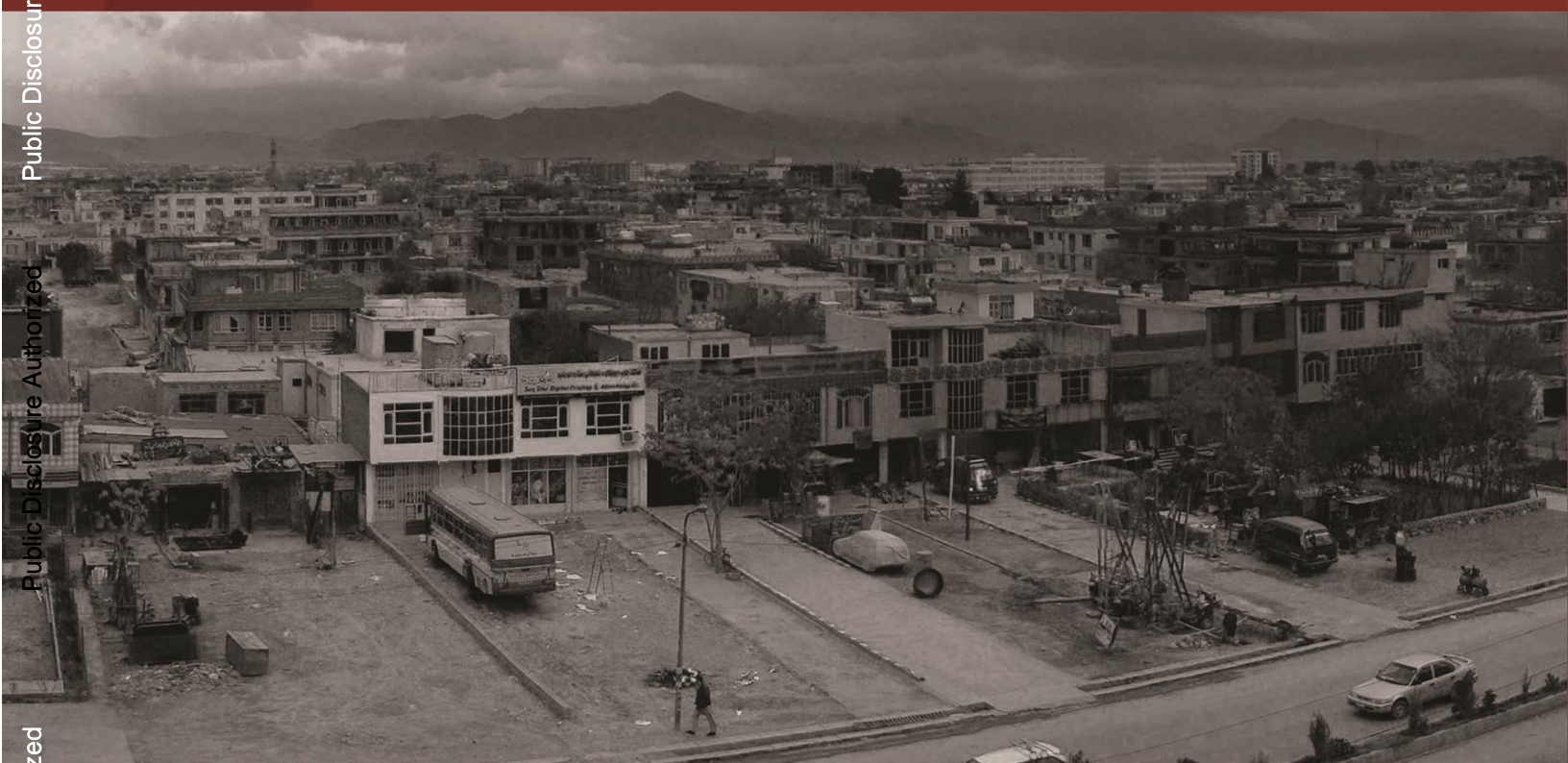


Developing a Mobile Applications Sector in Afghanistan

A Feasibility Assessment



Feasibility Assessment for the Development of a Mobile Applications Sector in Afghanistan

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Abbreviations and Acronyms

ABADE	Assistance in Building Afghanistan by Developing Enterprises
AISA	Afghanistan Investment Support Agency
AMMOA	Association of Mobile Money Operators in Afghanistan
API	application programming interface
B2B	business to business
B2C	business to consumer
B2G	business to government
BDS	business development services
DFID	Department for International Development (United Kingdom)
GIZ	German Agency for International Cooperation
HR	human resources
ICT	information and communications technology
ISP	Internet service provider
IT	information technology
IVR	interactive voice response
KPI	key performance indicator
MCIT	Ministry of Communications and Information Technology (Afghanistan)
MNO	mobile network operator
SEAF	Small Enterprise Assistance Funds
SMEs	small and medium enterprises
SMS	short messaging service

USAID U.S. Agency for International Development

VC venture capital

Note: All dollar amounts are U.S. dollars unless otherwise indicated.

