Digital Entrepreneurship in Kenya 2014

The GSMA represents the interests of mobile operators worldwide. Spanning more than 220 countries, the GSMA unites nearly 800 of the world's mobile operators with 250 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and Internet companies, as well as organisations in industry sectors such as financial services, healthcare, media, transport and utilities. The GSMA also produces industry-leading events such as Mobile World Congress and Mobile Asia Expo. For more information, please visit the GSMA corporate website at www.gsma.com. Follow the GSMA on Twitter: @GSMA.

Mobile for Development

GSMA Mobile for Development brings together our mobile operator members, the wider mobile industry and the development community to drive commercial mobile services for underserved people in emerging markets. We identify opportunities for social, economic and environmental impact and stimulate the development of scalable, life-enhancing mobile services.

Mobile is the predominant infrastructure in emerging markets. We believe it is the transformative technology that enables us to put relevant, impactful services into the hands of underserved people. Since the creation of GSMA Mobile for Development we have partnered with 50 mobile operators, rolling out 104 initiatives, impacting tens of millions of people across 49 countries.

For more information, please visit the GSMA Mobile for Development website at www.gsma.com/mobilefordevelopment or email m4d@gsma.com. Follow GSMA Mobile for Development on Twitter: @GSMAm4d.

GSMA Intelligence

GSMA Intelligence is the definitive source of global mobile operator data, analysis and forecasts; and a publisher of authoritative industry reports and research. Our data covers every operator group, network and MVNO in every country worldwide – from Afghanistan to Zimbabwe. It is the most accurate and complete set of industry metrics available, comprising tens of millions of individual data points, updated daily.

GSMA Intelligence is relied on by leading operators, vendors, regulators, financial institutions and third-party industry players, to support strategic decision-making and long-term investment planning. The data is used as an industry reference point and is frequently cited by the media and by the industry itself. Our team of analysts and experts produce regular thought-leading research reports across a range of industry topics.

For more information, please visit GSMA intelligence at www.gsmaintelligence.com or email info@gsmaintelligence.com.

GSMA Intelligence also supports the digital empowerment of people in emerging markets through its Mobile for Development resource. It is a central platform of data, analysis and insight used to inform investment and design decisions for mobile services. Our work is freely accessible through support from Mastercard Foundation and Omidyar Network at www.gsmaintelligence.com/M4D.

PREFACE

This report focuses new attention on Kenya's emerging digital entrepreneurship ecosystem, with a unique perspective on entrepreneurs developing mobile enabled services. In this report, we highlight the challenges startups are currently facing and the opportunities for collaboration among stakeholders, in particular opportunities for engagement with the mobile industry. Our findings culminate several months of research and analysis involving over 300 interviews with startups and other stakeholders as well as thoughtful contributions from colleagues within our global network.

The GSMA writes extensively about the social and economic impact connectivity has on people's lives. Our recent Mobile Economy Sub-Saharan African report highlighted that the mobile ecosystem currently contributes 6.3 per cent to regional GDP and will generate 6.6 million jobs by 2020.[1] At this year's World Economic Forum in Davos, world leaders gathered to discuss the "profound political, economic, social and, above all, technological forces [that] are transforming our lives, communities and institutions."[2]

Mobile technology is enabling the creation and growth of the digital economy—both in the developed and developing world. In the digital economy, mobile technology provides a global platform over which people and organisations can connect, verify identity, and transact. This foundation is reshaping how digital content and services are created and consumed.

01. Mobile Connectivity

02. Mobile Identity

03. Mobile Money

04. Digital Content and Services

1. http://www.gsmamobileeconomyafrica.com/
2. http://www3.weforum.org/docs/AM14/WEF_AM14_ExecutiveSummary.pdf

Mobile connectivity has unlocked an opportunity to rapidly scale mobile enabled services by connecting billions of people. At the end of 2013 there were 3.4 billion unique mobile subscribers worldwide. By 2020, the developing world will add another 880 million. Moreover, mobile broadband connections currently at 2.4 billion globally will nearly double to 4.1 billion by 2020.[3] Rising connectivity across the globe is fuelling the growth of Internet platforms such as Google, Yahoo, and Facebook. Small and medium size enterprises have also benefited with some emerging as competition to existing Internet platforms, for example Twitter and Instagram. For entrepreneurs and innovating businesses in the developing world, the ubiquity of mobile technology provides a tremendous opportunity to fundamentally change the business landscape and the lives of the underserved. Where mobile infrastructure is already in place, scaling mobile enabled services, even to underserved populations in rural areas, is not only physically plausible but financially feasible.

Mobile identity is foundational to the digital economy by building trust among people or businesses that would like to exchange information (including payments) via mobile networks. Because a mobile user can be identified by their SIM and password or other personal information, mobile networks foster trust between parties that may not have met physically. This in turn unlocks the potential for digital commerce at local and global levels. The more people are connected to the network with an identity, the greater the opportunity for mobile commerce and other mobile services that require identity verification, such as health and government services.

Mobile money is the currency of the digital economy. In the developing world mobile money enables previously unbanked populations to perform person-to-person money transfers, bill payments, bulk payments (such as salary payments of government disbursements), or other financial transactions using a mobile handset. Digital entrepreneurs are also benefiting, as mobile payments platforms provide a mechanism for startups to collect cash from customers interacting with their service or application. Futhermore, data collected by mobile operators could be used to analyse customer behaviour and assess credit worthiness, thereby creating opportunities for customised services and the extension of credit to more customers.

Digital content and services address business challenges, enable transparency and efficiency for government, and offer convenience, entertainment, and empowerment to consumers. In urban environments, smart cities use innovation and digital technologies to address urban challenges, such as transport and utilities, and improve services for citizens. A thriving entrepreneurship ecosystem provides the creative talent, financial resources, and shared infrastructure (such as office space and Internet connectivity) to enable entrepreneurs to build locally relevant content and services.

3. GSMA Intelligence

CONTENTS

Executive Summary

The mobile evolution occurring in the developing world is creating unparalleled opportunities for digital entrepreneurship. Over the past few years, a number of hubs, incubators, and accelerators have sprung up all over Africa—from Cape Town to Cairo and Lagos to Nairobi. While still nascent, the rapidly rising digital entrepreneurship scene in Africa has real promise to grow successful businesses stimulating job creation and generating new sources of revenue for the mobile industry and innovative services for business and consumers.

Nairobi, in the heart of Kenya, is at the forefront of this transformation and has already produced some notable success stories. Wananchi Online, a leading Kenyan Internet service provider has become East Africa's leading cable, broadband and IP (Internet-based) phone company, and is currently valued at over $100 million; additionally, Craft Silicon, a Kenyan software firm that provides core banking, microfinance, mobile, switch solutions software and electronic payments services for over 200 institutional clients in 40 countries has a $50 million market value.[4] These success stories, however, are somewhat unique. While the city has strong potential to become a major digital entrepreneurship hub, a myriad of financial, commercial and technical challenges prevent the vast majority of digital entrepreneurs from scaling and realising the full potential of their business ventures.

This research was undertaken to understand the challenges to developing digital services across Kenya. It included over 300 in-depth interviews with entrepreneurs, mobile and information and communication technology (ICT) industry corporates, investors, tech incubators and accelerators, and other support organisations. The GSMA's partner in this effort, *iHub_Research, helped us reach over 230 local startups across Nairobi, Kisumu and Mombasa.

There is an opportunity to deepen ecosystem engagement.

There is an opportunity for the ICT and mobile industry to engage, collaborate, and partner with entrepreneurs to build a thriving digital entrepreneurship ecosystem in Kenya for mutual benefit.

4. http://vc4africa.biz/blog/2013/07/23/10-african-startup-founders-who-built-million-dollar-internet-companies/

Mobile operators play a central role in the ecosystem and at present only a few startups have managed to secure such partnerships (11 per cent as per our entrepreneur survey). Nearly all mobile operators are starting to engage with entrepreneurs, through mobile application (app) stores, toolkits and other support mechanisms. However, more effort needs to be made to work collaboratively and constructively to transform the digital services sector. Processes and tools will need to be put in place to support interaction with startups, and this will take a significant effort. On their side, startups need to demonstrate deeper commitment to their ventures and a willingness to improve professional skills. In addition, there is an added challenge whereby the entrepreneur community currently does not trust operators and has concerns about sharing ideas freely (33 per cent of startups stated that a main challenge in forming commercial partnerships was lack of trust and concerns about sharing ideas freely).

In addition to benefits for entrepreneurs, we believe a thriving digital ecosystem creates tremendous opportunity for mobile operators and Kenya in general. Through collaboration, operators benefit from promising new combinations of mobile technology and digital services, harnessing the skills and experience of individuals and institutions outside the four walls of the organisation.

Operator infrastructure and capabilities can also be transformative in scaling digital services that could impact all of Kenya—from supply chains to small businesses to school-age children. Closer engagement between the mobile industry and entrepreneurs can catalyse this revolution.

There is a competing narrative between a lack of capital and a lack of dealflow.[5]

'Lack of capital at the early stage' is a commonly cited problem by entrepreneurs in East Africa—we decided to analyse in-depth whether there really is a gap and at which stages of startup development. To do this we spoke with the majority of investors actively financing digital startups in East Africa, and used these results along with our entrepreneur survey results to estimate relative supplies of capital. Somewhat expectedly, we found few investors working at very early stages and most of the capital spread across later stages.

Especially for many later stage startups, challenges with teams, skills, and experience appear to be an underlying problem.

In particular, investors find most business plans are poorly developed, and many teams lack any track record or experience relevant for their business model.

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5. Dealflow refers to the stream of investible business opportunities necessary to keep venture capital investors functioning at peak capacity.

Funding shortfalls at all stages affect team composition and focus.

The lack of venture capital at early stages and lack of confidence in teams at later stages results in most startups 'bootstrapping' and running side businesses in parallel. Side money, however, is not enough to sustain the venture to the next milestone or funding round. Few teams demonstrate revenues of any significance,[6] and at least 70 per cent of startups were not earning enough to maintain business and living expenses for a small team.

Technology-focused business angels and angel networks are just emerging in the region; with the right support, angels could create a critically needed supply of both early stage capital and hands-on mentorship.

Even though mentorship opportunities were available through networks, accelerators, and peer-groups, these avenues were not sufficient to overcome gaps in practical business and management knowledge.

As wealth and knowledge accumulate in Kenya, the potential for a significant number of active business angels will increase, and many different types of business angels could support businesses in the country—from local to global, and from technical to professional.

Efforts are underway to raise awareness about business angel investing in Kenya, but more activity is needed.

Competitions and grants are helpful in spotlighting entrepreneurs and an important source of capital for social impact projects.

Some competitions, mainly those with prize money sub-$2,000, are attracting 'compepreneurs'[7] who enter with 'cool' mobile applications as opposed to scalable business ideas. However, the total amount of prize money awarded in this category over the last several years has been less than $50,000. While soft money in this amount is unlikely to 'crowd out' venture capital funding, the frequency of and hype around competitions creates a distracting environment for entrepreneurs and a significant amount of noise. Investors then spend a substantial amount of time determining which entrepreneurs are serious and which are simply working to build their portfolios.

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6. Comparing investor expectations of revenues relative to deal size for mobile-oriented startups across markets may be an interesting piece of future research; differences between the developed and developing world seem to be quite substantial from anecdotal evidence.
7. 'Compepreneur' refers to an entrepreneur chasing after competitions with half-baked 'cool apps' as opposed to scalable business ideas.

Catalysing the growth of digital entrepreneurship in Kenya: recommendations for stakeholders

Kenyan mobile operators and information and communication technology (ICT) industry corporates

- Collaborate and partner with the ecosystem and with Kenyan startups
- Clear and transparent processes for working with startups
- Common interfaces and tools for startups
- Easier access to mobile assets, especially mobile payment platforms
- Invest into or acquire startups
- Buy services or form partnership agreements with startups
- Build and deepen ties to accelerators and hubs

Accelerators and hubs

- More hands-on mentorship
- Explore partnerships with mobile and ICT industry beyond financial resources

Investors and financial institutions

- Put capital into seed stage funds
- Provide hands-on, business building support
- Build and develop the business angel network in Kenya

Development organisations

- Support early stage funds and accelerators
- Programmes that build local venture capital capacity
- Revise winner selection criteria in competitions
- Broaden support beyond 'social' entrepreneurs or impact investment funds
- Support creation and dissemination of market information
- Support networking opportunities that promote partnership and collaboration

Research institutions

- Make policy recommendations for government
- Recommend entrepreneurship updates to Kenyan educational curriculum

Government

- Support early stage funds and accelerators
- Develop a procurement framework to work with local entrepreneurs
- Establish an 'Entrepreneurship Visa' programme
- Identify digital entrepreneurship hubs throughout Kenya
- Modify current loan guarantee programmes

KENYA'S DIGITAL TRANSFORMATION

Bandwidth

8Tb/sec

Bandwidth Through Undersea Cables

Unique Mobile Subscriber Penetration

31%
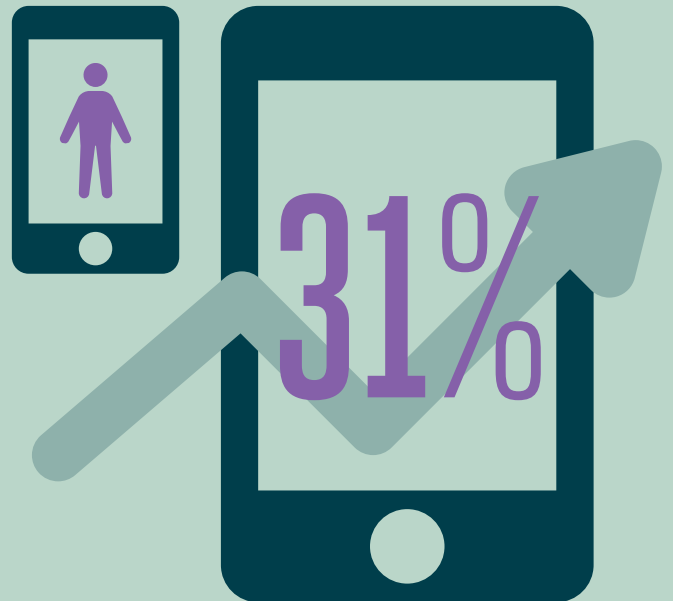
Handset Costs
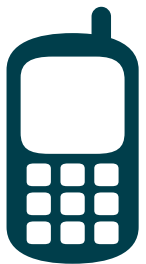
Basic phone handsets

$15
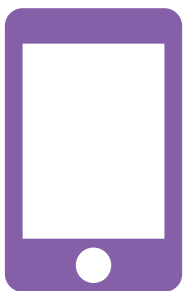
Smartphone Handsets

<$100

Technology

(AND THESE ARE INCREASING)

20%
3G
Subscriptions

80%
2G
Subscriptions
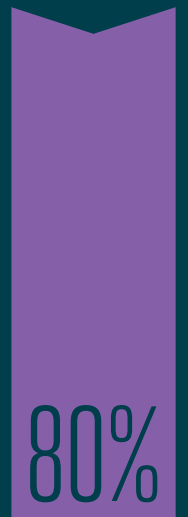
Access

60% OF KENYANS
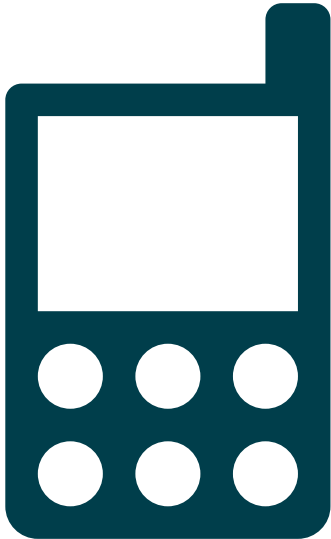
LIVING ON LESS THAN

$2.50/DAY

Have access to mobile phones

Internet Subscriptions

99% OF INTERNET SUBSCRIBERS, AROUND 16 MILLION PEOPLE
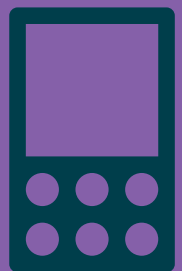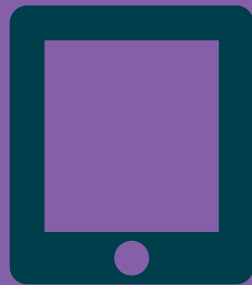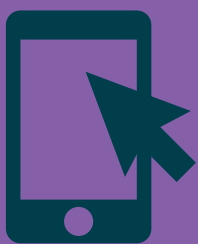
Access the Internet through mobile devices

1. Kenya's digital transformation

Infrastructure improvements created an enabling environment for developing digital services cost effectively and with high degree of sophistication

Kenya's technical infrastructure developed very rapidly over the last 10 years—both in capacity and capability.

Huge increases in data capacity into and out of Kenya underpinned this progress. Kenya had satellite links since 1970, but in 2006 private telecom companies, notably Safaricom, opened a Satellite Earth Station in Nairobi.[8] This laid the foundation for initial build-out of 3G networks. The next step-change in capacity came with the landing of four submarine cables in Mombasa starting in 2009.[9] Capacity increased by several orders of magnitude to over 8 Terabits per second.[10] Undersea cables, similar to satellites, require significant investment. A conglomerate of organisations and national government usually provides finance. An interesting exception is the SEACOM cable where a 26 per cent share is held by the Aga Khan Fund for Economic Development.[11]

Additionally, growth of in-country infrastructure and capacity also contributed to progress. Fibre backbones expanded rapidly through government-backed initiatives such as the National Optic Fibre Backbone Infrastructure (NOFBI) project,[12] which linked Kenya's major urban areas and is now expanding to rural areas of the country. Moreover, telecommunications and utility companies are also laying their own fibre optic cable networks especially in urban areas, as well as other backhaul technologies.[13]

8. http://www.upi.com/Science_News/2006/07/05/Gateways-should-cut-Kenya-long-distance/UPI-31361152116873/
9. http://www.teams.co.ke, http://lion.orange.com, http://www.eassy.org, http://seacom.mu
10. Kenya Communications Commission. (2013). Quarterly Sector Statistics Report, Second Quarter of the Financial Year 2012/13 (Oct-Dec 2012).
    Available from: http://www.cck.go.ke/resc/downloads/Sector_statistics_for_Quarter_2_-_2012-2013.pdf
11. http://seacom.mu/our-company/company-structure/
12. Kenya Ministry of Information and Technology. (2013). The National Broadband Strategy for Kenya (DRAFT).
    Available from: http://www.cck.go.ke/links/consultations/current_consultations/The_National_Broadband_Strategy_.pdf
13. Backhaul technologies such as non-line-of-sight (NLOS) microwave links and very small aperture tunnel (VSAT) for out-lying network stations

TECHNICAL INFRASTRUCTURE
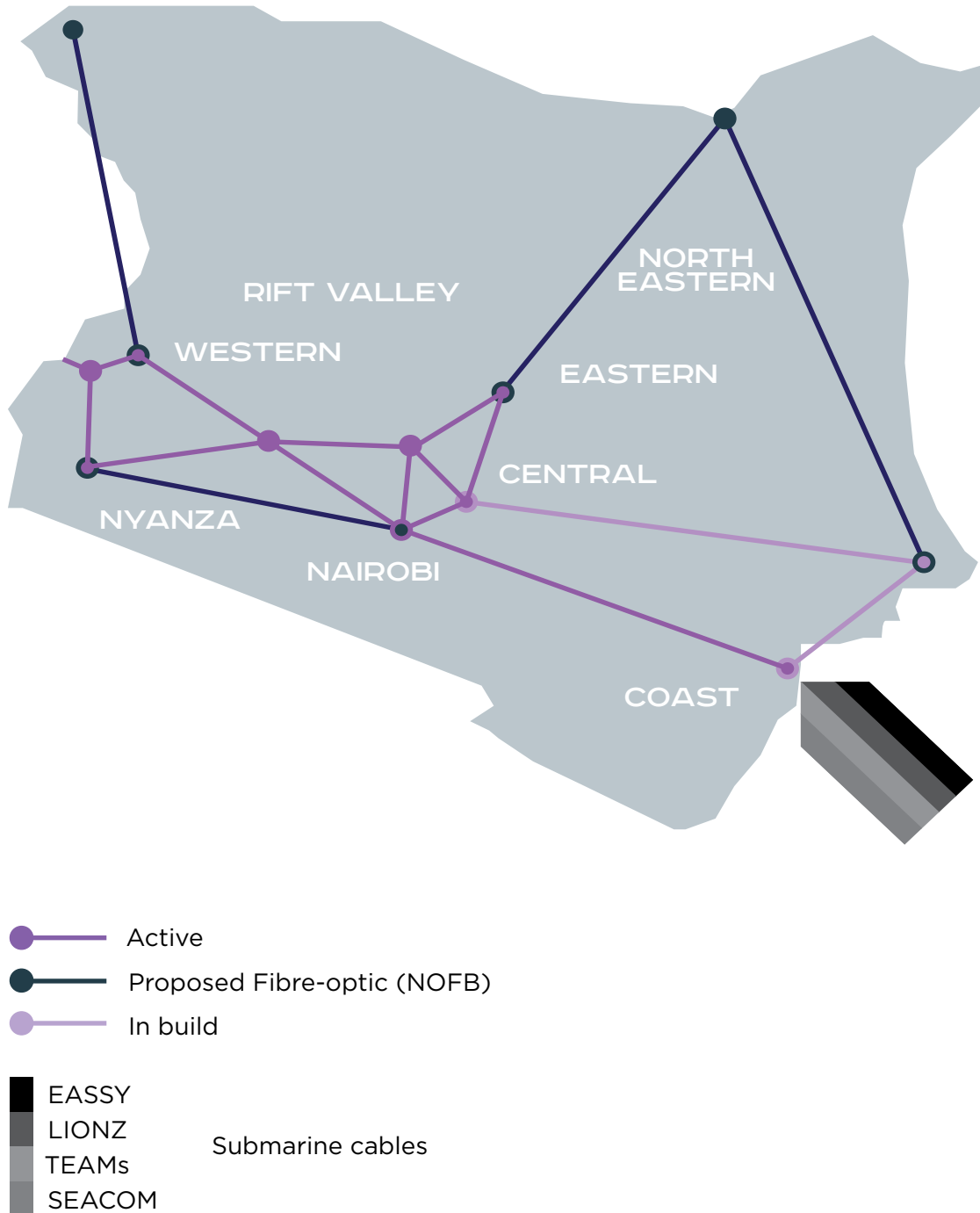
Figure 1

Rapid growth in capacity has had a number of implications for mobile networks and digital services.

