key stakeholders – primarily entrepreneurs, but also other major ecosystem actors such as investors and large businesses.

  To this end, ecosystem mapping and assessment could be conducted on two levels: (1) understanding the health or readiness of the ecosystem to support a tech hub and clarifying what the market demands, i.e. what entrepreneurs, corporations, investors and policymakers need from the hub, and (2) learning to what extent these needs represent market opportunities that can be monetized.

- **Define core purpose.** Hubs typically focus on ecosystem building or start-up creation, depending on the needs and health of the ecosystem and the personal motivations of the hub founders. It is better to target one or the other, as ecosystem constraints may make it difficult to pursue both goals simultaneously. Many hubs choose to combine the two, or to pursue the goal that best meets ecosystem needs at a particular time. This underscores the importance of selecting a core purpose, as it will affect both the role a hub decides to play and the type of space it chooses to become.

- **Choose an approach.** Alignment increases the likelihood of success, so a tech hub should select an approach that complements its goals. For instance, if a critical mass of mature, high-potential start-ups is operating in an equally mature ecosystem with many key resources such as good infrastructure, financial capital and robust internet access, the hub may elect to focus on start-up creation and operate as an accelerator.

  But if there are few viable start-ups and many inexperienced founders operating in a nascent ecosystem with variable access to key resources, the hub should probably focus on ecosystem building and operate as a community-focused hub or coworking space. As previously mentioned, hybrid approaches are also possible if ecosystem dynamics allow.

- **Strike a balance between acting strategically and responding organically.** In an ideal scenario, a tech hub would conduct the type of assessment described above. This would help it establish market needs, the value proposition(s) that will respond to those needs, the activities, products and services that will deliver the value, and the business model that will fund operations.

  But starting a tech hub is complicated, and even with this level of preparation, conditions will change, often in unexpected ways. This means hubs must continually seek feedback and adapt their strategies, activities and even overall purpose.

- **Offer a perspective on how hubs are defined and measured.** External parties including journalists, researchers and funders generate much of the public commentary on hub definitions and measurement. Although this may add objectivity to the dialogue, it is also a lost opportunity for hubs, as they can offer informed opinions about how they are defined and evaluated. For example, there is no universal definition or benchmark for the financial sustainability of hubs.

  However, because hubs are often categorized as businesses, they inherit the same (or similar) profitability expectations. These expectations may be unrealistic, both in terms of the time-frame and the level of performance required. It might even be worth questioning whether hubs should be expected to reach sustainability at all, given that they often take on the difficult, long-term public goods provision work that few other actors are equipped or motivated to tackle.

- **Address major problems at the community level.** Some problems are too big for any single hub to solve. Challenges that affect most hubs, such as financial sustainability, could be easier to resolve if hubs learned from and helped each other by sharing best practices, failures and ideas. This is already happening: the Impact Hub network has a repository of best practices that members can access and AfriLabs piloted a network-wide learning week during which hub managers shared their expertise with other members.

Recommendations for organizations supporting hubs

- **Funders should play the long game.** Stimulating economic growth and development, building ecosystems and supporting high-growth start-ups are all long-term goals. Funders who support tech hubs to reach these objectives should take a long-term approach.

  This might require the funder to partner with hubs, offer flexible, appropriate funding, be open to experimentation and help build hub capacity by sharing knowledge and contacts. For example, the Omidyar Network has given Nigeria's CcHub multiple grants over several years to establish the hub (2011)[169] launch a social innovation fund (2015)[170] and host a social change summit (2017).[171] Additionally, Indigo Trust provides core funding assistance through a tech hub fund so it can respond to needs on the ground.[172]
- **Funders should join forces or take complementary positions where possible.** There are a number of efforts being spearheaded by multilateral institutions in support of job creation and Africa's participation in the global digital economy. For example, the African Development Bank created a €65 million start-up fund of which €10 million has been allocated for investing in start-ups and providing technical assistance for the ecosystem.[173]

  Just as African start-ups often struggle with different sources of support, hubs must piece together funding and opportunities to meet, learn and exchange best practices. Multi-stakeholder collaborations can be complex, but it is worth exploring when and how funders can cooperate to support hubs where there is shared interest, a strong mandate and complementary skills available. Additionally, funders should exploit opportunities to build the field by investing in leaders, convening hubs or facilitating knowledge exchange.
- **Funders should adjust and readjust their expectations.** Funding organizations are generally not adaptable entities. If they engage with hubs, funders that are flexible and dynamic will need to figure out how to reshape their processes and/or help hubs navigate them effectively. For example, infoDev discovered in its first evaluation of mLabs and their business models that hub managers found the grant-making process overwhelming and felt that they lacked adequate internal resources and guidance from infoDev to help them through the process.