Executive Summary

Afghanistan has made significant progress in its development since 2001. Yet, these achievements remain continually fragile because of a volatile security situation and limited human capacity. In spite of these constraints, the information and communications technology (ICT) sector in the country has witnessed remarkable growth. An estimated 12 million mobile phone users utilize the services and products of four private mobile companies and one state-owned company. A recent survey conducted by the U.S. Agency for International Development (USAID) noted that around 80 percent of women in the country have regular or occasional access to a mobile phone. The government supports the ICT sector and is adopting technologies to expand service delivery and support good governance. The potential in this sector is vast with guaranteed **high returns for employment opportunities**, generating **foreign investment** and producing government **revenue**.

infoDev focuses on enabling the **start-up and growth of innovative, technology-enabled enterprises**. Recognizing the capacity and potential in this sector, *infoDev* embarked on a feasibility study to gauge the ICT and mobile applications sector in Afghanistan. The feasibility aimed to **map** and **understand** the current business environment for small and medium enterprises (SMEs) in the **ICT sector** and assess the overall ecosystem for business incubation. The study also measured the opportunity to create and support a vibrant mobile applications-focused incubator. The analysis concludes by offering a set of recommendations and a roadmap on the way forward for implementation.

The feasibility analysis spanned a period of one year commencing from January 2013. The *infoDev* team held three workshops during this time to raise awareness and gain feedback from a range of stakeholders from the government, private sector, nongovernmental organizations (NGOs), donors, academia, and other interested parties. The team interviewed more than 70 key stakeholders. They also conducted desktop research to measure the opportunities available in the sector.

The results of this research and analysis were a wealth of data on **the mobile ecosystem** in the country, **current initiatives**, and **existing gaps**. Initial findings from the study reveal a promising terrain to stimulate the mobile app economy; for example, the existence of a dynamic mobile industry, increasingly affordable Internet access, a pioneering landscape for mobile innovation and entrepreneurship, and a strong commitment from donors and the government of Afghanistan. In addition, pressing social issues provide a window of opportunity for creative solutions to be provided through tech-oriented initiatives.

The study estimated that **the mobile app market will grow** from its **estimated \$20–\$33 million** to **\$48–\$60 million**, at least twice the current size in the next three years. **Gaps** include **lack of relevant skills** and **experience needed** for the mobile app market (and also absences in resources needed to provide these skills), a **deficiency in the awareness** of the potential of mobile technology, and barriers because of the use of multiple languages and low levels of English language fluency. Methods to **access the end user of mobile products** remain nonexistent.

The study notes that increased awareness, relevant skills, and access to practical experience in the mobile industry are a top priority. As such developers need access to tools that are localized. Finally, **an alternative application distribution mechanism**, which enables access to a greater market and capacity to bill services, is essential. The study underscores the importance of leveraging the existing government initiatives: an ICT incubator and related programs funded through the World Bank Group, other donor-

driven programs providing access to funding, and locally driven grassroots programs supporting awareness raising. To address the problem of end-user access, the study offers a **game-changing proposal to establish an app store** that is built locally and provides locally relevant content. The app store can raise further awareness and build a pipeline of entrepreneurs and users to further drive the mobile market.

The report attached provides a **synopsis of the mapping of the ecosystem** and a survey of current initiatives and existing gaps. Recommendations and a roadmap for designing future programs targeting mobile entrepreneurs are also included in the report. The subsequent PowerPoint offers a unique presentation of the analysis and results for this specific study.

1.0 Mapping of the Business Environment for the SMEs in the ICT Sector

The study aimed to analyze seven essential components of the ecosystem of SMEs in the ICT sector: technical environment, ICT players, regulatory environment, human capital, business skills enablers, financial enablers, and catalysts.



Technical Environment

The technical environment in Afghanistan in terms of infrastructure, hardware, software, and network has grown and expanded exponentially. The fiber optic backbone for the country was launched in 2006 and has been partially completed and this will eventually connect it to international-level bandwidth.¹

Although the first telecom operator was launched only in 2003, there are now five carriers operating in the country. Mobile penetration has soared growing initially from a base of 2 million users in 2007 to more than 12 million users currently, representing an increase of more than 400 percent.² This represents almost two thirds of the overall adult population in Afghanistan. In 2012, 3G technology was launched and currently smartphone penetration is approximately 8 percent of overall device usage.

Comparatively, Internet usage remains limited with only 1.7 million users on the web in 2011.³ To gauge the dynamism of Internet usage, the study assessed the number of Facebook users in the country, a number that grows on a daily basis. This number is expected to increase significantly in the years to come with Internet prices declining and access to bandwidth rising. Yet a number of impediments remain to the growth of penetration, including low literacy rates, limited command of English (as local content remains limited), lack of access to connectivity outside of city centers, and high price points for connectivity.



ICT Players

When considering the breadth of ICT stakeholders in the country, the range extends from small SMEs to multimillion dollar ventures. The study surveyed five categories of ICT players: mobile network operators (MNOs), internet service providers (ISPs), hardware companies, information technology (IT) services companies, and content providers.⁴ As indicated earlier there are five MNOs with the four largest serving a comparable number of customers. There are also 41 licensed Internet ISPs, with mostly business to business (B2B) and business to government (B2G) clients. Hardware companies tend to focus on consumer clients with the market dominated by small computer and mobile handsets dealers. IT services companies tend to have mostly B2B and B2G clients, and their services include software database development, website development, web hosting, and IT maintenance and support. Mobile software development in Afghanistan is still in its infancy. Content service providers hold mostly B2B and B2G clients, and apart from the media, very few Afghan companies provide content to mobile app developers and MNOs. Their business models focus on revenue sharing (25 to 50 percent of revenue per download),

¹ http://www.instatelecom.com/trf_dsl.html.

² <https://wirelessintelligence.com/>.

³ www.itu.int.

⁴ <https://wirelessintelligence.com/>.

which can be a challenge as these companies do not benefit from a strong bargaining position with their potential partners.