While currently most networks and connections use 2.5G (80 per cent of subscriptions),[14] operators have been expanding coverage of 3G (20 per cent of subscriptions). Increases in capacity have resulted in significant decreases in cost of bandwidth for data and voice services. Consumer tariffs have dropped by over 80 per cent since 2010.[15] Moreover, these infrastructure improvements have laid the foundation for higher capacity mobile networks by extending 3G networks and opening the possibility for 4G networks (the Kenya ICT Authority has said that the government is fully committed to fast tracking roll out of national 4G networks as part of their ICT sector master plan).[16] With higher capacity networks and broader coverage, mobile operators are better positioned to support data intensive digital services (subject to device capabilities).

Infrastructure expansion has also enabled a myriad of other players in the ecosystem to grow.

Mobile subscription penetration levels for businesses and consumers are now high enough to sustain business models for digital services. At present, mobile is the primary vehicle for accessing digital services and the Internet (99 per cent of Internet subscriptions, around 16 million people, access the Internet through mobile devices).[17] Furthermore, technology support providers are now available which means that digital startups can be setup rapidly and cost effectively. For example a startup developing on a low cost platform provided by a Platform as a Service (PaaS) provider, such as Amazon, can create a Short Message Service (SMS) product reaching large segments of mobile subscribers. The startup could connect to the mobile network through a Premium Rate Service Provider (PRSP) or directly with a mobile operator partner. The connectivity to support such architecture is now available within Kenya and internationally, whereas previously this would have required extraordinarily large investments in infrastructure.

14. GSMA Intelligence
15. Stork, C. (2011). Termination Rate Debate in Africa. Research ICT Africa.
    Available from: http://www.researchictafrica.net/presentations/CPRafrica_2011_-_Presentations/Stork_-_Termination_rate_debate_in_Africa.pdf
16. GSMA Intelligence
17. Kenya Communications Commission. (2013). Quarterly Sector Statistics Report, Second Quarter of the Financial Year 2012/13 (Oct-Dec 2012).
    Available from: http://www.cck.go.ke/resc/downloads/Sector_statistics_for_Quarter_2_-_2012-2013.pdf

99%
of Internet subscribers, around

16million
people, access the Internet through mobile devices
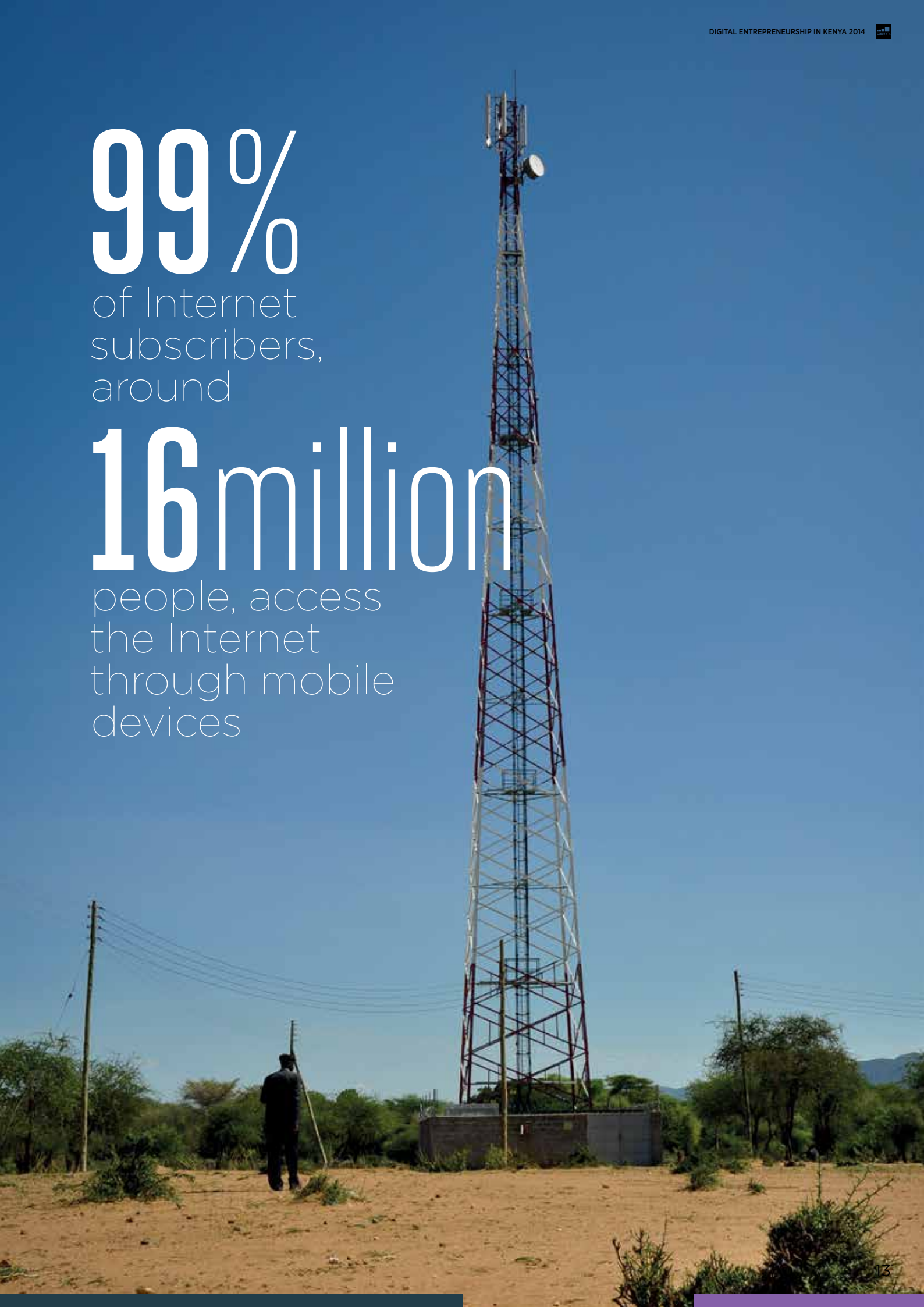
TECHNICAL LANDSCAPE FOR DIGITAL SERVICES DEVELOPMENT

Users

Businesses

MOBILE OPERATORS

SERVICE PROVIDERS

ICT INDUSTRY CORPORATES

SAFARICOM
64.5%

16.9%
AIRTEL

10.5%
YU

8.1%
ORANGE

CLICKATELL

AFRICA'S TALKING

ONMOBILE

COMVIVA

GOOGLE

FACEBOOK

IBM

OTHERS

BROADBAND ACCESS
Fibre, DSL, Mobile, WiMAX

FIBRE OPTIC
Often part of other players such as mobile operators

SUBMARINE CABLES
Typically consortiums

SATELLITE SERVICE PROVIDERS
Ranging from dedicated to shared channel provision

Clouds

Source: GSMA

Figure 2

LEGEND

USERS:

Mobile and Internet subscribers

BUSINESSES:

Business-to-business using mobile Internet services

MOBILE OPERATORS:

Safaricom (64.5 per cent), Airtel (16.9 per cent), ZYu (10.5 per cent), Orange (8.1 per cent)[18]

SERVICE PROVIDERS:

- Premium Rate Service Providers (PRSPs) – provide premium resources and channels (e.g. Short Message Service, short codes, premium rate phone numbers)
- Mobile Service Aggregators – provide aggregated services such as Short Message Service (SMS) allowing companies to deliver SMS across multiple mobile operators through a single point of contact
- Value Added Services (VAS) Providers – work with mobile operators to provide Value Added Services across their networks

INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) INDUSTRY CORPORATES:

Large vested companies that provide infrastructure and services to (and in partnership with) the mobile operators (e.g. Ericsson, IBM, Google, and Nokia)

HUBS:

Provide workspace, connectivity, tech community support, quality assurance and testing facilities (limited)

INFRASTRUCTURE PROVIDERS:

- Broadband and Network connectivity providers
- Fiber optic backhaul service providers (often part of other players such as mobile operators)
- Submarine cable providers (typically consortiums)
- Satellite service providers – ranging from dedicated to shared channel provision

CLOUDS (IN/OUT-OF-COUNTRY SERVICE PROVIDERS):

- Cloud services
- Platform as a service (PaaS) – service hosting (e.g. open-source solution stacks, Amazon Web Services, .Net)
- Backend as a service (BaaS) – integration to cloud services and social messaging networks for mobile and Internet service providers
- Software as a service (SaaS) – data repositories, office services (e.g. Google Applications)

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18. GSMA Intelligence

Low-cost and second-hand handsets along with affordable pre-paid airtime tariffs have led to explosive growth in mobile subscriptions, even among the poor.

In 2005 Motorola announced an initiative to drive down basic phone costs to below $20 (retail) in that year and to $15 by 2008.[19] Today we see basic phones regularly retailing around $15, a recent example being the Nokia 105. Like many other regions, sales of smartphones have been growing in Kenya. While initial sales growth was largely attributable to wealthier classes, retail trends now support wider adoption. Prices for some smartphones have dropped significantly, notably those operating on Android. Many sub-$100 handsets are now on display in Kenyan stores, for example the Huawei Ideos retailing at $70. Feature phone platforms are also becoming more functional. Nokia have been pushing their feature phone

platform Series 40/ASHA, which functions much like a low-end smartphone. The latest version, Asha 501, is currently retailing for around $50. In addition to smartphone-like features, these devices are typically more robust and have a longer battery life than many smartphones.

These factors have contributed to a significant number of connected Kenyans.

The GSMA estimates 31 per cent of people living in Kenya have at least one mobile subscription (see Figure 3, as of 2012). Results from other surveys suggest even higher penetration rates, especially when phone sharing is included. A recent study by *iHub_Research, Research Solutions Africa, and infoDev found that 60 per cent of Kenyans living on less than $2.50 a day have access to mobile phones.[20]

UNIQUE MOBILE SUBSCRIBER PENETRATION IN KENYA

2007 — 18%
2008 — 22%
2009 — 24%
2010 — 28%
2011 — 29%
2012 — 31%
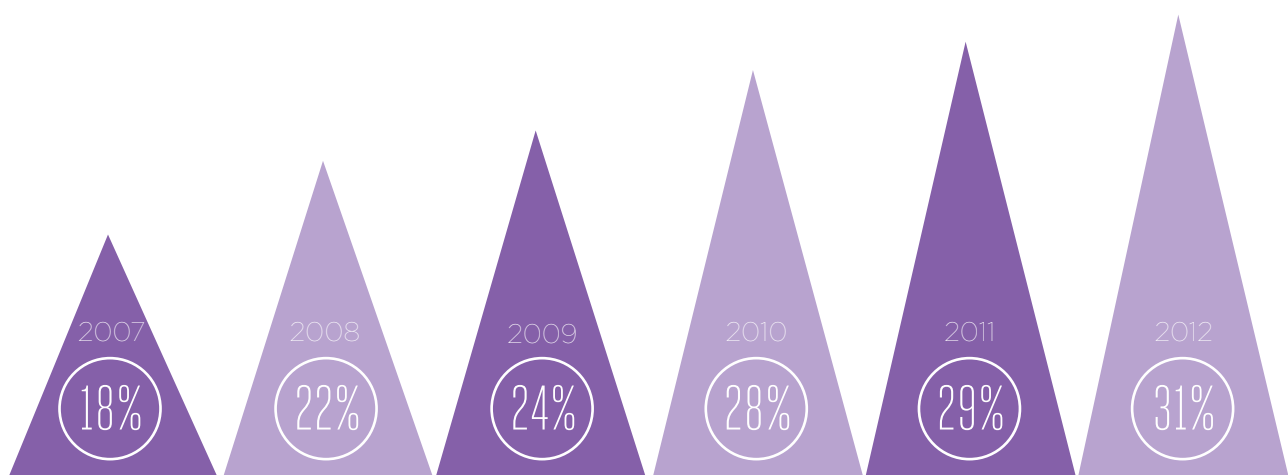
Source: GSMA Intelligence
Note: Represents unique users that subscribe to mobile services, as opposed to the number of registered Subscriber Identification Module (SIM) cards on mobile networks.

Figure 3

19. http://news.bbc.co.uk/1/hi/business/4285638.stm
20. The World Bank. (2012). Mobile Usage at the Base of the Pyramid in Kenya. Available from: http://www.infodev.org/articles/mobile-usage-base-pyramid-kenya.

These infrastructure improvements have several game-changing implications for startups in Kenya
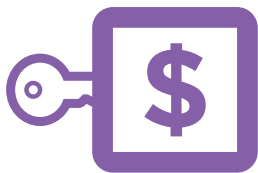
Set-up costs: developers can now access communication and mobile channels appropriate for early stage development either direct from providers or through hosted spaces

Facility access: cloud based hosting services (PaaS and BaaS) are finally becoming a real possibility for early stage startups. Also increased capacity makes it easier for developers to access development resources (e.g. smartphone solution developer toolkits) and general computing platforms (e.g. open source tools and platforms)

Market growth: Uptake of digital services has grown as device costs have decreased and capabilities increased. As well, more Kenyans are getting online every day through innovative projects such as Matatu Wi-Fi connections (Vuma Online)—this is growing the potential user base for digital services [21]

Education and support: Developers now have easy access to online development training courses and support tools, including online forums and chat sites. This is increasing the skills of developers and exposing them to innovative service ideas from other regions around the world

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21. http://www.safaricom.co.ke/blog/2013/08/08/vuma-online/

THE EMERGENCE OF A DIGITAL ENTREPRENEURSHIP ECOSYSTEM

Entrepreneurs

Industry
- Mobile operators
- Information and communication technology corporates

Capital
- Venture capital investors and private equity
- Business angels
- Financial institutions

Policy
- Government
- Research organisations

Support
- Incubators and accelerators
- Professional services organisations
- Universities and training organisations
- Development organisations

Connect
- Hubs, networks and community spaces
- Events and media

Relevant Mobile Operator Assets & Capabilities

CHANNEL ACCESS

Channels that allow services to operate without direct data or Internet access, such as Short Message Service (SMS), Unstructured Supplementary Services Data (USSD), Voice / Interactive Voice Response (IVR)

DISTRIBUTION

Agent networks, marketing displays, supply chains, software push technology, mobile application stores

OPERATIONS CAPABILITIES

Customer support, marketing, accounting, financing, skills and know-how, training and mentoring

TRUST

Reputation, brand

HARDWARE, SOFTWARE, PHYSICAL NETWORK

Hosting hardware and software, international bandwidth, testing facilities, application programming interfaces, billing and accounting software

2. The emergence of a digital entrepreneurship ecosystem

The mobile evolution as well as recent events in Kenya inspired the emergence of a digital entrepreneurship ecosystem

As mobile technology has become the platform of choice for launching digital services in Kenya, a diverse set of stakeholders now have a role in creating, supporting and delivering services. 'Ecosystem' is used to describe the many players involved and the fact that they interact closely. Various stakeholders are supporting the development of the digital entrepreneurship ecosystem in Kenya.

DIGITAL ENTREPRENEURSHIP ECOSYSTEM

Entrepreneurs

Industry
- Mobile operators
- Information and communication technology corporates

Capital
- Venture capital investors and private equity
- Business angels
- Financial institutions

Policy
- Government
- Research organisations

Support
- Incubators and accelerators
- Professional services organisations
- Universities and training organisations
- Development organisations

Connect
- Hubs, networks and community spaces
- Events and media

Figure 4

ORGANISATIONS WITHIN THE KENYA DIGITAL ENTREPRENEURSHIP ECOSYSTEM

Mobile Operators

Airtel
Orange
Safaricom
Yu

Incubators / Accelerators

@iLabAfrica / @iBizAfrica
500 Startups
88 mph
Afrilabs
GrowthHub Africa
IFC SME Solution Centre
Kenya Markets Trust
m:lab East Africa
Open Capital Advisors
Savannah Fund
Sinapis Group
Spotone Global Solutions
Unreasonable Institute
Upstart Africa
Village Capital

Private Equity

Catalyst
East Africa Capital Partners
EC Private Equity

Commercial Lending

Bank of Africa
Chase Bank
Eco bank
Equity Bank
Fina Bank
NIC

Commercial Venture Capital

500 Startups
88mph
Africa Media Venture Fund
Amadeus Capital Partners
Business Partners International
eVA Fund
Fanisi
Grassroots business fund
Innovation 4 Africa
Kitendo Capital
Mbada Ventures
Savannah Fund
SPARK Ventures
TBL Mirror
Tech Equity
TLcom

Hubs, Networks, & Community Spaces

*iHub_
Africa IQ
Business Lounge
Gearbox
VC4Africa

Research & Training

*iHub_Research
eMobilis
infoDev
Nokia Research Centre
Research Solutions Africa
Safaricom Academy
World Bank

Government

Communications Commission of Kenya (regulator)
Kenya ICT Authority Board
Konza City
Ministry of Information & Communications

Impact Venture Capital

Accion
Acumen Fund
Bamboo Finance
D.O.B. Equity
GroFin
Growth Hub Africa
Invested Development
Jacana Partners
Khosla Impact
Kukua Fund
Leapfrog

Professional Services

Chembe Ventures
Open Capital Advisors
Technoserve

Events & Media

Africa Assets
Africa Gathering
Africa Interactive
Demo Africa
How we made it in Africa
Human IPO
Mobile Monday Kenya
Pivot East
Tech 4 Africa
Venture Beat
Venture Burn

Development Organisations

DfID Kenya
FSD Kenya

ICT Corporates

Cisco Systems
Intel
Nokia
Microsoft
Google

Figure 5

*iHub_

Motivations to form a community of digital entrepreneurs have been and continue to be strong in Kenya.