Recommendations for building nascent ecosystems

This report has made clear that the quality and maturity of the ecosystems in which hubs and start-ups operate greatly influence how they fare. Thus, there are five recommended steps for building entrepreneurial ecosystems in resource-constrained countries.[174]

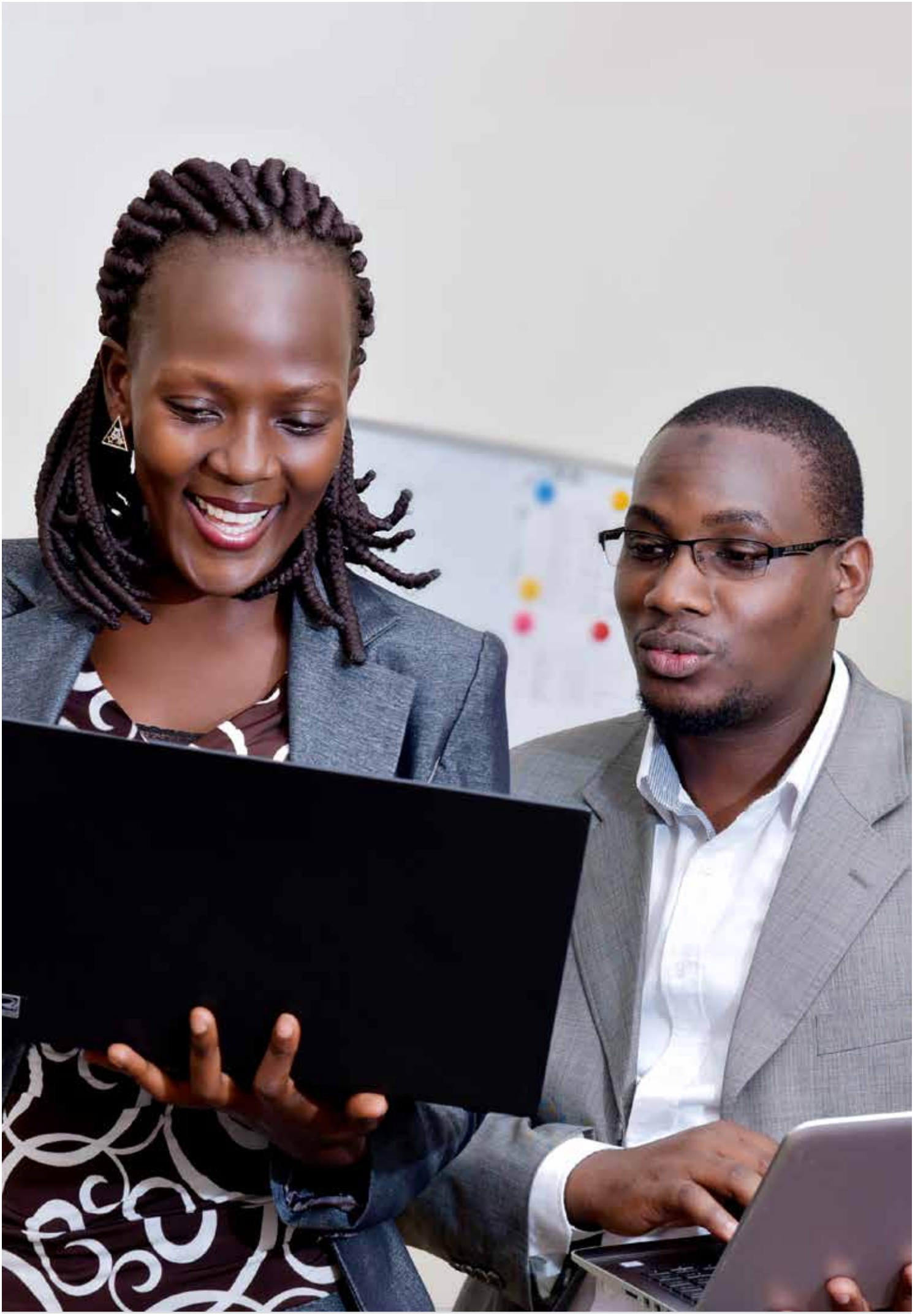
These steps are:

- **Build a sound foundation.** An entrepreneurial ecosystem requires functional ICT and payment infrastructure, as well as an accessible market. Tech hubs that support fledgling start-ups can play a critical role. They can help build the foundations of tech-driven industry and create the conditions that enable entrepreneurship. Setting up support infrastructure such as accelerators, hubs and competitions should be prioritized early in the development of entrepreneurial ecosystems.
- **Help enablers support start-ups.** It is critical to attract human capital from abroad. Repatriate and expatriate talent in Kenya helped close short-term gaps and will help build the human capital pool over time. The flow of talent, resources and knowledge facilitated by the movement of people from mature ecosystems to resource-constrained ones should be encouraged and organized.
- **Create pioneer start-ups that catalyse spillover effects within the ecosystem.** The success of the first generation of entrepreneurs benefits the entire ecosystem. These entrepreneurs will fund the next generation of founders and invest 'mentor capital' in budding start-ups. To increase the likelihood of pioneer survival, governments could provide stipends to cover the living expenses of committed entrepreneurs until their businesses become viable.
- **Solicit the input of start-up founders and other ecosystem builders for policy development.** The interconnected nature of entrepreneurial ecosystem pillars means it is important to take a holistic, systems-

oriented approach to building one. Systems are complex, and many variables must be considered to understand them. The only way to navigate this process is to engage the people and institutions that are building the ecosystem. They can provide perspective and information about the reality on the ground. This type of collaborative, bottom-up approach is especially important when resources are scarce as a way to ensure that policymakers do not turn to mature ecosystems for best practices that are not appropriate in the African context.