Regulatory Environment

The legal and regulatory framework for the telecom and Internet sector is built on the Telecom Law, enacted in 2005 and the Telecommunications and Internet Policy approved in 2003. These laws concentrate on technical elements, rather than on content and services. The laws include no specific provision for licenses for mobile content or service providers. Content providers are instead regulated under the national media law. Currently, there is also no regulatory framework for software providers in Afghanistan, including for mobile applications. SMEs in the country note that any process associated with the law takes significant time and resources with the actual procedure often times remaining vague. A new ICT law is currently being drafted that will likely target these existing gaps.



Human Capital

Afghanistan is one of the youngest countries in the world with 46 percent of the population below 15 years of age.⁵ This has created a reservoir of human resource potential. However, only a small number of Afghans have access to higher education because of a lack of capacity. Although universities have improved their curricula, they still suffer from a shortage of skilled teachers and a lack of hi-tech equipment and facilities. Major universities in the country produce graduates with IT degrees (roughly 900 per year) with close to 3,500 students currently enrolled. But the graduates' skill levels are unequal with many needing further training once they enter the job market. Mobile software development is not offered in local universities and what is offered for software programming is still very basic. Usage of Dari and Pashto hampers the access to global knowledge and resources.

With a long tradition of entrepreneurship, the Afghan private sector continues to thrive driven by SMEs, in spite of a distorted markets, especially in human resources (HR). The country holds name to a number of large private ventures reaching regional markets (such as the Safi Group or Alokozay Group) and benefits significantly from a vibrant diaspora with strong networks overseas. Since the fall of the Taliban, the number of businesses launched has soared. According to the Afghanistan Investment Support Agency (AISA), 5,283 ventures (176 in the ICT sector) were registered in 2012 compared to 3,539 (19 in the ICT sector) in 2003. However, with the massive influx of aid money and proliferation of international agencies as well as foreign military presence, the Afghan private sector has been deprived of locally grown skilled resources, creating numerous market distortions. As a consequence, labor for the same skills and capacity is more expensive in Afghanistan than in neighboring countries.



Business Skills Enablers

⁵<http://unstats.un.org>.

A large number of business development services (BDS), or programs and organizations that promote and enhance entrepreneurship, currently operate in Afghanistan supported by the donor community, the government of Afghanistan, and various professional associations. Donors (USAID, World Bank, Germany Agency for International Cooperation [GIZ], Department for International Development, United Kingdom [DFID], and Australian Aid) have been involved in large private sector development programs focused on SMEs. Approximately 650 BDS providers exist in the country, with their main areas of involvement being basic business training, business planning, marketing and sales, and legal support.



Financial Enablers

A variety of funding mechanisms are available to innovative SMEs. Accessing traditional loans within the banking system continue to be difficult for SMEs. Only 6.3 percent of total loans from Afghan banks are to SMEs, and typical corporate loans are not adapted to the needs of the Afghan SMEs. However, several donor initiatives provide grants to SMEs and invest in key infrastructure projects. These include the following: (1) USAID's Assistance in Building Afghanistan by Developing Enterprises (ABADE) Program, which provides matching grants, technical assistance and business advisory services, and supports improving the business environment by lifting specific regulatory and procedural barriers, and (2) the Afghanistan Business Innovation Fund (ABIF), which is a donor-backed (DFID and USAID) investment challenge fund that supports innovative projects within traditional private sectors. Finally, private investment funds (aka venture capital [VC]) are still very rare in Afghanistan with the Small Enterprise Assistance Funds (SEAF) backed Afghan Growth Finance (AGF) fund as the most active VC for SMEs (\$25 million committed capital since 2007).



Catalysts

A number of initiatives within the MCIT, under the umbrella of the E-Afghanistan National Priority Program, have been designed to leverage mobile infrastructure. MCIT has launched several ambitious programs to stimulate the IT sector in Afghanistan while improving access of government services to citizens. With World Bank funding, the Ministry plans to also implement four mGov projects: mGov strategy, Mobile Service Delivery Platform, DEWAE⁶ Innovation Support Program, and ICT Village. The mGov strategy aims to formulate the government strategy for the sector, while training governmental employees so that they can identify and report opportunities for mobile apps to deliver governmental services. The Mobile Service Delivery Platform, HOSA,⁷ will host and make accessible mobile apps that provide government services, which could include mobile health alerts, school admissions, citizen surveys, and transports alerts. DEWAE provides \$5 million in grants to boost the application economy in four award categories: mTechnology (apps that address challenges and service delivery, program management, and performance management), mGovernance (supports a specific impact through the use of mobile apps for service delivery programs), students (encourage innovative and socially geared thinking and ideas from students), and IT Champion awards (recognize people who have contributed to

⁶<http://dewae.mcit.gov.af/en>.

⁷ <http://hosa.mcit.gov.af/en>.

the promotion of ICT in Afghanistan). The ICT Village is an incubator located in Kabul that is dedicated to support IT entrepreneurs and will be launched soon.

The ICT sector has seen several professional organizations emerging over the past few years, including the National ICT Council, Afghanistan Computer Science Association (ACSA), the National ICT Association of Afghanistan (NICTAA), iHub, and Open Source Afghanistan. Finally, impact events have taken place in the past couple of years to mobilize the Afghan ICT community, including events organized by the Kabul Innovation Lab, Open Source Afghanistan, and iHub.