During the aftermath of Kenya's disputed 2007 presidential election, Ushahidi realised the political influence that crowdsourcing could have for social activism and public accountability. The founding of *iHub_ as a space for the emerging technology community followed from Ushahidi's popularity. As noted in our focus groups, when entrepreneurs from other areas of Kenya such as Mombasa and Kisumu begin to build traction, they move to Nairobi to be closer to the hub of activity in and around Bishop Magua and Ngong Road. Moreover, widespread adoption of M-PESA has also motivated digital entrepreneurs to come forward. While M-PESA itself is not a startup, Kenyans are inspired that the cutting edge mobile payments service has been so successful, and point to its popularity when discussing the potential for their business ventures to scale.

CITY CENTER

NAIROBI

NGONG ROAD

Bishop Magua

UHURU HIGHWAY

Strathmore University

1 88mph
2 GrowthHub
3 m:lab East Africa
4 Nailab
5 *iHub_
6 @iLabAfrica
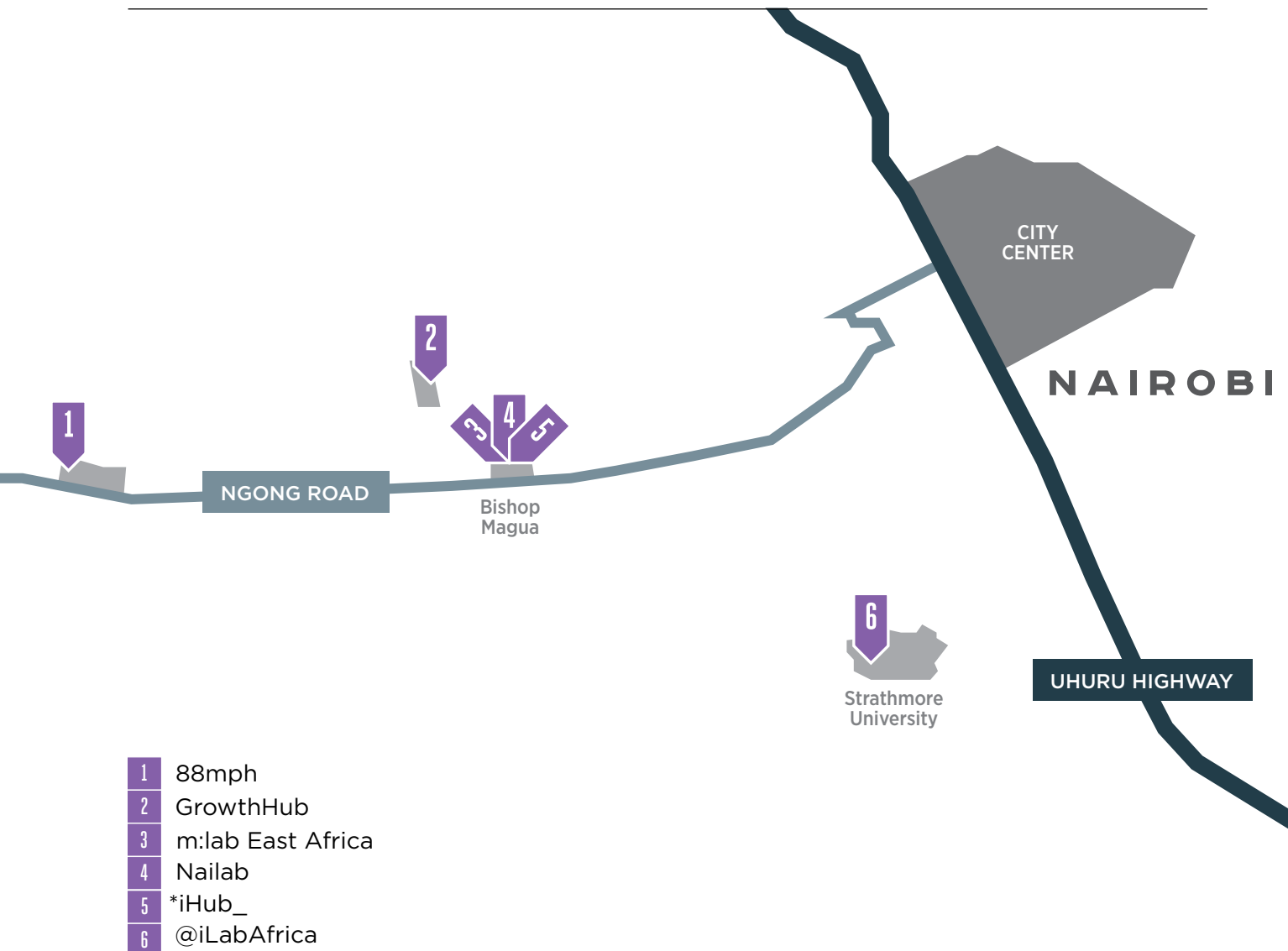
The close proximity of startups and support organisations in Nairobi and the geographical distance to corporates is striking.

The Bishop Magua building in Nairobi has been the cornerstone of Kenya's digital entrepreneurship ecosystem, and is host to *iHub_, Nailab, m:lab East Africa, Savannah Fund, GSMA, as well as several startups. In a short period of time, gift shops and beauty salons have moved out and graduates of accelerator programmes have taken over. Other clusters are developing down the road, near 88mph's accelerator and Strathmore University which hosts the Climate Innovation Centre as well as @iLabAfrica. Coffee shops and trendy restaurants have also sprung up along Ngong Road to service the growing techie community. Venture capital investors too have set up shop close by, some working from virtual offices located at hubs and accelerators (see Table 1 below which summarises several prominent accelerator programmes located in Nairobi). Posters and stickers from Safaricom and other Kenya mobile operators, as well as global technology company sponsors, are visible on the walls and windows of accelerators and hubs, however corporate offices are noticeably on the other side of town in Westlands or Central Business District. The geographical distance between the Nairobi tech startup scene and mobile operators is probably pure coincidence, but it illustrates a gap that needs to be bridged in terms of level of engagement across the ecosystem.

COMPARISON OF SEVERAL ACCELERATOR PROGRAMMES IN KENYA

Organisation	Programme Length	Investment	Equity Stake	Class Size
88mph Nairobi, Kenya Cape Town, South Africa	3 months	Y	Y	8-15
GrowthHub I2I Nairobi, Kenya	3 months	Y	Y	12-15
@iLabAfrica / @iBizAfrica Nairobi, Kenya	6 – 12 months	Y	Y	N/A
m:lab East Africa Nairobi, Kenya	4 – 24 months	Y Through Pivot East	N	20-25
Nailab Nairobi, Kenya	3 months	N	Y	20
Savannah Fund Accelerator Nairobi, Kenya	3 months	Y	Y	3-5

Table 1

Mobile operators have a central role to play in the ecosystem.

An increasing number of operators are adopting strategies to harness the energy and creativity of startups. Their unique assets can be leveraged in a wide range of applications and services. These include capabilities like voice, messaging, payments and billing, identity/user authentication, location awareness, customer trust and loyalty, as well as physical assets like face-to-face distribution networks and network infrastructure. Several operators have discussed developing network application programming interfaces that will provide access to relevant services. Others are launching competitions to crowd source applications (apps) for newly launched app stores, complete with accelerator programmes to support winning teams through development and testing. Largely untapped, operator agent networks could potentially catalyse a mobile services evolution because of their reach deep into rural communities.

POTENTIAL MOBILE OPERATOR ASSETS AND CAPABILITIES OF INTEREST TO ENTREPRENEURS

AREA	ASSETS AND CAPABILITIES
Channel Access	Channels that allow services to operate without direct data or Internet access, such as Short Message Service (SMS), Unstructured Supplementary Services Data (USSD), Voice / Interactive Voice Response (IVR)
Distribution	Agent networks, marketing displays, supply chains, software push technology, mobile application stores
Hardware, Software and Physical Network	Hosting hardware and software, international bandwidth, testing facilities, application programming interfaces, billing and accounting software
Operations Capabilities	Customer support, marketing, accounting, financing, skills and know-how, training and mentoring
Trust	Reputation, brand

Table 2

Collaboration has underpinned early success stories.

Bridge International Academies is a chain of nursery and primary schools delivering low-cost education to 45,000+ Kenyan pupils through a mobile enabled "Academy in a box" model that uses mobile operator payment platforms and mobile enabled management tools. Another example, Kopo Kopo, which has created a world-class platform to enable small and medium businesses to accept mobile payments and build relationships with their customers, has an extensive set of partnerships with mobile operators, banks and other businesses in Kenya. Hubs and accelerators have also benefited from collaboration. The m:lab East Africa in Nairobi, a centre for mobile entrepreneurship developed by World Bank's infoDev group, provides incubation, developer training, application testing, and ecosystem building, with support from World Bank, Qualcomm, Samsung, Nokia, Microsoft, Intel and others.

Further support and collaboration will be needed to translate progress into tangible results.

Further support and collaboration will be needed to translate progress into tangible results. Some startups have achieved early success; however the number realising scale is still relatively small. A myriad of commercial, financial, and technology challenges remain as we will highlight further in this report. While the digital entrepreneurship ecosystem in Kenya has welcomed the progress and commitments of mobile operators, deeper collaboration will open many opportunities to drive adoption of digital services.

Examples of mobile operator collaboration and partnership strategies in the developed and developing world:

Network Application Programming Interfaces (APIs):

Network APIs allow applications to use mobile network capabilities, such as messaging, authentication, and payments. For example, a payment Network API could be used to add charges to a user's mobile phone bill based on in-app purchases. The GSMA OneAPI initiative is working with major operators, such as AT&T, Deutsche Telekom, Orange, and Vodafone, to create standardised APIs and the OneAPI Exchange enabling platform for operators, so that developers can integrate a single API once and run the application in many operator's networks without any change. Bharti Airtel recently announced plans to open up its location and micropayment API's in 3-5 months.[22]

Operator-led accelerators:

Wayra is an ICT startup accelerator developed and owned by Telefonica. Launched in 2011, Wayra has expanded to 14 accelerators across Europe and Latin America. Early stage companies accepted into the 6 month revolving programme are provided with mentoring, technical resources, seed funding and workspace in exchange for a minority equity stake. Accelerators are being launched by a range of other industry players, for example Orange Fab, DOCOMO Innovations (a Japanese operator) and Samsung Open Innovation Centre.

Startup competitions:

Crowd-sourced startup competitions like Safaricom's App Wiz Challenge and the Orange African Social Venture Prize incentivise local developers and startups to develop innovative mobile services.

Innovation scouting:

Swisscom Ventures has a team based in the Silicon Valley to scout for new technologies and introduce innovative businesses (like cloud services) into Swisscom.

Corporate venture capital:

Operators including Vodafone, SK Telecom, Telefonica and DOCOMO, as well as industry players like Samsung, Qualcomm and Intel engage in active corporate venture capital activity to bring promising external innovations in-house.

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22. http://www.medianama.com/2013/12/223-airtel-will-open-up-location-vodafone-no-show/

THE NEED FOR DEEPER ENGAGEMENT BETWEEN MOBILE OPERATORS AND STARTUPS

Collaboration

Better engagement would ease technical challenges and build a more robust industry and a strong ecosystem through collaboration

Partnerships

11%

Only 11% of startups have partnerships with mobile operators

Operator Resources

Biggest technical challenge faced by half of startups is the high cost of operator resources

50%

Popular Channels, Operating Systems and Payment Methods

Most popular mobile channels, operating systems and payment methods used by entrepreneurs

46%

SMS

52%

MOBILE WEB

46%

ANDROID

24%
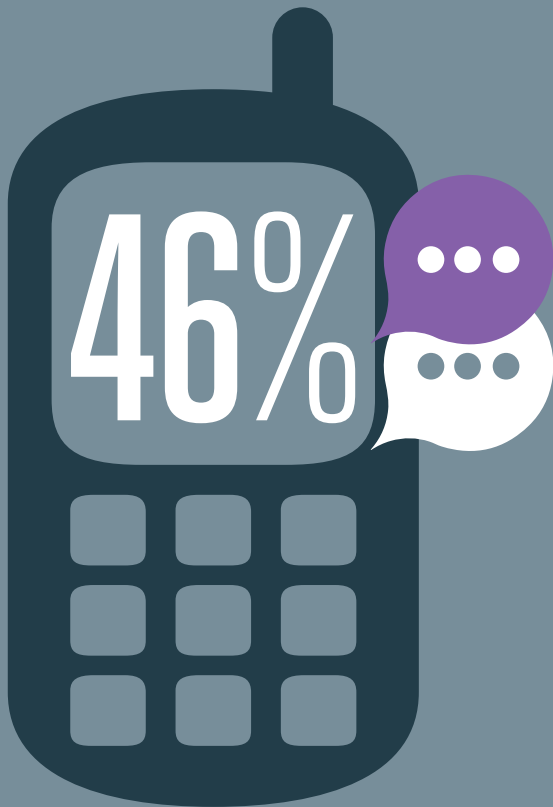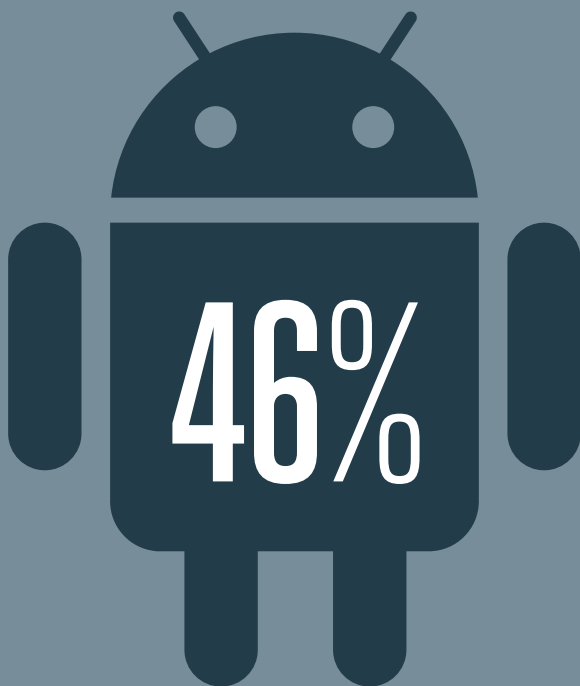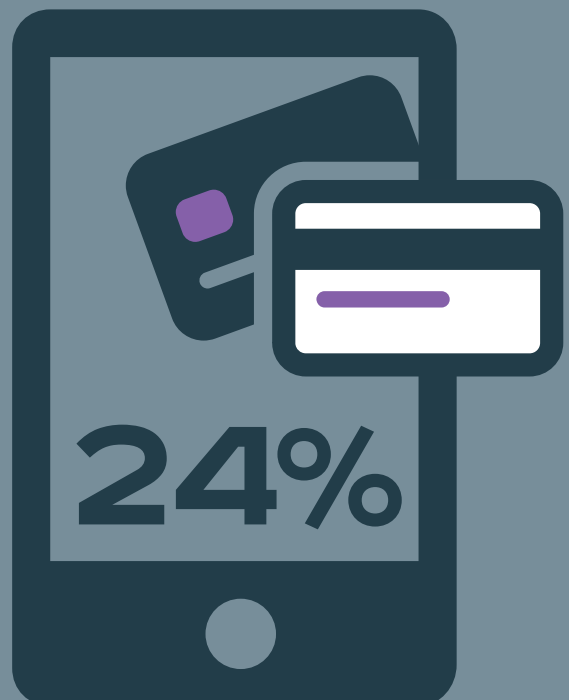
M-PESA

3. The need for deeper engagement between mobile operators and startups

There is a tremendous opportunity for mobile operators to engage with others in the digital entrepreneurship ecosystem.

Whereas in more developed countries digital entrepreneurs have looked to Internet companies and even adjacent industries for collaborative partnerships, in Kenya startups want to partner with mobile operators to facilitate monetisation, discoverability and channel access for their ventures. Unfortunately at present, only a few startups have managed to secure such partnerships (see Figure 6—only 11 per cent of startups surveyed have partnerships with mobile operators).

PERCENTAGE OF KENYAN STARTUPS WITH PARTNERSHIPS

| 11% | 8% | 6% | 4% | 4% | 3% | 3% |
| MOBILE OPERATORS | OTHER SMALLER BUSINESSES | OTHER LARGE BUSINESSES | BANKS | NGOS | GOVERNMENT/ GOVERNMENT INSTITUTIONS | INDUSTRY ASSOCIATIONS |
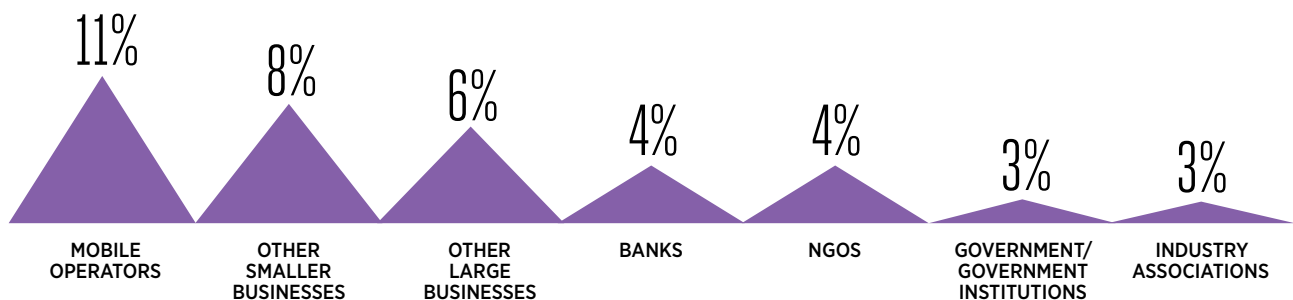
Source: GSMA Intelligence Kenya ICT & Mobile Entrepreneur Survey

Figure 6

Collaboration and partnership models are gaining traction in Kenya, but have additional complexity that operators are struggling to adapt to.

Mobile operators in Kenya have indicated they would like to create value through sharing access to services or through combining operator resources with those from entrepreneurs, customers, and others in the ecosystem. However, business processes to handle creative activity with startups are not well-established at present. While mobile operators have been experimenting with different approaches to engage startups,

an overarching strategy at the operating country or group level is lacking for most. Partnerships with startups are formed ad-hoc and are often dependent on personal connections. While this has led to several startups successfully gaining traction, it has been a time and resource consuming process for mobile operators and non-transparent for startups. Indeed, the biggest challenge noted by startups in developing relationships with mobile operators was a lack of trust and concerns about sharing ideas freely (33 per cent of startups stated that the main challenge in forming commercial partnerships was lack of trust and concerns about sharing ideas freely).

WHAT IS THE VALUE OF PARTNERSHIPS?

One startup that we interviewed formed an extensive set of partnerships with mobile operators, banks and other businesses in Kenya. Their most significant partnership is with Safaricom: the startup is responsible for identifying retail businesses relevant to M-PESA's consumer-to-business payments platform and managing the relationship with merchants. Safaricom is responsible for maintaining the M-PESA payment service and providing Tier-2 customer support.