- **Embrace the evolution and dynamism tied to emerging entrepreneurial ecosystems.** Ecosystems grow and change, and will face obstacles that correspond to their stage of development. Two particular problems are worth noting. First, although it makes sense in the early stages of ecosystem building for a company to create the market by providing basic telecom products and services, this player may become a monopolistic incumbent as the ecosystem matures. The dominance of this type of company would stifle the emergence of other players.

  Secondly, the inflow of (repatriate and expatriate) human capital affects the entrepreneurial culture, potentially leading to one characterized by a diversity of values, both domestic and foreign. This blending of values and norms may lead to tensions within the ecosystem that will have to be addressed over time.



APPENDICES

APPENDIX I
Pain Points Of Hub Business Models

The interviewed hubs were asked to share the challenges they face vis-à-vis their business model. It became clear that some challenges are external to their business model and are more related to the ecosystem. Thus, it is almost impossible for them to tackle these on their own. Here is the information that was gathered regarding their relation to value creation, value delivery and revenue streams.

Hub Business Model	Challenges
Create	Lack of adequate skills, tenacity of purpose among entrepreneurs One tech hub in Akure (Nigeria) said the city was not a commercial hub, so businesses with ideas/solutions related to activities such as fintech and insurance tech find it difficult to gain traction. It is very difficult to secure the right partnership to help overcome this problem. Exponential Hub referred to challenges when identifying scalable tech businesses and creating revenue-sharing arrangements. For EnovateLab (Nigeria), challenges are related to: ■ Lack of innovative start-up ideas ■ Inadequate tech talents (software developers, designers, etc.) ■ Immature ecosystem/community A couple of hubs mentioned the reluctance of some entrepreneurs to approach tech hubs, arguing that the latter provide low-quality support.
Deliver	Tech hubs need strong infrastructures to be able to deliver the right value proposition to entrepreneurs and other customers. Foundershub and Malhub (Nigeria) mentioned their challenges to have high-quality internet at a decent cost. 360 Creative Innovation said it was very difficult to set up a well-functioning coworking space for fashion designers. Exponential Hub (Nigeria) identified the infrastructure obstacles as: ■ Limited opportunity for specialized mortgage/funding to own and develop the facility ■ Poor infrastructure (power supply and government water supply) ■ Limited equipment leasing options for computers, alternative power supply, etc. Adulai Bary of Innovalab (Bissau Guinea) said: 'We have an ecosystem in the construction phase, so we have spent the last three years to change the mindset of our community, our governments and development partners through training, incubation and events. This phase was for us the InnovaLab 1.0 with the following challenges: ■ An unproven concept, therefore, lack of confidence of our partners and the government; ■ Difficulties to finance activities; ■ Difficulty of constantly mobilizing teams of volunteers; ■ Funding to organize training for free.' Another challenge for 360 Creative Innovation hub is how to set up a successful creative entrepreneurs' acceleration programme, because it is difficult to mobilize creative business mentors.
Capture	Impact Dakar: 'Our main activity (entrepreneur support) doesn't generate revenue from the entrepreneurs. It is also difficult to have coworking fees that cover real estate costs and other costs (electricity, for example).' Other problems related to capturing value: ■ Insufficient patronage from public and private enterprises ■ Building a sustainable model while empowering start-ups ■ How to get sustainable public resources ■ High volume of members/clients required for sustainability ■ Tech hubs are capital-intensive with high overhead costs

APPENDIX II
Canvas of business model patterns

The business model canvas was used to describe each tech hub's business model pattern. Hubs frequently use the business model canvas to train and support entrepreneurs. It has nine components as described below.

Customer segments: These are the groups of people and/or organizations a company or organization aims to reach and for which it seeks to create value with a dedicated value proposition.

Value propositions: These are based on a bundle of products and services that create value for a customer segment.

Channels: These describe how a value proposition is communicated and delivered to a customer segment through communication, distribution and sales channels.

Customer relationships: These outline what type of relationship is established and maintained with each customer segment, and they explain how customers are acquired and retained.

Revenue streams: These result from a value proposition successfully offered to a customer segment. It is how an organization captures value with a price that customers are willing to pay.

Key resources: These are the most important assets required to offer and deliver the previously described elements.

Key activities: These are the most important activities an organization needs to perform well.

Key partnerships: These show the network of suppliers and partners that bring in external resources and activities.

Cost structure: This describes all costs incurred to operate a business model.

The following links provide access to the editable version of the business model canvas of tech hubs' business model patterns.

The grantee BMC – https://canvanizer.com/canvas/wqxwbnLvUqWAo

The networker BMC – https://canvanizer.com/canvas/w4lfDXAmdaDsq

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The agent BMC – https://canvanizer.com/canvas/wM31fpEu89h3MThe grantee's business model canvas

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