2.0 *infoDev* Initiatives

infoDev focuses on enabling the start-up and growth of innovative, technology-enabled enterprises. Since 2010, through its Creating Sustainable Businesses for the Knowledge Economy (CSBKE), a public/private partnership with Ministry of Foreign Affairs of Finland and Nokia, *infoDev* has supported a range of cutting-edge global and regional mobile applications initiatives. The study assesses these initiatives and proposes a model that can be utilized in Afghanistan. Three models were designed to maximize the development impact of mobile technology and generate innovative entrepreneurship: from light (mHub) to full (mLab) to virtual (virtual incubator).

mHubs

mHubs are multistakeholder social networks that organize informal gatherings, competitions, competitions that involve entrepreneurs, local businesses, and individual mobile users, peer-learning sessions, training and mentorship programs, and national and international conferences. They aim to bring together organizations and individuals who are interested or willing to work around mobile technologies. Based on informal meetings, they bring in mobile-centric events to the community, including hackathons, challenges/events, and information meetings with VCs. They do not require any specific governance in the way they are designed, at least in the early stages. They can be supported and backed by private sector organizations whose business interests are in line with the emergence of an active innovation mobile scene. *infoDev* has supported mHubs in Nepal, Moldova, Georgia, Azerbaijan, Vietnam, Uganda, Kenya, and Tanzania.

mLabs

mLabs provide the environment to help nurture and create sustainable mobile businesses. They also act as role-players in the mobile ecosystem. Since they have a physical location, they can help incubate technology entrepreneurs who can interact, work, and gain access to tools and expertise to start and grow their businesses. They offer a wide range of services both to residents and nonresidents. Residents or incubatees benefit from premium services onsite: office space, Internet access, testing facilities, and equipment. Nonresidents can also access training and workshops, consulting/mentorship, and access to investors. The governance schemes for mLabs can vary with leadership from a NGO, private sector organizations, or a consortium of organizations. *infoDev* supported mLabs in Kenya, South Africa, Vietnam, and Armenia.

Virtual Business Incubator

A virtual business incubator acts as an incubator without walls and aims at reaching potential nonresident incubatees through a variety of mechanisms. It goes beyond a physical space and concentrates on services. Services provided include training and mentoring, networking, and seed capital. The governance of the model can vary depending on the type of services offered with examples ranging from foundations to private ventures. The *infoDev* supported virtual incubator in Vietnam is helping the existing state-owned incubator, as well as building a network of entrepreneurs and investors.

Lessons Learned from infoDev Initiatives

For all models, the key is to understand the target audience to be served and their relevant needs. Building on an existing community is a critical first step. Once the community is built, the brand inevitably can become strong. It is then possible to attract partners and sponsors that can be sources of revenue and expand on the brand making it even more relevant to the community. Designing the appropriate governance for the model is important. The governance has to be in line with the overall objectives of the initiative, whether a foundation, a NGO, or a private company.

For mHubs, the key is to use a limited number of champions to build the community. Champions should encourage and pitch new ideas to keep the community attracted, whether it is events (such as hackathons) or opportunities (new challenges) or exposure to a new technology (training on latest Android API). For mLabs, building or setting up the physical premises can take considerable time and heavy capital expenditure. These activities can divert the mLab from delivering other services or getting the brand and the community installed. A secured location can become a disadvantage as it makes the mLab less accessible to the audience it wants to reach. In a place where there may not be a critical mass of innovators, a physical place might be needed where individuals can come together and support each other. For the virtual incubator, it is possible to be creative in organizing events at no cost. Events are organized based on existing networking organizations (such as student groups or clubs), and online social network support the consolidation of the community.

Best Practices from infoDev Initiatives

A number of best practices have emerged among these initiatives that focus specifically on design, internships, and tools all built to fill in the gaps. To enhance product design, some mLabs have built up a specific service or a range of services. Expertise and training can be provided to incubatees and non-residents to select the appropriate platform for their project and to understand and become trained on how to design a best in class application. Internship and mentorship opportunities allow young graduates or individual developers to get their first experience in developing apps. Interns can be mentored by experts from the mLabs, receive training, and work directly on a project or idea generated by the lab and the community. Finally, access to billing remains a constraint common in many emerging and developing markets. A number of mLabs aim to tackle the issue either through a dedicated portal that would be operated by the lab or through a specific entrepreneurial activity that is a part of the incubator.

3.0 Opportunities for a Mobile Apps Market in Afghanistan

Following the analysis of the ecosystem in Afghanistan and taking into consideration data and estimations from relevant reports,⁸ this study approximates that the **mobile app market** will grow from **its \$21.5–\$33 million** to **\$48–\$60 million**. The main assumptions for this analysis include an **increase** in the **number of Internet and 3G users** by 15 percent, **increase** in **smartphone penetration** by 15 percent, and a **wider focus on innovation** and usage because of a number of supporting government initiatives, including DEWAE and HOSA. The analysis also estimates a growth in the number of local mobile content providers from the five companies currently active in the market.

The main growth potential impacts SMEs, be it mobile content or software providers. It is estimated that the market for Afghan-based mobile content providers will grow from \$0.5–\$1 million to \$3–\$4 million. The market for Afghan-based mobile software providers will grow from \$1–\$2 million to \$5–\$6 million. The rest of the growth will be from the mass market, mainly through the market for MNOs. By understanding these market factors, a more complete picture can be created to know which areas incubation can support in the Afghan ecosystem.

The analysis and estimations are included below:

⁸ <http://documents.worldbank.org/curated/en/2010/06/16278125/mobile-applications-afghanistan-mainstreaming-across-government-developing-ecosystem>.