The partnership with Safaricom has added value in the following ways:

• Being official partners of Safaricom brings instant credibility when talking to potential customers
• Close contact with Safaricom helps them better integrate their product with M-PESA
• Safaricom's marketing efforts increase customer awareness in their target market

Table 3

BENEFITS AND POTENTIAL ISSUES TO ENGAGING WITH STARTUPS FOR MOBILE OPERATORS

	BENEFITS	POTENTIAL ISSUES
COMPANY IMPACT ON: PRODUCTIVITY, PRODUCT / SERVICE PERFORMANCE, COST STRUCTURE, FINANCING	• Ability to tap expertise and creativity external to the organisation • Lucrative revenue streams that capitalise on both previous investments and on external investments • Spread risk of service failure and reduce exposure to short and variable nature of fashionable app cycles • Maintain awareness of cutting edge trends and ideas	• Costs and issues with certification of code, brand, usability, services, support channels • Potential for increased developer or customer support needs, which requires structures and processes to manage
CUSTOMERS CHANGES IN ABILITY / WILLINGNESS TO BUY	• Diversification of services available to customers • Diversification of offerings that drive data usage	• Potential loss of exclusivity and first mover advantage revenues • Potential dilution of relationship with customer • Loss of complete control over brand and quality, possibly mitigated through certification processes
COMPETITION CHANGES IN COMPETITIVE POSITION VS. COMPETITORS OR SUBSTITUTES	• Limit influence of disruptive technologies • Services innovation as a differentiator	• Complexity of intellectual property and monitoring licenses
VALUE CHAIN CHANGES IN INPUT COSTS OR STRUCTURE	• Reduced investment to develop individual services • Business models and technologies that leverage external innovation while maintaining control • Rapid time to market and reduced resource constraints for new and improved services	• Complex monetisation process to set-up and manage with startups as opposed to all in-house • Upfront investment required to deliver open application programming interfaces to development environments
DISTRIBUTION CHANGES IN PERFORMANCE OF DISTRIBUTION CHANNELS	• Increase centrality of mobile across sectors	• Capacity of network and systems to handle upstream and downstream traffic

Source: GSMA Analysis

Table 3

Show me the money

Startups need integration to operator payment platforms

Mobile payments platforms have been foundational for digital entrepreneurship.

Very few countries in the developing world come close to Kenya's mobile payments penetration levels where an estimated 74 per cent of adults (23 million people) are registered mobile money users.[23] Widespread adoption has created an unparalleled opportunity for digital entrepreneurs because mobile money services, such as Safaricom's paybill and 'Lipa Na M-PESA',[24] are making it easier for businesses to accept payments. As such, many startups build businesses that use mobile money platforms, including several that extend M-PESA services to merchants and financial institutions such as Kopo Kopo and Zege Technologies. Moreover, as shown in Figure 7, 24 per cent of startups are using the M-PESA platform to process payments.

PAYMENT METHODS ACCEPTED BY KENYAN STARTUPS
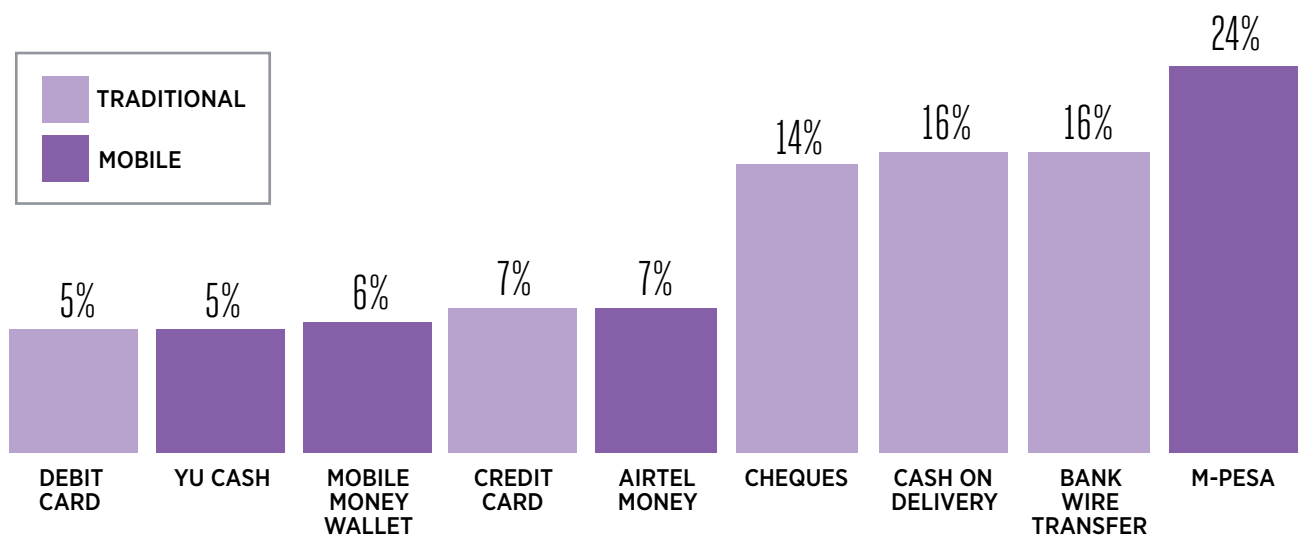
Source: GSMA Intelligence Kenya ICT & Mobile Entrepreneur Survey

Figure 7

23. http://www.gsma.com/mobilefordevelopment/gsma-mmu-infographic-kenyan-journey-to-digital-financial-inclusion
24. 'Lipa Na M-PESA' is Safaricom's service that allows merchants to accept M-PESA payments from customers (see http://www.safaricom.co.ke/personal/m-pesa/m-pesa-services-tariffs/lipa-na-m-pesa)
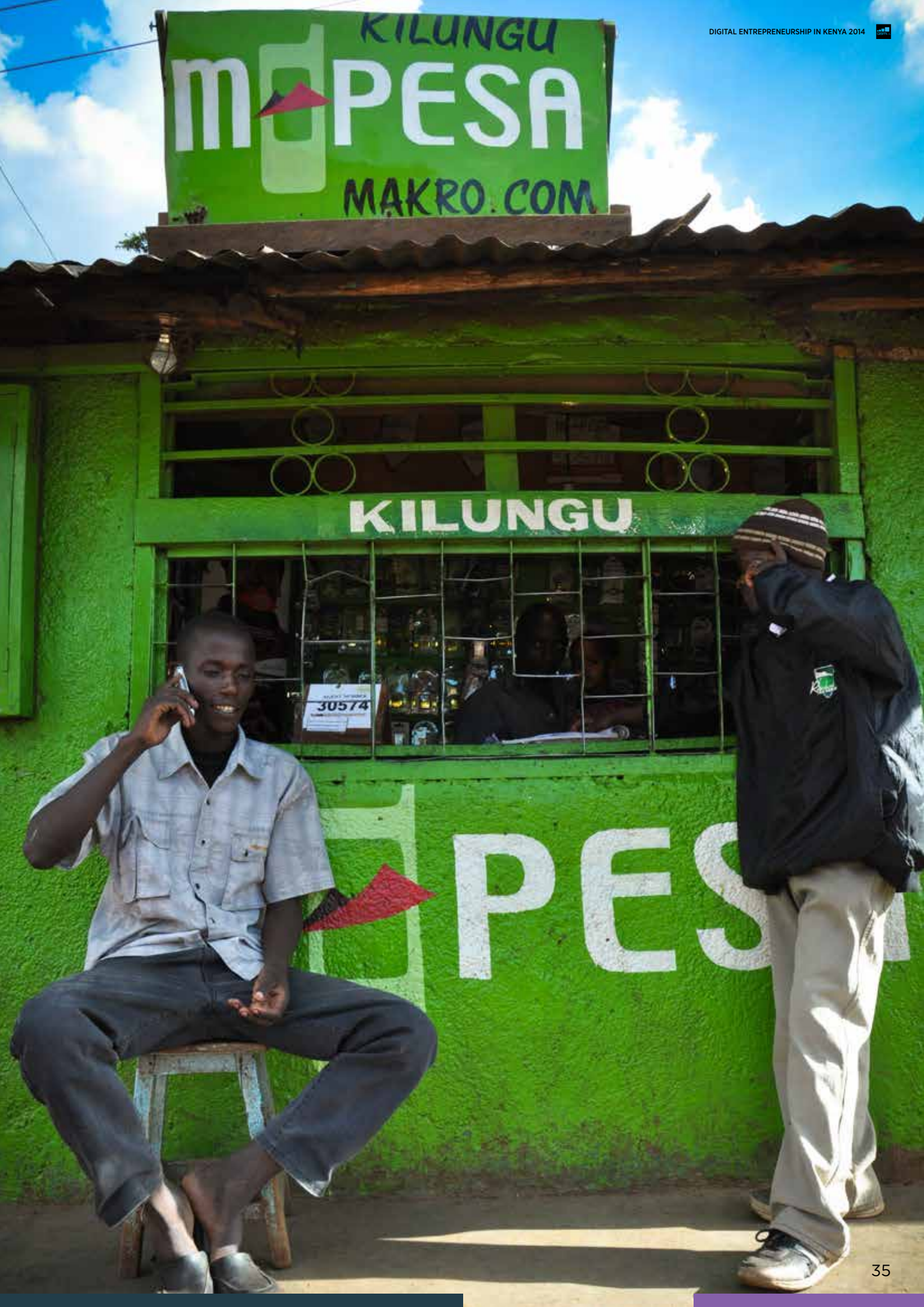
Because prevailing forms of payment involve mobile operator platforms, startups need operator partnerships to execute their business models.

Extracting value from services is critical to the survival of startups. International bank account and credit cards enabled the cash flow during the eCommerce boom of the early 2000s in the developed world. When mobile app stores launched several years later, they simply adopted card payments as the mechanism. In Kenya most consumers and most entrepreneurs do not have a credit card and therefore alternative monetisation processes must be used. Leading alternatives are mostly controlled by mobile operators (see Table 4). Because standard processes and in some cases appropriate technologies to enable access to payment mechanisms do not exist, operators handle requests from startups one at a time, bottlenecking the ability of startups to monetise their service.

MONETISATION METHODS IN THE DEVELOPING WORLD

METHOD	DESCRIPTION	CURRENT CHALLENGES
ADVERTISEMENT	Startup collects payment from client directly	Mobile advertising not well developed in East Africa value vs. traditional advertising still needs to be demonstrated and campaign platforms developed
DIRECT **In-app / developer handled**	Startup handles payment from consumer directly	Web financial transactions are standardised around card payments or international bank account numbers– traditional bank accounts and credit cards are uncommon in the developing world. The registration and payments processes tend to be cumbersome for customers
Mobile application stores	Store handles payment from customer and pays out after a short period of time and/or when threshold is met	Mobile application stores charge developer fees ($99 annually for Apple and $49/$99 for Windows, $25 one time for Google) in addition to taking a cut of revenues (typically 30 per cent). There are also minimum and maximum prices for apps. Mobile app stores collect developer fees from credit cards and wire payments to bank accounts—many Kenyan entrepreneurs especially youth do not have credit cards or bank accounts. Mobile app stores that require US credit cards will also involve a multi-step process with significant transaction handling to move funds from the US to Kenya
Direct operator / carrier billing	Charges are added to consumer's monthly mobile invoice or deducted from airtime balance	Needs to be set up directly with the operator, which is difficult for startups. There are also regulatory restrictions on the types of services that can be sold through direct carrier billing
Premium Short Message Service (SMS)	Operator deducts standard amount from consumer's airtime balance account via an associated cost per SMS to a prescribed number, but retains a portion of the payment as commission	Difficult to secure dedicated short code with a mobile operator, likely to go through a Premium Rate Service Provider (PRSP, see below). Availability tends to be limited for low-volume startups
Mobile money payments	Operator deducts purchase amount from consumer's mobile money account, plus commission	Standardised application programming interfaces allowing access are limited, unstable or non-existent, although there are plans to improve them. Issues with trust and fraud need to be resolved
INTERMEDIARIES **Payment aggregators**	Intermediary acts as payment gateway, processing variety of payment types	Some gateways deduct fees per transaction instead of as a percentage of transaction values; high-volume low-margin revenue models may struggle. Also technology is still relatively new and run by startups
Premium Rate Service Providers (PRSP)	PRSP handles payment from customer and pays out after a period of time	PRSP's margin after operator cut has been historically low, resulting in very low revenues for startups further down the value chain. Also, PRSPs rarely have a transparent billing process, making selection of a PRSP a challenging step

Source: GSMA Analysis

Table 4

Channelling growth in digital services

Access to mobile channels is an issue for entrepreneurs and a potential opportunity for operators

Startups are underutilising operator channels that could unlock opportunities to expand their businesses, such as Interactive Voice Response (IVR) and Unstructured Supplementary Services Data (USSD).

Because startups do not have consistent or cost-effective access to channels that are controlled by mobile operators, many develop on 'the path of least resistance', which is typically Android or mobile web, even though most users do not have smartphones (see Figure 8). If mobile operators open up relevant network services, entrepreneurs will be able to develop a wide variety of services that use these assets, potentially generating additional revenue. Of all the channels, basic voice is the most underused means for delivering services. Although set-up costs for voice-based solutions are generally much higher than Short Message Service (SMS), addressable markets for voice serves are significantly higher. This is because many users in developing world countries lack the language and technical literacy skills necessary to operate SMS-based services. As projects scale, profit margins for IVR and voice services will grow whereas SMS and USSD will remain flat.[25]

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25. See Value of Voice – an unsung opportunity, available at: https://mobiledevelopmentintelligence.com/insight/Value_of_Voice_-_an_unsung_opportunity

POPULAR MOBILE CHANNELS AND OPERATING SYSTEMS FOR KENYAN STARTUPS

APPLICATIONS & WEB
VOICE
MESSAGING

SYMBIAN	8%
BLACKBERRY	9%
APPLE IOS	10%
WINDOWS OS	10%
JAVA (J2ME)	23%
ANDROID	46%
MOBILE WEB	52%
OUTBOUND DIALLED CALLS	0%
INTERACTIVE VOICE RESPONSE	3%
CALL CENTRE	4%
MMS	3%
USSD	14%
SMS	46%
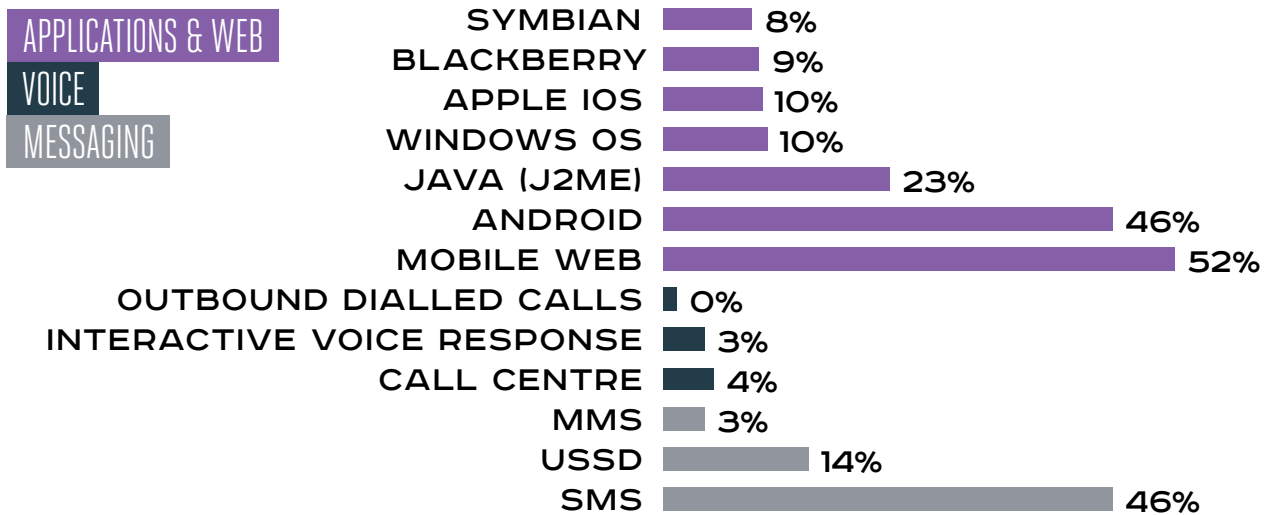
Source: GSMA Intelligence Kenya ICT & Mobile Entrepreneur Survey

Figure 8

Access to Short Message Service (SMS) is readily available and understood, but not always cost effective to scale.

Most mobile operators charge for SMS network services on a per unit basis—so delivery costs increase with traffic volumes. Some operators discount costs for large volume customers. Even with discounts, however, costs are fixed per unit. As noted by developers that we interviewed, the high cost of resources, such as SMS services from mobile operators, is the greatest technical challenge Kenyan startups are facing (see Figure 9). Startups generating insufficient volumes to reach lower price bands feel these growing pains acutely.

TECHNICAL CHALLENGES FACED BY KENYAN STARTUPS

High costs of operator resources	Programming languages	Hosting	Internet access	Tools	Time / effort for testing	Delinquent accounts	Poor quality assurance
50%	39%	26%	23%	19%	2%	1%	1%
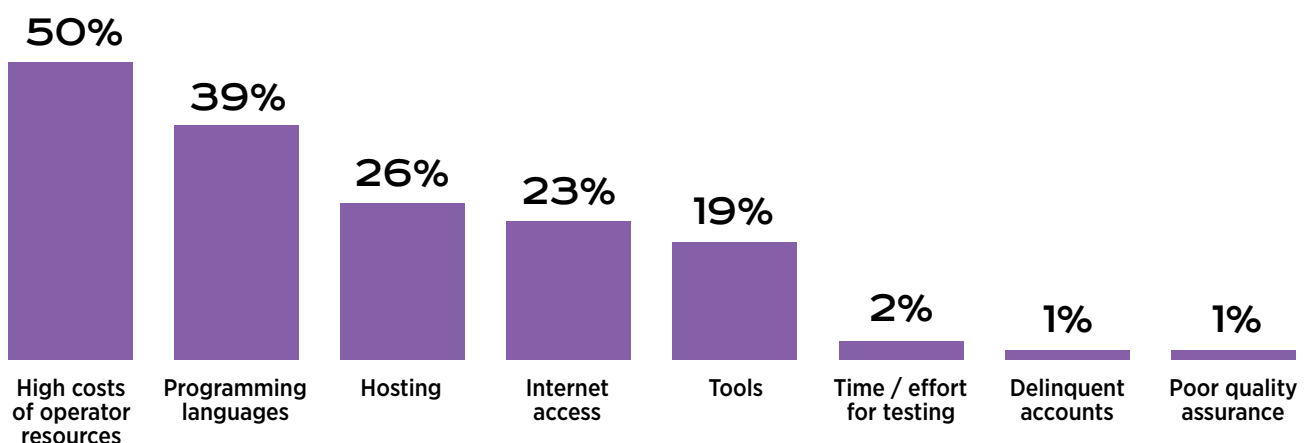
Source: GSMA Intelligence Kenya ICT & Mobile Entrepreneur Survey

Figure 9

Reinventing the wheel

Environments, platforms and tools that accelerate development are an opportunity for mobile operators

Hosted environments for testing and early stage operations are an opportunity for mobile operator and ecosystem collaboration.

Even with the recent advances in infrastructure, hosting options that replicate live conditions remain expensive or impractical. At present, startups have several options:

1. Host services on their own equipment:

Building a reliable and scalable platform requires a significant capital outlay, as the requisite equipment, infrastructure and redundancy are expensive. In addition, there are on-going costs for operations staff and 24x7 support.

2. Housing – service provider provides rack, power, air conditioning and Internet connectivity:

Co-locate services in a managed data centre: While facilities are available in Kenya, they are designed to enterprise standards and costs. One example, Kenya Data Networks (KDN), provides a state-of-the-art facility but costs approximately $2,000-$3,000 a month for a rack (excluding servers). As our survey findings indicated that only 18 per cent of startups in Kenya have average revenues above $2,900 per month and most are 'bootstrapping', this option is out of reach for most startups.