Mobile Content Providers to MNO and Mass Market	2013	2016
# of providers (1)	5	40
Average revenue per provider in \$k (2)	\$ 120	\$ 100
Total revenue in \$k	\$ 600	\$ 4,000
<i>In the slide, ranges of \$0.5-\$1m in 2013 and \$3-\$4m in 2016 are presented to take into account the uncertainties in the assumptions taken</i>		
Commissioned dev - Mobile Software Providers Afghan-based to Government, Institutions, and Businesses	2013	2016
# of providers (3)	10	20
Average revenue per provider in \$k (2)	\$ 150	\$ 270
Total revenue in \$k	\$ 1,500	\$ 5,400
<i>In the slide, ranges of \$1-\$2m in 2013 and \$5-\$6m in 2016 are presented to take into account the uncertainties in the assumptions taken</i>		
MNOs to Mass Market - ARPU based Analysis (4)	2013	2016
Average ARPU in \$	\$ 6	\$ 6
Share of ARPU VAS (5)	3%	5%
Total monthly revenue in \$k	\$ 2,160	\$ 3,900
Total yearly revenue in \$k	\$ 25,920	\$ 46,800
<i>In the slide, ranges of \$20-\$30m in 2013 and \$40-\$50m in 2016 are presented to take into account the uncertainties in the assumptions taken</i>		
MNOs to Mass Market - Users based Analysis	2013	2016
Average subscription fee in \$ (per month)	\$ 1	\$ 1
Average download fee in \$ (per month)	\$ 0.3	\$ 0.3
# of unique mobile users in Afghanistan in k	12,000	13,000
Share of VAS users (6)	15%	25%
Estimated number of VAS users in k	1,800	3,250
Yearly subscription fees revenue in \$k	\$ 21,600	\$ 39,000
Yearly download revenue in \$k	\$ 6,480	\$ 11,700
Total yearly revenue in \$k	\$ 28,080	\$ 50,700
<i>In the slide, ranges of \$20-\$30m in 2013 and \$40-\$50m in 2016 are presented to take into account the uncertainties in the assumptions taken</i>		

Sources:

- (1) Based on estimated number of publishers active on the Afghan market—see “Hyp. Afghan app store” sheet.
- (2) Based on interviews with ICT SMEs in Kabul.
- (3) The increase in number of actors is based on the impact of mobile initiatives (HOSA) and on the increasing demand from gov. institutions.
- (4) Industry benchmarks: Wireless Intelligence, Ovum, and MNOs interviews.
- (5) VAS = excludes voice, SMS, and data revenues. Includes mobile money. Highly driven by RBTs in Afghanistan.
- (6) Interviews with MNOs.

Market Gap

Although the mobile app market appears primed for growth, a number of critical gaps need to be filled to correctly seize the mobile app opportunity in Afghanistan. The main gaps can be classified under lack of access to relevant people and skills, tools, and end users (that is, the mass market).

People and Skills: Surveys and analyses have demonstrated that there is a lack of awareness of mobile technology and its opportunities in the country. Many Afghans, including students of information technology themselves, are not aware of the prospects that would be available in this market. The Afghanistan workforce also lacks the relevant skills and experience required for on the job opportunities in the sector.

Tools: Along with the lack of skills, Afghans interested in mobile app development do not have the ability to access the necessary tools to create apps. A majority of the tools available are open source and easily available online. Since a majority of Afghans do not speak English (or if they do, fluency remains limited), the tools remain inaccessible to them because of language and cultural barriers.

End Users: Finally, there are barriers for mobile app developers in Afghanistan to access the mass market. Most Afghans do not have a compatible handset, and when they do, most do not know about available platforms (such as iTunes). When the platforms are known, a majority of the population does not have access to credit cards or payment means to purchase the apps. The only channels available for independent developers and entrepreneurs in Afghanistan today are (1) commissioned development, that is, not the mass market and (2) negotiation with MNOs.

Opportunities

Within Afghanistan, *infoDev*'s support to accelerate the growth of the mobile app sector will come as a complement to the existing MCIT or mGov initiatives and to the growing networking arenas. It will build on the current momentum around HOSA, DEWAE, and the ICT Incubator, as well as leverage the existing networking arenas already in place (such as iHub, NICTAA, Open Source Afghanistan, TechNation, and TechDera). With this understanding, three areas have been identified to deepen the support to the mobile ecosystem. The initial scope should include the following: (1) increase awareness, skills, and access to practical experience, (2) provide tools, derived and localized, from mobile open source software, to accelerate the adoption of mobile technology by entrepreneurs, and (3) enable access to the mass market and the capacity to monetize services, by creating an alternative application distribution mechanism for SMEs.

Targeting People and Skills

The immediate opportunities for action to support individuals and skills include raising awareness around the mobile ecosystem, increasing skills in mobile software, and improving hands-on experience of IT students. Currently, the level of awareness among individuals and SMEs about the business potential of mobile technology is still low. Initial efforts should be put into creating a community of interest around mobile opportunities. A natural first step is to increase awareness through such events as competitions and hackathons. Awareness can also be raised through industry partnerships (platform and technology providers), who can support training bootcamps and challenges. Individual's skills also need to be adapted to the mobile ecosystem. To date, none of the IT institutes, whether private or public, provide specific training on mobile software development. All stakeholders interviewed were interested and ready to adjust their curriculum to include mobile software development courses. These should be adapted to both current market demand (including Java, SMS, and interactive voice response [IVR]) as well as anticipate the demand for the next generation of native apps based on major operating systems and technologies. Finally, IT students need further experience, which can be increased via mentorships and internships. All institutes surveyed suggested that they would be more than ready to provide students internship opportunities and project-based courses. This gap can be rectified by adjusting curricula to include compulsory internships as a part of the course program and by building partnerships between ICT companies and IT institutes to provide internships and project opportunities for students.

Targeting a Gap in Tools

A list of open source tools and software should be selected that are relevant to the Afghan context while taking into account the business potential per sector. Open source mobile software is available on all platforms and can address the needs of many businesses and sectors (such as eLearning, data collection, or content publishing tools). A localized version of the software would need to be offered to the

community. Support should be provided to private and public initiatives to produce local language versions (in Dari and Pashto) and documented versions of the software. The tools can then be offered to the community of developers, entrepreneurs, and training institutions who can in turn utilize the tools as part of the course offering.

On Accessing the End Users

Since accessing end users remains a significant impediment, developing an independent platform for service and content providers would benefit the full ecosystem in Afghanistan. The system could replicate HOSA, the comparable initiative launched by the government, with a dedicated distribution platform for apps originating in the private sector. It would provide integrated billing access (via airtime or mobile money) to all MNOs and act as a distribution portal for content and service providers, enabling SMEs to target the mass-market easily and bill content and services.

4.0 How to Accelerate the Mobile Ecosystem in Afghanistan

Based on the needs assessment, interviews conducted with local stakeholders, and *infoDev*'s global experience, a light footprint model that will support current initiatives and fill existing gaps is recommended. A hybrid of two different models, mHubs and virtual incubators, has been studied to support the mobile ecosystem. The mLab model was eliminated as a possibility since the goal is to build on existing incubators initiatives and this gap can be fulfilled by the proposed ICT incubator initiative of MCIT. In deciding between the mHub and virtual incubator models, both had pros and cons. For the mHub model, its efficient ability to mobilize and organize a community around the mobile economy, complementary to current initiatives, and enable national reach through networks of regional IT institutes were considered pros, while limited support to early-stage startup development and lack of focus on providing access to finance were considered cons. For the virtual incubator model, pros included focused support to startups and existing ventures (including through access to finance) and access to international networks, while cons included the potential to neglect the initial effort required to build technical capacity, difficulty in reaching the tech community if little tech services are provided, and difficulty in building a sustainable model as most services will be provided at cost. In order to meet the needs of the Afghan ecosystem, an amalgam of the mHub and virtual incubator, titled the Mobile Ecosystem Enhancer, has been recommended.

Governance

Along with the service model, the governance structure for the proposed mobile ecosystem enhancer needs to be designed with the program's core objectives in mind. Two governance schemes are applicable to the Mobile Ecosystem Enhancer: fully private or consortium. The fully private scheme, with one or several privately owned companies, provides added value as the implementers are in the same sector, would be complementary to the companies' core business, and there would be a clear leadership structure and capacity to implement. However, it would be difficult to act as a legitimate centerpiece of the ecosystem, and there could be a market distortion if only one private actor is selected. The consortium scheme, an alliance of organizations (whether public or private), can bring in various stakeholders each with a specific input for the project (such as institutes, the government, or private companies), and offers broad support and involvement across the ecosystem. However, it could have no clear leadership, it is not the core business for the stakeholders or participants in the consortium, and it could have limited capacity to resolve disputes (for example, without a clear memorandum of understanding among the consortium members stating specific roles and responsibilities).

Services Offered

The program should be built around a portfolio of services to increase technical capacity and the sustainability of emerging mobile ecosystem. The Mobile Ecosystem Enhancer will aim to provide the following service lines: (1) mobilize talents and develop skills, (2) support the emergence of sustainable actors, and (3) provide relevant tech tools to the community.

The aim for the first service line is to rapidly build a strong community of tech entrepreneurs within the mobile ecosystem, while increasing mobile software skills. The activities (along with their outputs) that will be provided in this service lines include events (talents mobilized), competitions (ideas and apps

developed), training (upgraded skills), partnerships (training content and technology available), and internships (increased experience). The organizations and initiatives to support or complement these activities are the iHub, MCIT ICT Incubator, MNOs, IT institutes, and MCIT's HOSA.

The second service line, supporting the emergence of sustainable actors, is designed to encourage local ICT incubators and incubatees. With a proposed Afghan app store, the objective would be to provide the capacity for SMEs to access the mass market. The activities (along with their outputs) that will be provided in this service line include mentorship (support to startups), access to finance (access to international funding and establishing a network of local investors), and support to existing incubators (focusing on training and incubatees support). The organizations and initiatives to support or complement these activities are the MCIT ICT Incubator, ABADE, MNOs, and the Association of Mobile Money Operators in Afghanistan (AMMOA).

The final service line, providing tech tools to the community, will deliver specific mobile software that will be localized to fodder more opportunities for ideas and entrepreneurship. The activities (along with their outputs) that will be provided include training on tools (exposure to technology enablers), support of tools (maintenance and upgrade of tools), software localization (localized tools build services with), and internships (first-hand experience on tools). The organizations and initiatives to support or complement are MCIT's DEWAE, local IT Institutes, SMEs, MCIT's HOSA, and Open Source Afghanistan.

Focus on Kabul

As a part of the recommendation, Kabul has been identified as the location for the Mobile Ecosystem Enhancer. It is the hub of most ICT and entrepreneurship initiatives today in Afghanistan so it is a natural first step to develop mobile app entrepreneurship. By locating the Enhancer in Kabul, it will (1) help access targeted beneficiaries, (2) participate in galvanizing the Afghan ICT community to create a momentum, and (3) allow for more numerous and relevant partnerships and opportunities. While it will be located in Kabul, ad hoc events and training workshops will provide opportunities for national outreach in other provinces.