Co-locate within a mobile operator's data centre facilities: This option is similar to the above, but could potentially be offered at an affordable cost or as part of a wider package of support. This option does require startups and mobile operators to form partnership agreements; interviews with startups have noted that negotiating partnerships has been challenging.

3. Managed server hosting:

On top of housing, the service provider leases the server and provides operating system level administration support.

4. Locate services with a cloud-based Platform as a Service (PaaS) provider:

PaaS providers host services on virtual servers that run on cloud architectures. Because resources are virtual, this option is typically cost-effective for startups as resources can be easily scaled as requirements change. Unfortunately at present, PaaS are all located out of country and require a reliable connection and bandwidth. Moreover, PaaS providers typically collect payments using international payment standards, such as Visa or MasterCard, which Kenyan entrepreneurs rarely have. Also, depending on the industry, storage of user data out of the country may be regulated (e.g. medical or health records).

Advanced software tools and platforms need to be more available to accelerate technical development.

Developer tools and platforms are widely available, often free of charge. A variety of support alternatives are also accessible through the Internet, including online courses and developer support forums. Most developers are aware of and make use of such tools and online support; however they are less familiar with specialised frameworks for building advanced services in a particular industry, such as OpenMRS (an open source electronic medical record system) and FrontlineSMS (a bulk Short Message Service management tool). Making platforms easily available and publicised could help startups develop increasingly sophisticated services without having to waste time 'reinventing the wheel'.

Furthermore, tools and methods to conduct thorough quality assurance are rarely available or cost-effective.

Unlike Web development, where developers only need to test software on a few popular Web browsers, mobile developers face tremendous variation in Web browsers, operating systems, application environments and mobile devices. In addition, mobile technology will vary with each operator or may be used inconsistently throughout network resources (e.g. application programming interfaces, short codes, USSD ports). This adds to both the effort and cost of testing software on a plethora of devices.

Technical programming skills need to be broadened.

The number of highly-skilled technical developers is growing in Kenya, fed by Nairobi's universities (University of Nairobi, Jomo Kenyatta University of Agriculture and Technology, and Strathmore University). University and online learning is also supplemented by expatriate developers working in Kenya alongside local developers. That said, developers' skills in Kenya are clustered around Web programming and technical systems administration, such as networking, security, and general technical support. Most have never received training in technologies suitable for deploying mobile services to basic and feature phone users, such as IVR (62 per cent), USSD (45 per cent) or SMS (38 per cent). From our discussions with other stakeholders, formal training on digital services technologies is not available and most developers are either self-taught or learn while developing for the first time. At present, only one organisation in Kenya, eMobilis,[26] stands out as presently offering or planning to develop such services at scale in the near future.

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26. eMobilis Mobile Technology Institute was founded in 2008 and focuses on training individuals on Mobile Software Development as well as Network Infrastructure Management (http://www.emobilis.org/emob/index.php/courses)

THE COMPETING NARRATIVE BETWEEN LACK OF CAPITAL AND LACK OF DEALFLOW

Bootstrapping
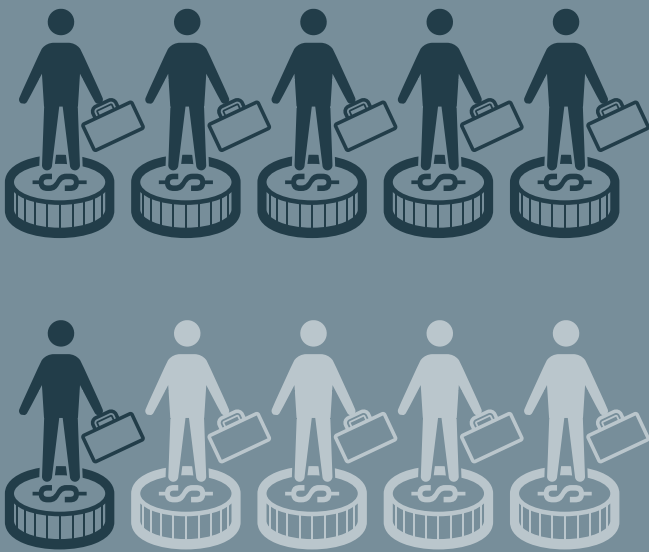
60% of entrepreneurs are self-funded

VC and Angel Funding

10%

Less than 10% of entrepreneurs receive funding from VCs or Angels

Total Funding Received

40% < $1,200

93% < $120,000

40% of mobile startups receive less than $1,200 of funding, and 93% have received less than $120,000

Equity Financing

60%+

More than 60% of entrepreneurs are interested in equity financing, but have not approached an investor

Confidence

50%

Less than 50% of entrepreneurs feel they have the skills needed to run the company
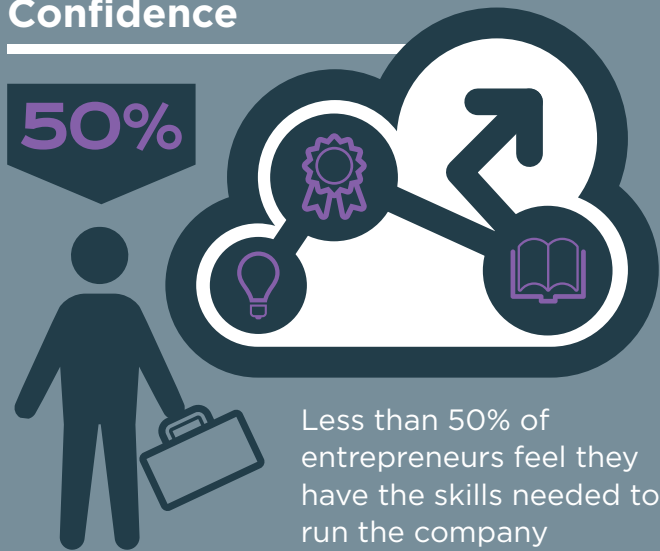
Support

60% of entrepreneurs need additional support in sales and marketing

60%

Early Stage Venture Capital

Only 7% of venture capital is targeting idea and prototype stage opportunities in Kenya

7%

Constraints

70%

$2,900

The majority of startups we surveyed (70%) earn $2,900 or less which means they cannot work full time on their ventures nor hire proper marketing or user design resources

4. The competing narrative between lack of capital and lack of dealflow

Entrepreneurs and investors in Kenya have conflicting viewpoints

From entrepreneurs' perspective, accessing finance is difficult. "Investors view Africa as a high risk market resulting in fierce competition for very few funds," commented one entrepreneur who recently raised seed capital. Entrepreneurs felt that reluctant risk-taking translates into investors demanding disproportionate equity stakes during negotiations. These points were echoed during further interviews with startups (see Figure 10). From the investor perspective, finding investible opportunities is challenging. Many startups lack proper team structure, track records, and skills necessary to run a business. To clarify the situation, in depth interviews were conducted with over 230 founding teams and most of the venture capital companies actively investing in information and communication technology in East Africa. Our conclusions were also shaped by several recent entrepreneurship ecosystem studies, interviews with other stakeholders, and our own observations.[27]

ACCESS TO FINANCE CHALLENGES FACED BY KENYAN STARTUPS

31%	21%	21%	13%	11%	8%	4%	2%
Investors have stringent requirements	My pitching skills are poor	No challenges	Investors have a poor understanding of startups	My business is not well established	Finance comes with high interest rates	There is strong competition for funds	Feedback that our business model is unsustainable
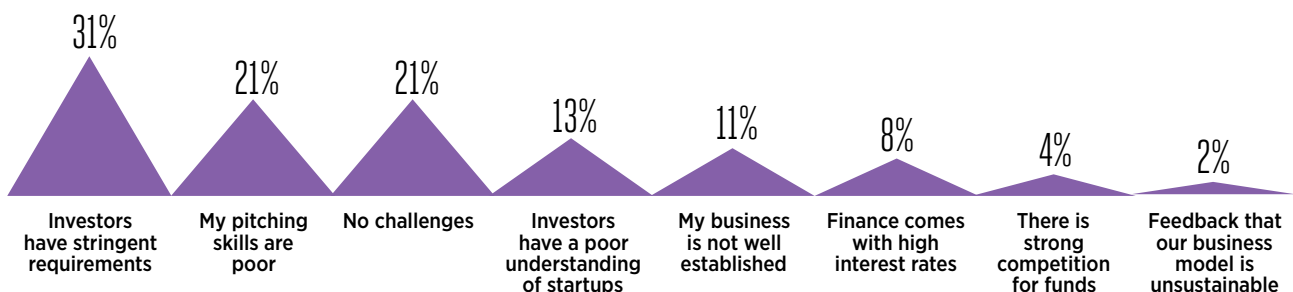
Source: GSMA Intelligence Kenya ICT & Mobile Entrepreneur Survey

Figure 10

27. **Reports reviewed include:** Bannick, M. and Goldman, P. (2012) Priming the Pump: The Case for a Sector Based Approach to Impact Investing, Omidyar Network | The Bridgespan Group. (2009). The Strong Field Framework: A Guide and Toolkit for Funders and Nonprofits Committed to Large-Scale Impact | Bulloch, G., Lacy, P., & Jurgens, C. (2011). Convergence economy: Rethinking international development in a converging world. Accenture | Capital markets Authority (2011). Challenges and opportunities in the East African ICT sector | 2013 Julisha ICT Study; Kenya ICT Master Plan 2017 Kenya Vision 2030
Koh, H., Karamchandani, A., & Katz, R. (2012). From blueprint to sale: The case for philanthropy in impact investing. | **Monitor Group** Monitor Group. (2013). Accelerating Entrepreneurship in Africa: Understanding Africa's Challenges to Creating Opportunity-driven Entrepreneurship | Open Capital Advisors. (2013). Toward an Ecosystem for Early-Stage Incubation of Social Enterprises in East Africa
Sondhi, A., Biswas, S., Gupta, G., & Bharwani, P. (2011). Mobile value added services: A vehicle to usher in inclusive growth and bridge the digital divide. Deloitte.

Constrained capital

Few investors are working at very early stages and most of the capital is spread across later stages

Early stage investing requires taking risk. Several early stage investors run their own accelerator programmes to complement the financial assistance they provide to startups. This increases the likelihood that some of their investments will lead to successful exits. Not every investment is expected to survive through the accelerator programme—startups failing to gain traction are typically culled or sent back to the drawing board.

Based on our analysis (see Figures 11 and 12), there does appear to be a gap in funding, especially at prototype stage. The relative amount of capital compared with supply is lower at prototype and seed stage compared with other stages. As well, the spread of capital tends to be focused on seed and growth stage startups, with very little available at idea and prototype stage.[28]

ANALYSIS OF THE FUNDING GAP FOR KENYAN DIGITAL STARTUPS

■ Spread of VC across stages

● Supply of VC / demand for VC by digital startups in Kenya

| IDEA | PROTOTYPE | SEED | GROWTH | EXPANSIONARY |

1% 6% 34% 41% 18%

40% 11% 18% 25% 32%
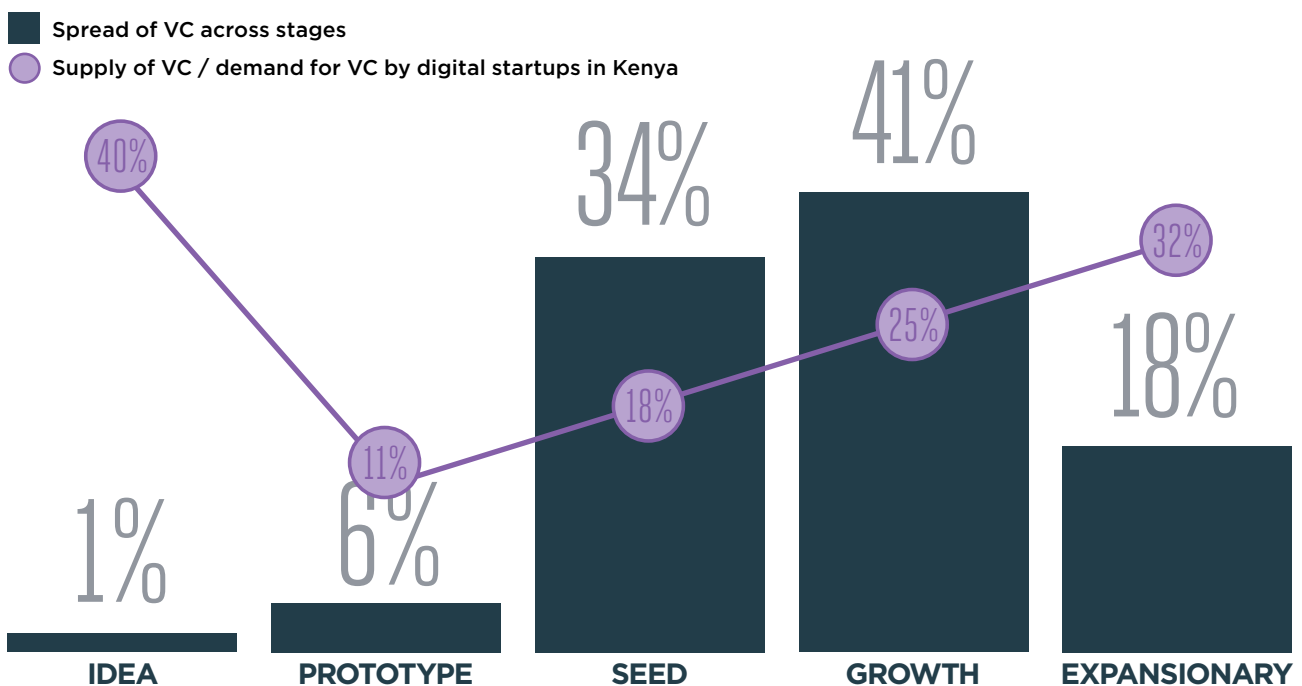
Source: GSMA Intelligence Kenya ICT & Mobile Entrepreneur Survey

Figure 11

28. Analysis includes 17 funds that responded to our survey as well as 1 fund estimated from data on the company website and Growth Fin's (2008) Capacity Constraints Facing Risk Fund Managers.

Kenya Digital Startup Stages:

- **Idea:** Founders have more than one idea but no tangible prototype

- **Prototype:** Founders have crystallised their ideas

- **Seed:** Founders have formed a company based on their ideas and have a clear business model and a core team

- **Growth (Series A):** Company has a polished product or service, a well proven market, a clear commercialisation strategy and a considerable customer base. Revenues are strong and growing. Company has several employees and focussed teams. Focus is on scaling up operations

- **Expansionary (Series B):** Profitable company looking to expand operations regionally or internationally

Idea and Prototype:

There are very few investors funding idea and prototype stages; our research uncovered three active investors in Kenya. The investment range is broad, from several thousand to $25,000, with average deal size of $13,000 for idea and $18,000 for prototype. Funding needs as stated by startups at idea stage was just above this range ($27,000), but prototype stage startups were seeking significantly higher investments ($70,000).

Seed:

Approximately three-quarters of investors who responded invest at the seed stage. Typical investment range is $165,000 to $490,000 with average deal size of $226,000. Funding need at this stage was below the lower end of the range ($135,000).

Growth:

Approximately one-half of funds that invest at seed stage also invest at growth stage. Typical investment range is $460,000 to $1.8 million with average deal size of $900,000. Funding need as stated by startups is well below the lower end of this range ($310,000). Many firms reportedly seeking growth capital are unlikely to meet investor expectations. For example, annual revenues for this stage from our interview respondents averaged approximately $200,000, whereas investors interviewed stated they require annual revenues ranging from $1 million to $10 million.

Expansionary:

Venture capital investors cohabit with private equity at this stage. We spoke with three venture capital funds that invest in East Africa, with a funding range of $2 million to $5 million, and average deal size of $3 million. As we only interviewed one startup at this stage, we do not report the funding need. Unless a strong pipeline is developed at the earlier stages, there will not be enough deals to satisfy the appetite for multi-million dollar investments into digital African companies.

VENTURE CAPITAL ORGANISATIONS FINANCING DIGITAL STARTUPS

$10,000	$25,000	$250,000	$2.5M+
PROTOTYPE	SEED	GROWTH & EXPANSIONARY	

Catalyst
EACP
ECP
Leapfrog
Grassroots
Acumen Fund
Accion Venture Lab
Fanisi
Kukua Fund
TBL Mirror Fund
Innovation 4 Africa
Tlcom Capital
Mbada Ventures (estimated)
500 Startups
ResponsAbility
Kitendo Capital
Khosla Impact
African Media Ventures Fund
Jacana
Bamboo Finance
Savannah Fund
DOB Equity For Africa
Invested Development
Growth Africa
eVA Fund
GroFin
88 mph
Business Partners International

$10k $15k $20k $25k $50k $100k $150k $200k $250k $500k $1M $1.5M $2M $2.5M+

Source: GSMA Analysis. Figure is illustrative and was developed using stated investment ranges and publicly available information.
Intention is to show relative ranges of investment and visible early stage funding gaps

Figure 12

More angels needed

A major source of early stage capital and mentorship is missing in Kenya

A lack of business angel networks in Kenya makes the funding gap at the early stage more severe.

Whereas in the Silicon Valley business angels funded 37 per cent of ventures, less than 2 per cent of Kenyan startups had received funding from angels. Combined with venture capital, the amount of startups funded with risk capital is approximately 64 per cent, compared with 8.6 per cent for Kenya (see Figures 13 and 14). Interestingly, the proportion of startups bootstrapping in Kenya is about the same as the proportion of startups receiving risk capital in the Silicon Valley.

INITIAL SOURCES OF FUNDING – KENYAN STARTUPS

Other **4.1%**
Venture capital **6.7%**
Angel **1.9%**
Competition **2.2%**
Grant **3.2%**
Bank / SAACO **1.3%**
Family & Friends **20.3%**
Self-funded (personal savings) **60.3%**
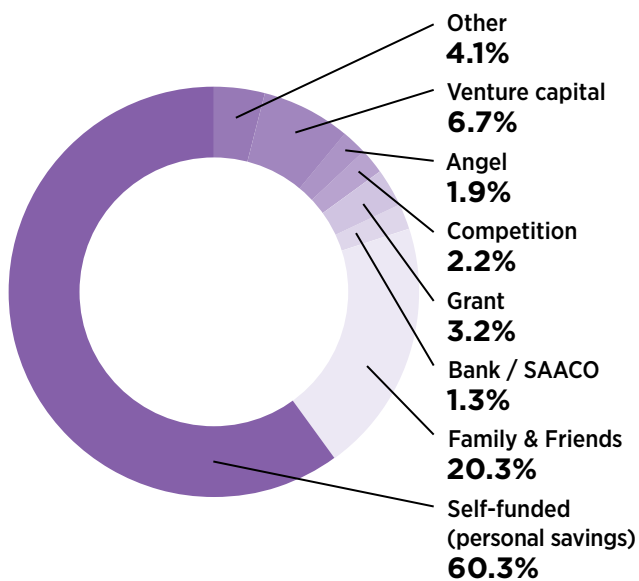
INITIAL SOURCES OF FUNDING - COMPARED

SOURCE	SILICON VALLEY	KENYA
Venture capital (VC) (includes private equity)	27%	6.7%
Business angels	37%	1.9%
VC + Angels	64%	8.6%
Self-funded	13%	60.3%
Family & friends	22%	20.3%
Bank / SAACO	1%	1.3%
Grant	0%	3.2%
Competition prize	0%	2.2%

Source: GSMA Intelligence Kenya ICT & Mobile Entrepreneur Survey (Figure 13, 14); Telefonica Digital (Figure 14) [29]

Figure 13 & 14

29. Telefónica Digital and the Startup Genome. (2012). The startup ecosystem report 2012. Telefónica Digital [Online]. Available from http://blog.digital.telefonica.com/?press-release=startup-ecosystem-report-2012

"The angel scene depends on companies being successful enough to make big exits" – Managing Partner, Venture Capital Fund

The lack of local business angel investors arises because there have been very few exits to date.

Business angels typically arise from individuals who build and exit successful businesses and want to reinvest the proceeds, usually in a sector where they have experience. Because very few Kenyan digital entrepreneurs have exited startup businesses, we have yet to see a strong local business angel community emerge. Some early stage funds are plugging the gap that business angels would fill in other markets, in addition to investing in their target range. Many believe that a few big success stories will attract interest from potential angels— once some investors have made profits, others will pile in. Formalised business angel networks will probably emerge organically when the timing is right.

There is potential for a significant number of active business angels in Kenya.

Nairobi currently has 5,000 $US millionaires, the fifth highest number of any African city.[30] Angels typically make smaller-sized investments and at very early stages. Funding in the range of $10,000 to $30,000, which is the range most desperately needed at present in Kenya, would be right in a business angel investor's sweet spot. High net worth Kenyans are savvy investors already, with many speculating in real estate and traditional industries. Informal investment groups are emerging, typically with senior people from large technology conferences and recent Strathmore business school graduates.

There are many different types of business angels that could support businesses in Kenya.

While local business angels understand the Kenyan context, returning diaspora and non-Kenyan investors with technology startup experience or commercial, marketing and financial expertise gained from working in a corporate environment will also add value. A business angel investor is likely to be senior in experience and highly specialised. As such, activities supporting the development of business angel networks should recognise that a single business angel mentor may not be able to address all the skills needs of a startup in Kenya. Business angels collaborating and co-investing together may address this issue.

Efforts are underway to raise awareness about business angel investing in East Africa, but more activity is needed.

Education for potential business angel investors and investees could definitely catalyse the process and prevent 'horror stories', of which there have been a few. One business angel we spoke with was burned by a previous investment in a software company, and is now refraining from making any future investments in information technology. On the flip side, we heard rumours of a few business angels with a reputation for taking aggressive amounts of equity. Business angel workshops to provide training, networking, and deal sourcing opportunities would help support the development of business angel networks in Kenya.

30. http://www.businessdailyafrica.com/Nairobi-ranked-among-top-havens-for-the-super-rich/-/539546/1960192/-/1151e8y/-/index.html

Staying alive

Few startups have received significant venture capital funding and most are bootstrapping as well as using non-traditional sources

While demand for venture capital funding is high, most startups are staying alive by bootstrapping.

82 per cent of startups interviewed reported that they were currently looking for external finance. Most (61 per cent) were interested in venture capital but have not yet approached an investor; only 3 per cent had approached a venture capital investor unsuccessfully (see Figure 15).

As mentioned above, entrepreneurs may not be proactively seeking venture capital funding due to perceptions of terms (see Figure 10—stringent requirements by funders, 31 per cent). They may also not feel confident about their negotiating position with investors (see Figure 10—the second highest reason for issues accessing finance was lack of skills necessary to pitch ideas and draft business plans, 21 per cent).

KENYAN STARTUP INTEREST AND SUCCESS IN APPROACHING VARIOUS FUNDING SOURCES

	NOT INTERESTED	INTERESTED	APPROACHED	
VENTURE CAPITAL	16%	61%	23%	15% IN PROGRESS / 3% UNSUCCESSFUL / 5% SUCCESSFUL
ANGEL INVESTOR	6%	73%	21%	15% IN PROGRESS / 3% UNSUCCESSFUL / 5% SUCCESSFUL
DONER FUNDS	10%	77%	14%	
BANK	59%	29%	12%	
PRIVATE EQUITY	24%	65%	10%	
PUBLIC FUNDS	21%	70%	9%	
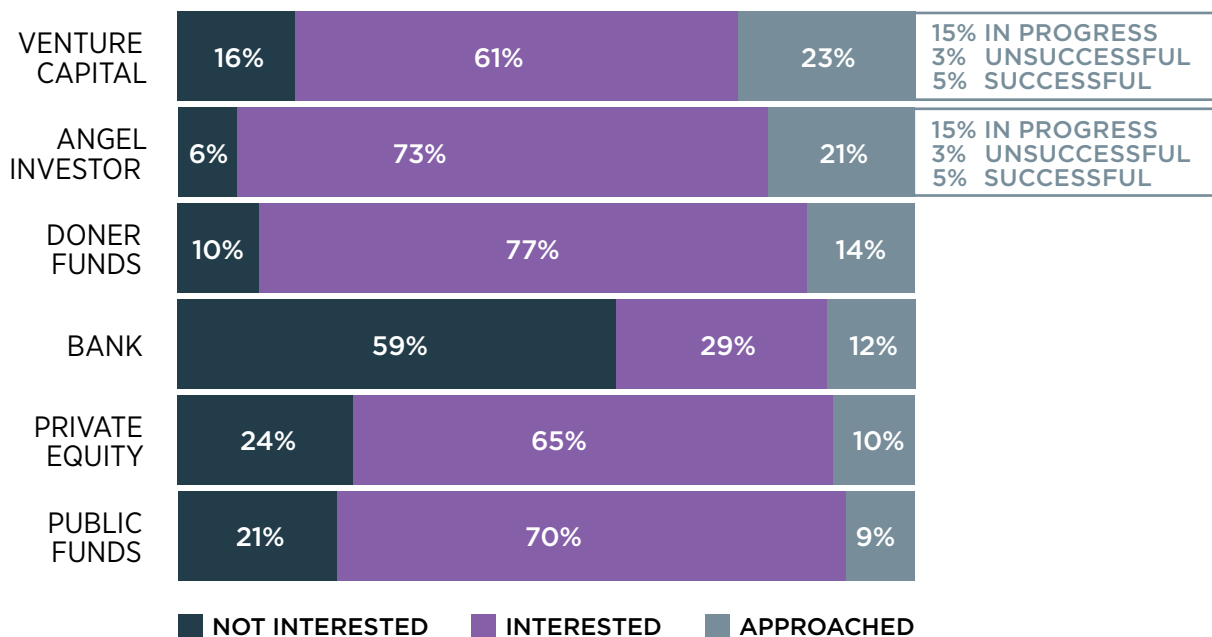
Source: GSMA Intelligence Kenya ICT & Mobile Entrepreneur Survey

Figure 15

The demographics of teams have an effect on their funding channels.

Analysis of the type of funding received by team composition revealed that international team composition tended to be favoured by donors and investors, particularly business angels. A significantly higher percentage of teams with mixed-nationality (Kenyans and non-Kenyans) received funding from business angels than teams that were all Kenyans (see Figure 16). This could also indicate easier access to business angels from international connections. All Kenyan teams tended to rely more on banks, own savings, and 'family and friends' compared to international teams.

KENYAN STARTUP TEAM COMPOSITION BY FUNDING CHANNEL

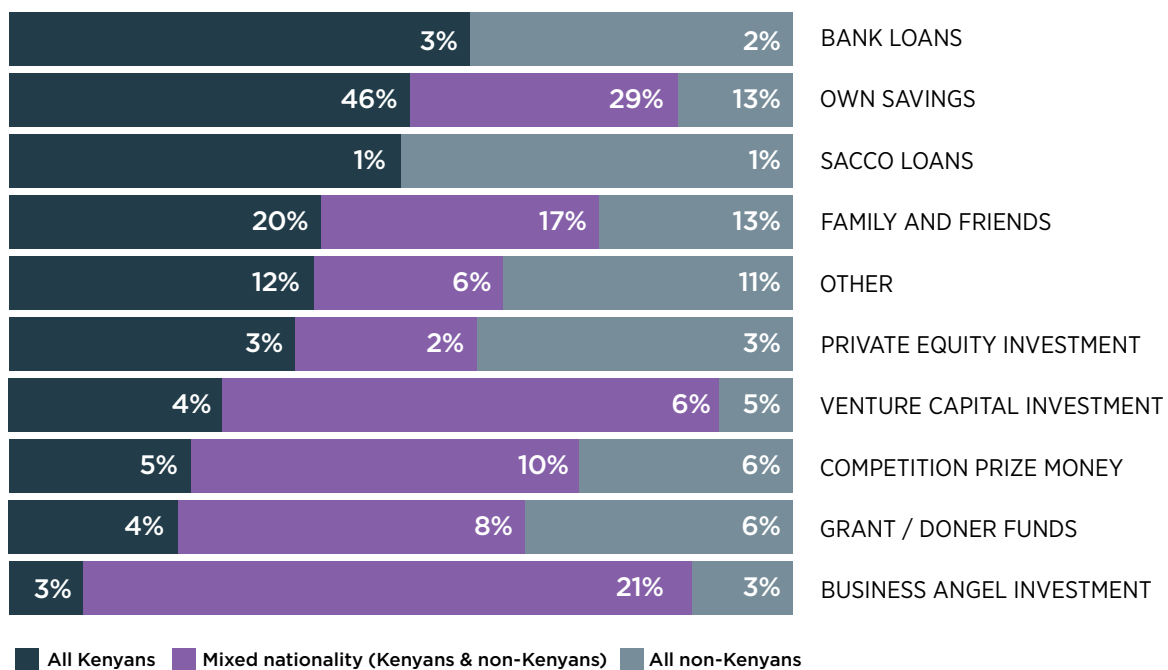|	All Kenyans	Mixed nationality	All non-Kenyans	
	3%		2%	BANK LOANS
	46%	29%	13%	OWN SAVINGS
	1%		1%	SACCO LOANS
	20%	17%	13%	FAMILY AND FRIENDS
	12%	6%	11%	OTHER
	3%	2%	3%	PRIVATE EQUITY INVESTMENT
	4%	6%	5%	VENTURE CAPITAL INVESTMENT
	5%	10%	6%	COMPETITION PRIZE MONEY
	4%	8%	6%	GRANT / DONER FUNDS
	3%	21%	3%	BUSINESS ANGEL INVESTMENT

■ All Kenyans ■ Mixed nationality (Kenyans & non-Kenyans) ■ All non-Kenyans

Source: GSMA Intelligence Kenya ICT & Mobile Entrepreneur Survey

Figure 16

Competition prize money and donor grants are also supporting early stage entrepreneurs.

We analysed a total of 12 competitions occurring in East Africa over the last several years, and 3 grant competitions which resulted in 25 grant awards. In sum, we felt that grants and prizes were doing little if any harm. There have been instances of 'compepreneurs'—entrepreneurs chasing after competitions with half-baked 'cool apps' as opposed to scalable business ideas— but they tended to get weeded out of larger competitions offering cash prizes greater than $5,000. Out of 5 smaller competitions where cash prizes ranged from $100 to $2,000, the total amount awarded over the period was less than $50,000. This amount is insignificant compared to the amount of venture capital available at the early stage. Even if small competitions attract 'compepreneurs' it is unlikely that prizes are crowding out substantial seed investments or serious investors. Moreover, for larger competitions, two-thirds of competition winners are still operating businesses.

Even if not financially distorting, the frequency of and hype around competitions is creating an environment that is distracting for entrepreneurs and creating a lot of noise for investors.

According to one investor, several entrepreneurs who recently approached his fund for investment touted prizes won from competitions as signs of success, rather than marketplace evidence. He finds this troubling, especially as investors are increasingly paying attention to Kenya. The more competition winners there are, the higher the background noise interfering with investors' scanning activities.

To some extent, given the severe lack of early stage funding, prizes and grants have been helpful forms of capital.

Competitions raise the profile for the winners, and in fact, 55 per cent of startups who won prize money and 42 per cent of startups who received grants went on to receive additional other funding. Grants are also essential for social impact projects to fund activities that many not be possible through pure commercial fundraising, such as extending service to an initially unprofitable segment or area. Finally competitions rally the community and get young people excited about starting their own business.

To ensure the potential of competitions is maximised, we recommend revising winner selection criteria, adding non-monetary awards, and disbursing money on a milestones basis.

Revising the winner selection criteria to include commercial viability (e.g. monetisation plan and market size) would drive entrepreneurs to focus on successful businesses instead of developing a cool app. Providing non-monetary awards in addition to or in lieu of cash prizes, such as mentorship or in-kind hosting, may be more helpful to entrepreneurs than smallish sums of cash and may discourage 'compepreneurs' from participating in such competitions. Finally, disbursing awards based on agreed milestones creates a sense of commitment to progress.

The end result is that few startups receive the necessary funding to develop and scale their ventures.

Only 7 per cent of startups have received total funding (excluding personal savings) in excess of $120,000 (see Figure 17). Nearly one-half have received less than $1,200. The gap in early stage funding needs to be addressed otherwise the pipeline for more established ventures will continue to be constrained.

KENYAN STARTUPS TOTAL CAPITAL RECEIVED

40%

RECEIVED LESS THAN

$1,200

93%

RECEIVED LESS THAN

$120,000

$3,000,000

$2,500,000

$2,000,000

$1,500,000

$1,000,000

$500,000

$0

NO FUNDING

MOST FUNDED
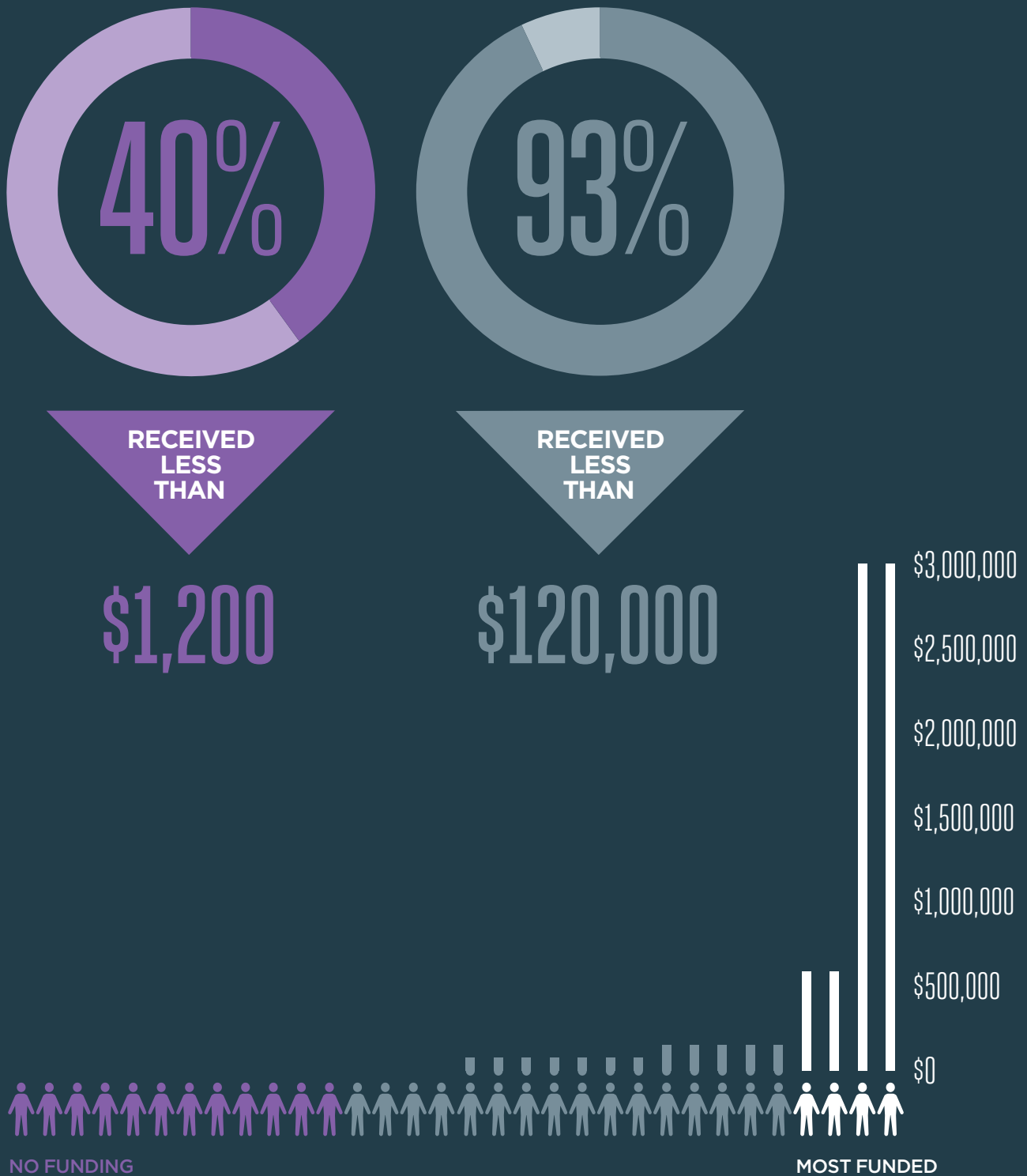
Source: GSMA Intelligence Kenya ICT & Mobile Entrepreneur Survey

Figure 17

Growing pains

At growth stage the issue appears to be a lack of investible teams

Our survey results demonstrate that many startups have revenues; however few have revenues of any significance.
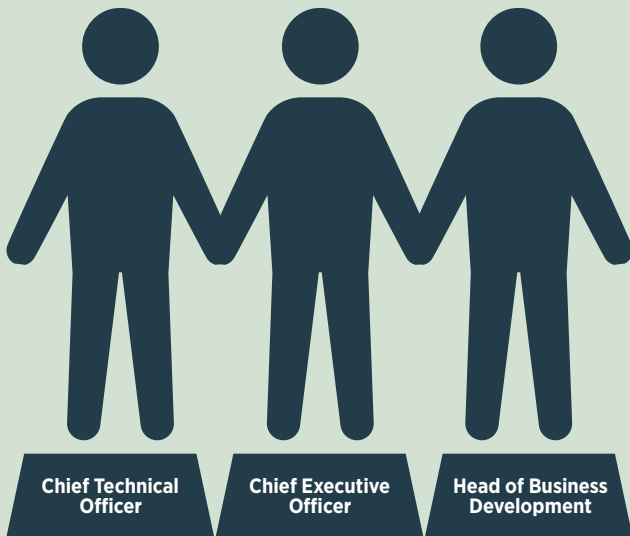
Surprisingly, at least one-half of startups in Kenya reported having revenues (which we measured as taking in at least $600 per month).[31] This number on its own does not tell the entire story, however, as many Kenyan entrepreneurs work on side projects in addition to their ventures.

Roughly three-quarters of startups surveyed described their model as business–to–business (B2B), and nearly half stated they were business–to–consumer (we noted that some startups provide both services to other businesses and work on their own software simultaneously). Given the number of registered users noted in Figure 19, we

estimate that only about one-quarter of startups (with more than 300 users) are probably gaining traction as a business to consumer service. Moreover, while it is encouraging to see revenues, the reality is that only 18 per cent earning more than $2,900 have enough revenues to grow the business organically (recall from the previous section that 60 per cent of startups are bootstrapping).

Capital constraints result in poorly structured teams and lack of focus. To sustain three founding team members, a bootstrapping startup with little savings must be earning at least $3,300 a month. As the majority of startups we interviewed (70 per cent) earn $2,900 or less, teams will struggle to work full-time on their ventures and pay necessary expenses, such as for resources to help with marketing plans or user-design.

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31. This finding was surprising considering 48 per cent of startups in Silicon Valley have no revenues (Telefónica Digital and the Startup Genome, 2012).