Afghan App Store

Accessing end users in Afghanistan remains a hurdle. Afghans do not have a compatible handset, and when they do, most do not know about the platforms (such as iTunes). When the platforms are known, a majority of the population does not have credit cards or payment means to purchase the apps. The only channels available for independent developers and entrepreneurs in Afghanistan today are (1) commissioned development, that is, not the mass market and (2) negotiation with MNOs. An independent Afghan app store, built initially on an Android platform (operating system based on a Linux kernel), will enable content and services providers to monetize their apps. The platform will be the cornerstone infrastructure of the Afghan app economy and will benefit all stakeholders. It will be the intangible infrastructure through which all private providers or end-users of mobile apps will be able to connect and exchange. Its funding is essential to enabling a sustainable ecosystem. Financing the platform depends on donor involvement as private actors in the country do not have the capacity to invest in the platform themselves. The platform will be a game changer for app developers to access the end-user and for users to access Afghan content.

5.0 Implementation of the Mobile Ecosystem Enhancer

Key Performance Indicators

The Mobile Ecosystem Enhancer's impact will be measured through nine key performance indicators (KPIs) and is estimated to produce the following results after an initial three-year implementation period: 25 startups created, 20 startup teams receive mentoring and coaching, 425 highly skilled jobs created (including in existing ventures), 100 internship positions filled, 25 investors identified, 15 plus million apps downloaded (including 12 plus million in year three), 500 apps commercialized, 40 events organized, and about 600 individuals trained on mobile technology. In order to reach these results, an investment of \$1.1 million for three years is required. The gross revenue generated in year three is estimated to be \$5 plus million inclusive of revenue generated from the app store.

Budget

The capital needed before sustainability is reached in year three would be approximately \$1.1 million. The initial and running costs will total \$800,000. Initially, \$400,000 will be necessary to set up the app store along with other required tools. In year three, another \$400,000 will be necessary for maintenance, running, and advertising costs. After year three, the program should be mostly supported by the revenues generated by the Afghan app store, partners, and sponsors. In year three, the analysis estimates \$270,000 in direct revenue from the app store with another \$130,000 in indirect revenue from advertisers, sponsors, and partnerships. The revenue generated from the app store is based on sales of \$5.4 million in year three (with a 5 percent operating fee).

Risks and Mitigators:

In order to mitigate risks for this initiative, a step-by-step approach is recommended during the implementation phase, while establishing stronger links with stakeholders in the ICT sector

Risks	Mitigators
Gap between skills built and market demand	Establish strong links with the private sector and mGov programs to dimension and design the training curricula to their needs.
	Implement the program in a modular or step-by-step approach so as to take corrective measures when necessary.
Lack of absorption capacity and difficulty to identify the right candidates	Conduct additional research to size the potential audience and get a thorough assessment of the needs by type of candidates.
Lack of coordination with other on-going initiatives: risk of duplication	Establish strong links with ongoing initiatives, such as the ICT incubator, from start to differentiate the offering of each initiative and create complementary programs.
Difficulty in attracting sufficient candidates because of multiplication of offers for IT students and SMEs	