Chief Technical Officer

Chief Executive Officer

Head of Business Development

MINIMUM START UP REVENUE REQUIRED

$3,300 ↑

70%

STARTUPS EARN

$2,900 ↓

MONTHLY REVENUE
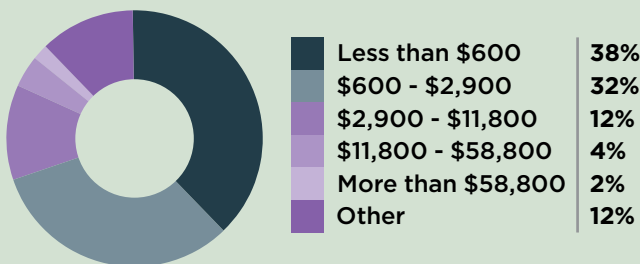
Less than $600	**38%**
$600 - $2,900	**32%**
$2,900 - $11,800	**12%**
$11,800 - $58,800	**4%**
More than $58,800	**2%**
Other	**12%**

NUMBER OF REGISTERED USERS

1 - 10	**38%**
11 - 50	**21%**
51 - 100	**8%**
101 - 300	**9%**
301 - 500	**4%**
500+	**20%**
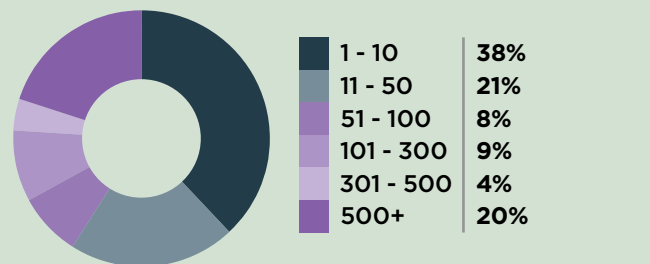
Source: GSMA Intelligence Kenya ICT & Mobile Entrepreneur Survey (Figures 18, 19)

Figure 18 & 19

What distinguishes deals you screen and those you invest in?
"Team" – Fund Manager, Venture Capital Fund

Most of the growth stage fund managers we spoke with stated the 'team' was the reason they ultimately decided to invest.

Many investors cited a general frustration with the quality of teams pitching for growth capital. Investors felt entrepreneurs had weak business acumen and poor business models. Often investors are approached by a solo developer, or two techies with no operations, finance, or marketing resources or skills. Few startups actually meet all the criteria, and many investors have now turned to finding 'rough diamonds'–ideas or teams that show some signs of promise. Ultimately, as one investor put it, one has to be "willing to deal with all the disorder and just plough through".

The reality is that most founding teams are relatively young and have little formal work experience.

In some areas, Kenyan entrepreneurs are similar to peers in other innovation hubs. For example, there was no real difference in gender or in the percentage of non-technical founding teams (see Figure 20). But in terms of experience, Kenyans are well behind other ecosystems and investors are more sensitive to track record. Whereas the average age of entrepreneurs in the Silicon Valley is 34, in Kenya 86 per cent are younger than this (see Figure 20). Significantly more entrepreneurs in Kenya have masters or PhDs compared to other ecosystems (7 to 1 in Kenya compared with 2.5 to 1 in Silicon Valley and 2.3 to 1 in Tel Aviv), however the Kenyan formal education system is not considered to be a substitute for formal work experience by an investor.

PROFILE OF KENYAN ENTREPRENEUR COMPARED TO OTHER ECOSYSTEMS

	KENYA	SILICON VALLEY	TEL AVIV	SANTIAGO	BANGALORE	SAO PAOLO	SINGAPORE	MOSCOW
AGE	‹35 86% 35+ 14%	34	36	28	37	30	33	28
GENDER (F/M)	10%	10%	9%	20%	6%	4%	5%	7%
	90%	90%	91%	80%	94%	96%	95%	93%
HIGHER EDUCATION (RATIO OF POST-GRADUATE WORK TO NO UNDERGRADUATE DEGREE)	7:1	2.5:1	2.3:1	1.3:1	4.5:1	10:1	6:1	2.3:1
% OF NON-TECHNICAL FOUNDING TEAMS	19%	16%	11%	8%	15%	24%	26%	13%

Source: GSMA Intelligence Kenya ICT & Mobile Entrepreneur Survey and Telefonica Digital (2012) Startup Ecosystem Report
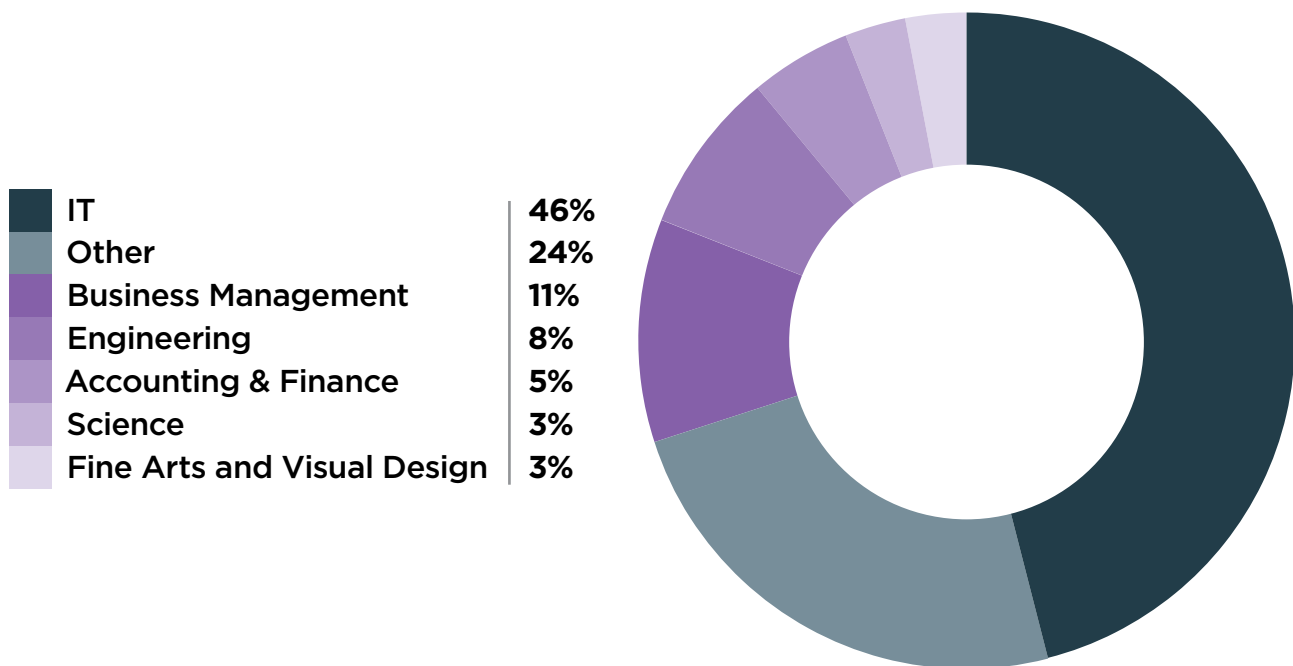
Figure 20

The result is poor business modelling, a lack of strategy and failure to execute.

On the whole, Kenyan entrepreneurs have less real-world commercial experience compared with peers in the Silicon Valley. Most have technical educational backgrounds, but business, management and finance skills are critically lacking (see Figure 21). Surprisingly a quarter (25 per cent) of respondents reported never

maintaining accounting books, leading to cash flow issues and challenges when raising finance. Teams that reported having at least three years of experience in sales and marketing, business development, and business plan writing were self-trained or learned these skills through experience.[32] These same skills were not perceived as strengths by investors. Without strategic direction, startups fixate on their code, instead of focusing on faster execution and testing/iterating in the market.

EDUCATIONAL BACKGROUND OF KENYAN STARTUP FOUNDERS

IT	46%
Other	24%
Business Management	11%
Engineering	8%
Accounting & Finance	5%
Science	3%
Fine Arts and Visual Design	3%

Source: GSMA Intelligence Kenya ICT & Mobile Entrepreneur Survey

Figure 21

32. 50% or more with 3 years of experience: Entrepreneurship skills, Strategy; 40% or more with 3 years of experience: Sales and marketing, Managerial skills, Business development, Budget management, Business plan writing, Financial projections.
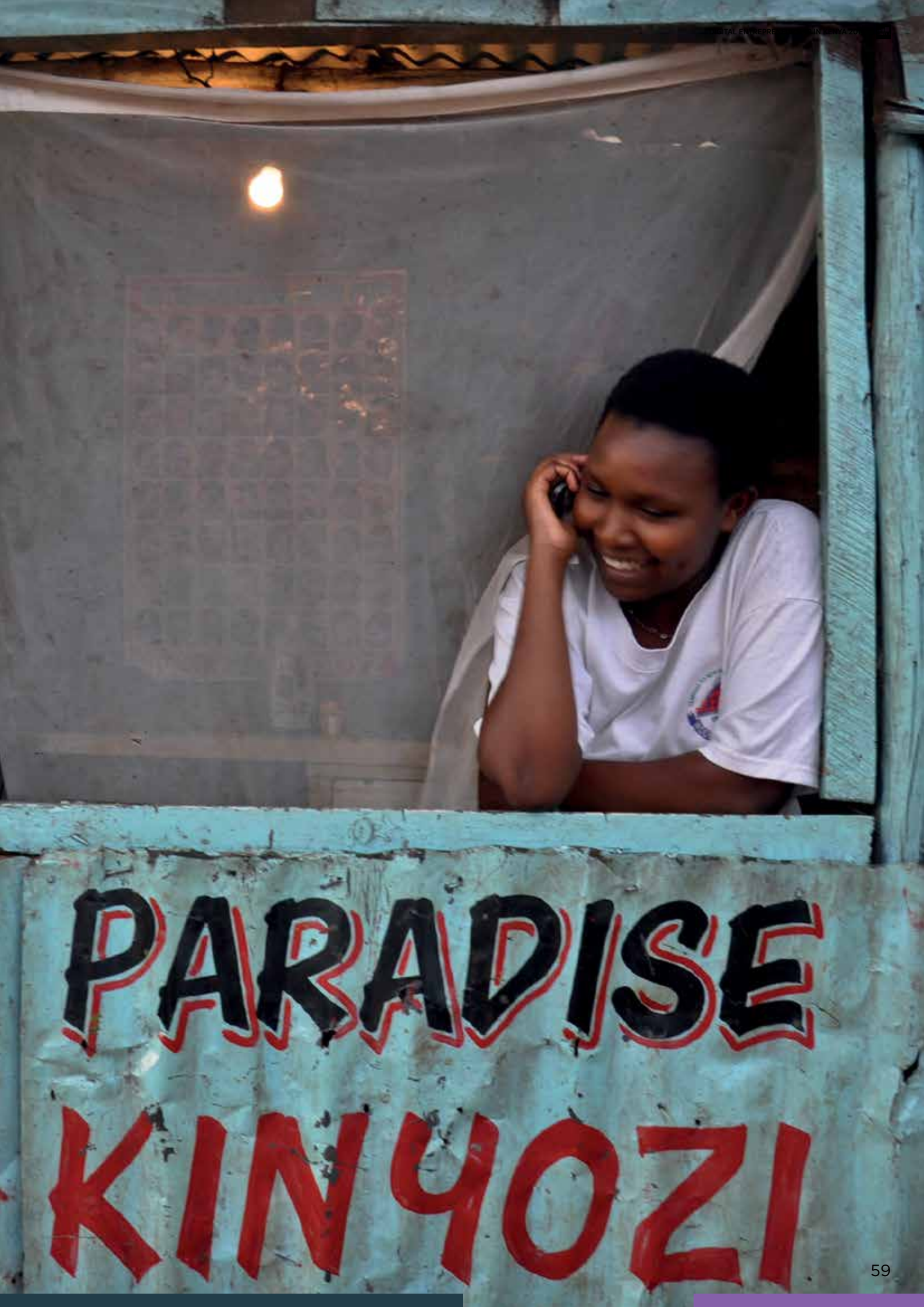
Supporting startups

More hands-on mentorship and business scaling guidance are needed

Entrepreneurs recognise they need mentorship.

Fewer than 50 per cent of founding teams at any stage felt they had all the skills necessary to run the company (see Figure 22). 65 per cent of founders stated they have a business or technical mentor; however nearly all startups expressed the need for more mentorship in addition to what they already receive.

The biggest area where entrepreneurs were seeking additional support was sales and marketing (60 per cent), followed by technical mentoring (27 per cent).

Many did not have a clear marketing strategy and only 38 per cent of those interviewed had at least one team member with formal skills in sales and marketing. 50 per cent of startups rely on self-trained/experienced team members and the remaining 12 per cent have no team members with any relevant sales/marketing experience or skills. Most startups are using 'word of mouth' as the primary marketing channel, probably due to inability to afford other avenues (47 per cent of those interviewed stated high prices was a major marketing challenge).

Awareness of intellectual property rights is lacking.

The desire for legal support was surprisingly low (7 per cent), potentially because it was straightforward to set up a company and because few have sought legal advice to protect intellectual property (only 15 per cent had protected their ideas through intellectual property rights). Lack of awareness appears to be the reason why startups had not sought to protect their ideas as many reported insufficient knowledge on approach protecting the idea as the reason why they had not done so. This is potentially an area where government, academia, hubs and accelerators can be influential. Kenya needs a regulatory system that builds entrepreneur confidence and intermediaries that demystify and push entrepreneurs to protect themselves. While not all digital companies will have intellectual property that is patentable, those that do should be incentivised to do so (potentially through support programmes implemented through hubs and accelerators). This will reduce investor uncertainty and provide recourse for entrepreneurs whose ideas truly have been stolen.

Quotes from startups on mentorship needs:

"…someone to give us advice frequently in both business and technical issues."

"…a digitally oriented person who understands my kind of business and understands the challenges mentioned."

"…a technical mentor who is well-versed with animations and running an animations-oriented business."

"…a Kenyan mentor to help us understand the Kenyan market, especially legal issues affecting our business."

"…how to build a team and scale-up the business, how to manage human resources while scaling a company.…"

PERCENTAGE OF KENYAN STARTUP FOUNDING TEAMS WHO FEEL THEY HAVE THE SKILLS NECESSARY TO RUN THE COMPANY

IDEA	PROTOTYPE	SEED	GROWTH	OVERALL
13%	42%	50%	40%	38%
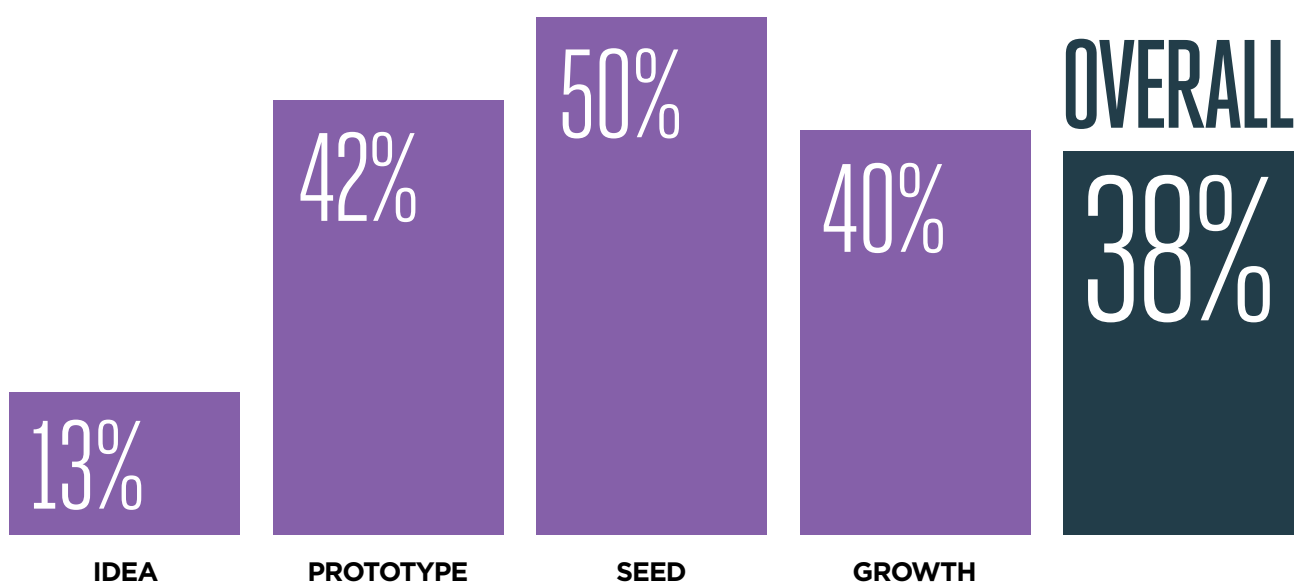
Source: GSMA Intelligence Kenya ICT & Mobile Entrepreneur Survey

Figure 22

"I know I do not have the business skills sufficient to run the business. There is no time to take courses. I would rather be Chief Technical Officer (CTO)."

Founder and Chief Executive Officer, Kenyan Startup

"My business angel investor is my biggest mentor. He guides me in business development, framing business problems, strategy, etc."

Founder, Kenyan Startup

Even at growth stage, entrepreneurs need mentorship.

Things get more difficult for startups at growth stage. Decisions become more critical and companies may struggle with building scalable business processes. Many entrepreneurs at this stage stated they needed mentorship in business strategy, expansion and development. All-Kenyan teams in particular wanted mentorship on leadership, professionalism and management, from people with experience running big companies.

There are lots of exciting ideas developed by digital entrepreneurs in Kenya, but what many are struggling with is the ability to scale their ventures to a wider audience. It was noted during focus groups and interviews that the majority do not know how to approach growing the business and lack the networks and connections to do so.

Mentorship programmes are insufficient in Kenya.

Compared to other regions, most Kenyan organisations are providing minimal or average mentorship support, meaning mentors are available on a needs basis and no active mentoring or performance reviews are conducted. Where one-to-one mentorship programmes do exist, mentors are often neither local nor subject matter experts. Being local is not a prerequisite to being a good mentor—and in fact several virtual mentor programmes, such as VC4Africa,[31] have been established in the last few years. However, mentors that lack appreciation for the Kenyan business context or have no practical experience working in Africa may find it difficult to relate to the needs of Kenyan startups.

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33. Venture Capital for Africa (VC4Africa) provides a virtual community for entrepreneurs and investors building companies in Africa. https://vc4africa.biz/

One startup we interviewed commented on mentorship they received from an accelerator programme. They had mentors from Kenya and the US who guided them in their journey. The experience was positive: most of the mentors are now official board members and regular meetings occur monthly. The founders praised their mentors for assisting them to define a clear vision for the company and manage day-to-day hurdles.

Others have not been as satisfied. We interviewed a startup that was one of the first companies to receive investment through a venture capital investor/ accelerator in Nairobi. At the time, the accelerator was still refining its own model and attracting further funds. As the startup recounts, there was a mismatch in expectations, and joining the accelerator had both advantages and disadvantages.

Some positive aspects were:

- **Access to funds & infrastructure:** With the necessary funding and infrastructure support from the accelerator, the startup could better focus on building the business and didn't have to worry about generating short-term revenues to pay its employees at the end of each month
- **Peer support:** Being part of the accelerator also provided the founders with access to different skillsets from various other startups working at the same place

However, the level of coaching and mentorship provided felt insufficient:

- **The startup was expecting strong guidance on how to achieve growth:** The accelerator defined key metrics to track the business and met the founding team every Monday to assess the progress based on those KPIs. However the startup felt 'lost' thinking how to build the business
- **The startup was expecting local mentors:** The accelerator brought in an 'entrepreneur in residence' to mentor startups in their accelerator. Most entrepreneurs in residence were non-Kenyan, hence some of their inputs felt less relevant to the local market

Angels, accelerators and incubators deliver critical early stage support in more mature ecosystems.

Angels provide the hands-on mentorship that entrepreneurs are seeking, in addition to cost-effective early stage financing and network introductions. While at the end of the day, Kenyan startups need to just get on with business building, the fact that few angels and other role models or examples exist is definitely contributing to the strong need for more mentorship. The accelerators and incubators in Nairobi are making efforts to provide mentoring and make connections, and further support may allow them to intensify efforts or scale what they are already doing to more startups. Indeed, some of the more successful incubators and accelerators in more mature ecosystems deliver comprehensive mentorship and connections to venture capital investors.

MENTORING NEEDS AS STATED BY KENYAN STARTUPS

APPROACH
ADVISE   BUSINESS   PROCESSES   COMPANY   DESIGN
COACH
DEVELOPMENT   GROWTH
EXPERIENCE IN THE INDUSTRY
IMPROVE   LEARN   MANAGEMENT
MARKETING
MONEY   QUESTION
SCALING   SUPPORT   TAX   TECHNICAL
SOLUTION   SUCCESS STORIES
TECHNOLOGIES   VENTURES

Figure 23

From the perspective of an expansionary stage startup: what are the financial, commercial, and technical challenges currently faced?

Having founded a company in 2004, way before the entrepreneurial boom, the team did not receive the support that current entrepreneurs have access to. Some of the key commercial and technical challenges faced included:

• Lack of knowledge about their product: the company launched mobile money products before M-PESA was launched in 2007. During that period the team spent a lot of time educating companies about mobile payments

• Lack of mentorship: 9 years after the company's launch, lack of mentorship is still believed to be one of the biggest challenges facing entrepreneurs. So, imagine the case in 2004. The founder and his team did not receive much mentorship and learnt a lot by doing

• Lack of funding: the company was founded when there was no real venture funding in Africa – the company was started on $3,000 and a credit card. Until the company received external funding, it was very challenging to run the company. The founding team spent a lot of time managing the little resources the company had and motivating their team to work even in months when they did not receive salaries

Additionally, the founder believes that nowadays startups are facing several challenges including:

• Investors still do not fully believe in Africa: even for the company, it is still difficult to find investors who truly believe in the potential in Africa. The founder had a very hard time convincing investors of his vision to become a billion dollar company

• Entrepreneurs are not receiving enough mentorship: Young entrepreneurs, especially those with purely technical backgrounds, need a lot of mentorship to run and grow their business. They need someone to help them focus and refine their strategy

• Working for startups is not encouraged: Startups are having difficulties hiring the right people with the right skill set. The founder believes the problem is not a lack of high quality employees, but rather that they are not encouraged to work in startups. As he stated: "It is not cool to work for startups." People would most of the time prefer to work for established organisations with stable salaries. The education system has to encourage entrepreneurship a lot more

5. Summary and recommendations

Catalysing the growth of digital entrepreneurship in Kenya

In summary, the potential for Kenya, especially Nairobi, to become a leading hub for digital entrepreneurship is extraordinary.

Mobile operators must deepen their engagement with the ecosystem to enable a new wave of innovation. This can be accomplished by sharing and commercialising resources such as tools, application programming interfaces, technologies, distribution channels, and environments. In addition, business models that allow mobile operators to share the risk and 'grow the pie' together with entrepreneurs will be as important as developing the technology to support these activities. Moreover, organisational strategy, structure and processes will need to be revisited and transparent, and repeatable and scalable processes will need to be put in place.

A wide range of mobile services could be created on top of mobile network infrastructure and technology or even an operator's own internal capabilities, such as billing or location information.

Operators are highly unlikely to meet the demand for breadth and depth in mobile services solutions on their own, especially where technology is changing rapidly. In addition, barriers to entry are low for mash-ups and copycats, challenging the present model of 'owning everything'. There is a far greater opportunity in promoting ecosystem development by sharing resources. As noted by one investor we interviewed who previously worked at a mobile operator, "Operators have wanted to control access to resources by picking and choosing 'winners', but markets and customers are better at determining who the winners are." To this end, a number of collaboration and partnership strategies could be used by mobile operators to benefit from externally developed mobile services and use of mobile operator assets.

Expanding monetisation methods will enable an explosion of paid-for mobile services.

Many startups find it challenging to make their business models work due to issues with monetisation. A combination of factors including challenges obtaining short codes and premium SMS agreements, low margins in revenue share agreements, and limited access to unstable or variable payment interfaces contribute to the problem. Seamless integration with mobile wallets and traditional payment methods, as well as more equitable revenue shares would reduce time to market and increase the number of services. Startups would find it easier to scale across networks and geographies, and more effort could be focused on customer acquisition instead of making sure interfaces are up and running.

Some operators are now making an effort to work with the developer community by launching competitions to populate mobile application (or app) stores or by launching toolkits specifically for African digital entrepreneurs.

Others are holding workshops to understand if assets and capabilities may be of value to entrepreneurs and to discuss possible commercial models for using these resources. While mobile operators still may not understand exactly what developers in Kenya need (and vice-versa), it is clear they are open to discussions about collaboration and want to do more to support entrepreneurs.

Responses from a survey of venture capital funds actively investing in East African digital startups confirmed there are few investors focused on very early stages.

The lack of business angels and business angel networks in Kenya makes the effects at early stages more pronounced.

An increase in the amount of risk capital available is needed to kick-start the number of ventures that grow and scale.

In more developed innovation hubs, such as the Silicon Valley, New York, or Israel, early stage ventures are typically funded through personal savings or credit cards, 'friends, family, and fools,' and business angel investors. In Kenya, funding from friends and family is available for entrepreneurs who come from affluent backgrounds, but several revealed that sizable funding was difficult to obtain unless family members understood the business model. Generational gaps of confidence and understanding of technology are probably not unique to Kenya; however, issues approaching venture capital investors and a lack of angel investors, not to mention the absence of a social safety net, create a challenging environment for Kenyan startups with insufficient personal financial resources.

A significant number of startups are self-funded.

Some get by on their own resolve by working part-time or entering competitions; others have become 'lifestyle' entrepreneurs, providing services to other startups and nursing their own venture ideas as time allows.

The constraints on funding result in a lack of focus and slow progress, as a majority of startups are distracted by their side businesses and many struggle to find resources to hire another team member or pay for office space.

The support environment for mobile innovation needs to be improved.

Soon after the *iHub_ community was founded in March 2010, Bishop Magua Centre on Ngong Road became a Mecca for digital entrepreneurs across East Africa. While hands-on support for entrepreneurs is available through hubs and accelerators, there is insufficient support to meet demand. Entrepreneurs appear to be very aware of the fact that they must increase their skills and balance out their teams but struggle to do so. One-to-one mentorship across a broad variety of topics is desperately needed, especially in marketing, technology access and skills, growth strategy, and business management.
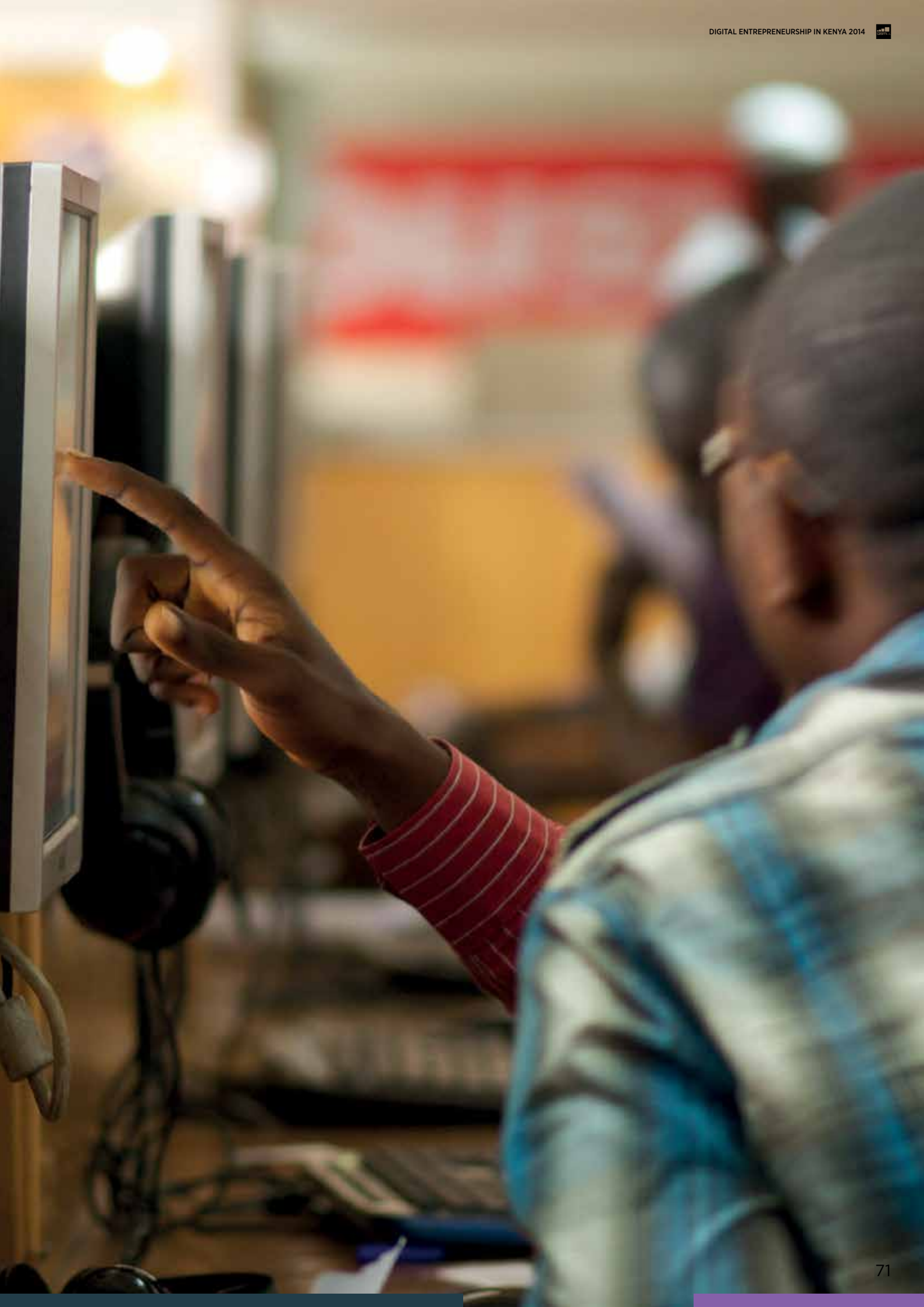
Specific recommendations

Kenyan mobile operators and information and communication technology (ICT) industry corporates

- Support strategies that will enable collaboration and partnership building with the ecosystem and with Kenyan startups

- Structure clear and transparent processes to enable the organisation to work with startups

- Collaborate, as mobile operators and with the ecosystem, to provide common interfaces and tools for startups

- Make it easier for startups to access mobile assets that can generate additional commercial value as well as scale, especially mobile payment platforms

- Invest into or acquire startups that are creating mutually beneficial opportunities

- Buy services or form partnership agreements with startups

- Build and deepen ties to accelerators and hubs – form partnerships for investing and/or sponsor their infrastructure (e.g. Internet connectivity)

Accelerators and hubs

- Deepen or increase frequency of hands-on mentorship for entrepreneurs, focused on setting up a commercial operation, protecting intellectual property, approaching investors, and scaling a digital business

- Explore partnerships with the mobile and ICT industry that deliver mutual benefits, beyond financial resources

Investors and financial institutions

- Development finance institutions should put capital into seed stage funds that focus on digital startups to generate future commercial investment opportunities

- Investors should provide hands-on, business building support to investees in addition to providing finance

- Experienced investors should take ownership to build and develop the business angel network in Kenya, especially by sharing knowledge and best-practices

Development organisations

- Support early stage funds and accelerators with financial resources to offset operational costs of running fund/accelerator programmes, or by co-financing their investments

- Establish programmes that build capacity and provide training to investors and business angels

- As almost all entrepreneurs are inherently addressing social problems or underserved needs, donors do not need to uniquely support 'social' entrepreneurs or impact investment funds [34]

- When sponsoring innovation competitions, ensure winner selection criteria includes sustainability, add non-monetary awards, and disburse money on a milestones basis

- Support the creation and dissemination of market information into public domain

- Support networking opportunities that promote partnership and collaboration within the ecosystem

Research institutions

- Make policy recommendations for government in support of mobile and ICT innovation and entrepreneurship

- Analyse current Kenyan curriculum and recommend areas to incorporate entrepreneurship, in particular mobile and ICT enabled services

Government

- Support early stage funds and accelerators with financial resource, or by co-financing their investments

- Develop a procurement framework for government ICT projects that includes opportunity for local entrepreneurs to work in collaboration with large ICT corporates

- Establish an 'Entrepreneurship Visa' programme to enable local entrepreneurs to recruit founding team members internationally, transferring skills and building global teams

- Identify 'Pasha Centres' (Kenya Ministry of Information and Communication's ICT hub programme) that can also serve as digital entrepreneurship hubs; add supplementary support for pre-incubation and accelerator programmes to promote and advance digital entrepreneurship

- Modify criteria for current loan guarantee programmes to accommodate qualified mobile and ICT-oriented businesses

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34. Allowing entrepreneurs to identify the pertinent issues may be a more effective use of resource: meeting a need that was underserved in the market was the highest ranking reason as to why entrepreneurs that we surveyed started their businesses, and most of these needs were identified based on personal experience.

6. List of interviewed organisations

Mobile operators

- Airtel
- Orange
- Safaricom

Investors

- Angel investors (anonymous)
- Accion
- Africa Media Venture Fund
- Amadeus Capital Partners
- Business Partners International
- D.O.B. Equity
- East Africa Capital Partners
- GroFin
- IFC Solution Centre
- Innovation 4 Africa
- Invested Development
- Jacana Partners
- Khosla Impact
- Leapfrog
- SPARK Ventures
- TBL Mirror
- TLcom
- Tech Equity

Development, Research, & Academic Organisations

- FSD Kenya
- London Business School
- Nokia Research Centre
- Safaricom Academy
- Thoughtworks (Uganda)
- UNICEF (Uganda)
- USAID
- World Bank infoDev

Other ICT corporates

- Apollo Life
- IBM
- Nokia
- Qualcomm
- Wananchi Group

Accelerators & Incubators (*investor)

- @iLabAfrica / @iBizAfrica
- 500 Startups
- 88 mph *
- African Entrepreneur Collective (Rwanda)
- Afrilabs
- GrowthHub Africa *
- kLab (Rwanda)
- m:lab East Africa
- Open Capital Advisors
- Savannah Fund *
- Spotone Global Solutions
- Unreasonable Institute
- Upstart Africa
- Village Capital

Events & media

- Becky Wanjiku
- Harry Hare
- Demo Africa (attended)
- Pivot East (attended)
- Tech 4 Africa (attended)

Hubs networks (virtual / physical)

- CCHub (Nigeria)
- *iHub_
- VC4Africa
- Africa IQ

Startups

- 24 Interactive
- 3B Concept
- Absolute Media Pictures
- Adonis Systems
- Afrah
- Africa' Talking
- Afrinnovator
- Agrisoft Solutions
- All Day Tuesday
- Angaza Design
- Annay Agencies Softwares
- Anto Tech
- App Bees
- Autonomous systems research
- Aynek Info Systems
- Azuri Host
- BIDE
- BidorBuy.co.ke
- Binary Science
- Blamwa Media
- Blue Gate Technologies
- BookNow
- Bud Code Software
- Buymore
- Camera Educational Foundation
- CardPlanet Solutions
- Chamapro
- Chura
- Cnytech
- Coast Tech solutions
- Conextions East Africa
- Crablink Interative
- Creative Designs
- Cushite
- CV Kenya
- Cytris Technologies
- Danbelte Social Media Managers
- Danto International Software Technologies
- Darasani
- DateMe Kenya
- Design house
- Dhana House
- Digital Horizons
- Dinero – Chama Pesa
- Diverse General Contractors

- Doban Africa
- Dosuno
- Dotsavvy
- DUMA
- Dynamic Data Systems
- Echo Mobile
- Ecobiz Limited
- Emerge Enterprises Limited
- Eneza Education
- Enpa Tech Solutions
- Epitome Enterprise
- Etag
- Evolusion Graphics
- Extreme Technologies
- Fatboy Animations
- Find A Home
- Fintech
- Forte
- Genius Dynamics
- Geowiz
- Ghafla!
- Gigwapi
- Gimki
- gMaarifa
- Guru Technologies
- Hakikahost and Konza
- Helland
- Hirizi
- Hostelia
- ICT Diplomat
- Imbosoft Enterprises
- Infosol Systems
- Innova Africa
- Intersoft Technolgies Consulting
- iPay
- iProcure
- Isoc Solutions
- iStreams Africa
- ITAtlanta Solutions
- iTech Kenya news
- Jafftek
- Jamo designs
- Jesi
- Jesi Web Solutions
- Jibonde fresh
- JimLab

- Jooist
- Juakali
- JudStars IT Solution
- Jumia
- Kanguma
- Kayaa
- Kedrel
- Kenya GIS
- Kiko Software
- Kikosi
- Kili.io
- Kinyaginda Business Venture
- Kopo Kopo
- Kosmerc Solutions
- Kweli Mobile
- Kytabu
- Lamu Technologies
- Laser Tech
- Leti Games
- Lipisha
- Lite Computers
- Ma3Route
- Mak computer services
- Mank and Tank
- Manyatta Rent
- Maruki Consulting
- Masewald
- Masewald Technologies
- Maxim Consulting
- Maydell Business systems
- Mdundo
- Megapixels Productions
- Mettle Media
- Mfarm
- M-Farm
- mHealth Solution Centre
- MMI technologies
- Mnazi Studios
- Mobi Changa
- Mobi Kazi
- MobiDev
- Mobitech
- Movas
- M-safiri
- Muva
- MXD Developers
- My Online Pharmacy

- MyCourier
- MyWebdesk
- Mzoori
- NeNe Games
- Nettech Solutions
- NexGen
- Nexus Technology Consultancy
- NikoHapa
- No business name (x7)
- Oderam
- Odipo Dev
- Olive Tree
- Olivine Technology
- ONIE Design House
- Optination
- Overdrive Consultancy
- Pelmoq Academia Systems
- Philsoft Corp
- Pillar Technologies
- Planet Trackers
- Pluspeople Kenya
- Pluspoint Ltd
- Ponchus Enterprises
- Powernet Solutions
- Pragmatic Urbanism
- Prince Wilface Media
- Purpink
- Reeds International
- Remote Cycle
- RevWebolution Business Solutions
- Rockko Consulting
- Rupu
- Ryanada
- SafariDesk
- Sakwa
- Salmartech
- Semasoft
- Shack Media
- Shujaa
- Skoobox
- Skytech
- SNETTSCOM
- Soko
- Solidaire Telecom
- Somsom Software Solution
- Space Kenya Networks
- Space Media Group Enterprise

- Sprint Interactive
- Sprout
- StockMatic
- Sunrise Tracking
- Tali Craft
- Tatu Media
- Tech Riffs
- TechAnsi
- TechBiz
- TeeVee
- The Flip Experts
- Theory of everything
- Thirst Interactive
- Tiko
- Tusqee Systems
- Ukall
- Unimind Media
- Universal Computer Services
- University of Games
- Vault Mobi
- VR Net Solutions
- Waabeh
- Waltron
- Web focus Solutions
- Web Solutions Kenya
- Webkraft Kenya
- Websimba – EatOut
- Websys Software Solutions
- Weltel
- Weza Tele
- Workspace Kenya
- Worldbiz Enterprise Soultions
- Yum
- Zege Technologies
- Ziada Digital
- Zoe Alexander
- Zonematrics
- Zoom-IT Technologies

7. Abbreviations and terminology

2G	Second Generation Mobile Networks (Voice, SMS and limited data)
3G	Third Generation Mobile Networks (Voice, SMS, and data)
4G / LTE	Fourth Generation Mobile Networks/Long Term Evolution (Data)
Channels	Mobile services pathways such as short message service (SMS), multimedia messaging service (MMS), and Internet
ICT	Information and Communication Technology
IVR	Interactive Voice Response
PaaS	Platform as a Service
PRSP	Premium Rate Service Provider
SMS	Short Message Service
USSD	Unstructured Supplementary Services Data
VAS	Value Added Services