FEASIBILITY ASSESSMENT FOR THE DEVELOPMENT OF A MOBILE APPLICATIONS SECTOR IN AFGHANISTAN



1. Introduction

1.1 Definition

1.2 Context

1.3 Objectives

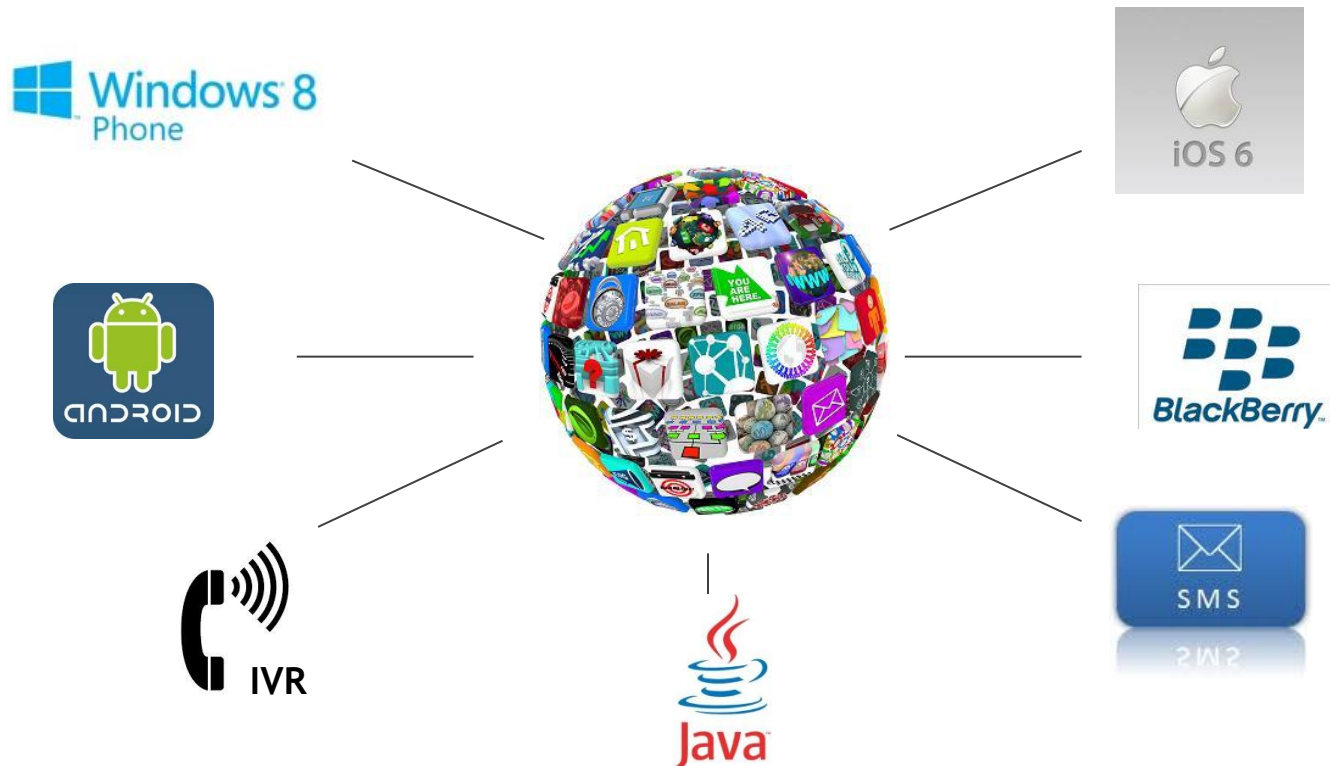
1.4 Timeline

2. Mapping of the Business Environment for SMEs in the ICT Sector
3. Description of Current Initiatives Outside the Country and Relevance to Country
4. Opportunities for Incubation in Afghanistan
5. How to Accelerate the Mobile Ecosystem in Afghanistan
6. Implementation of the Mobile Ecosystem Enhancer

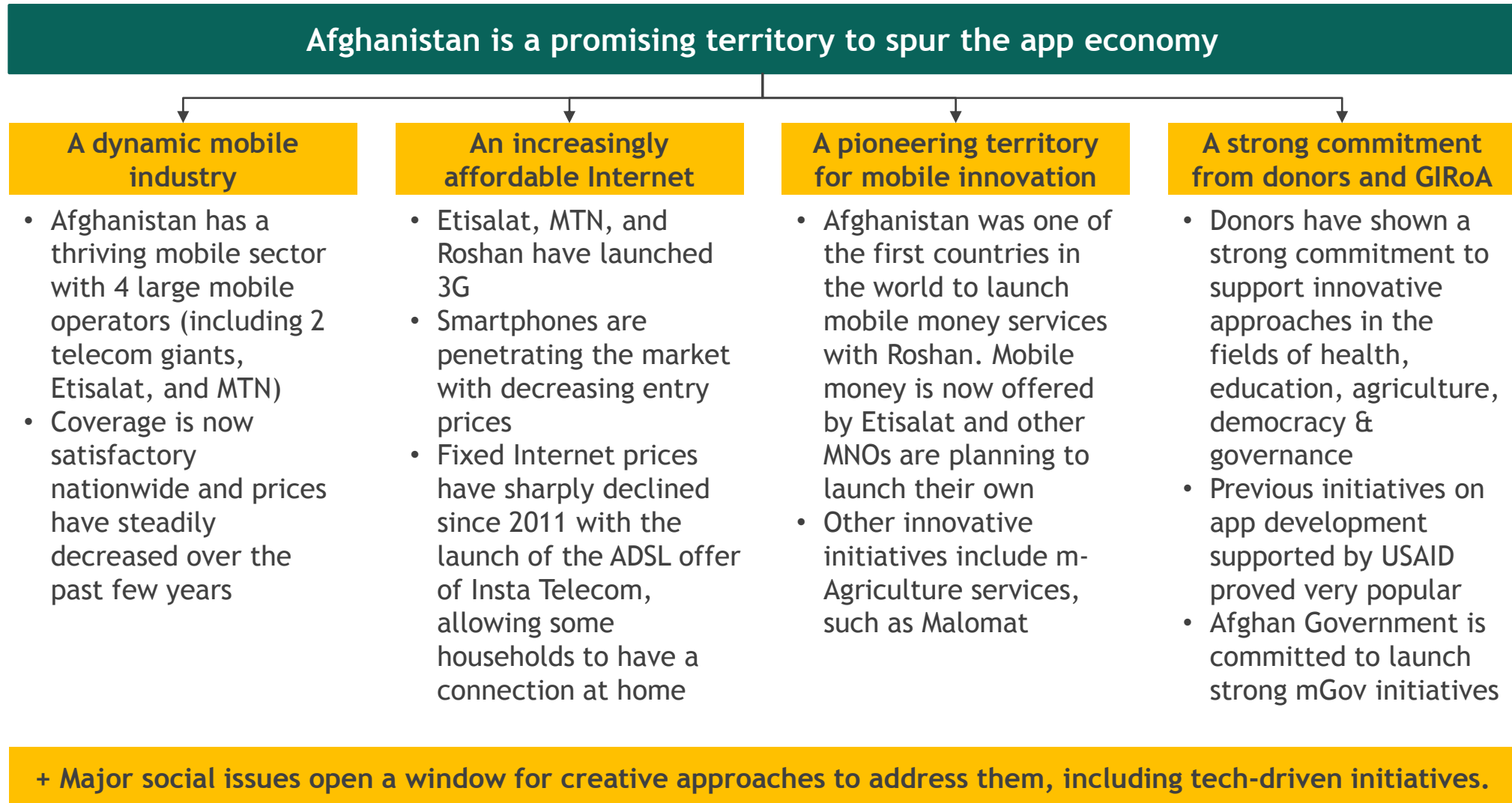
Over the course of the project, reference will be made to the “mobile app economy” or the “mobile applications sector.”

What is the mobile app economy?

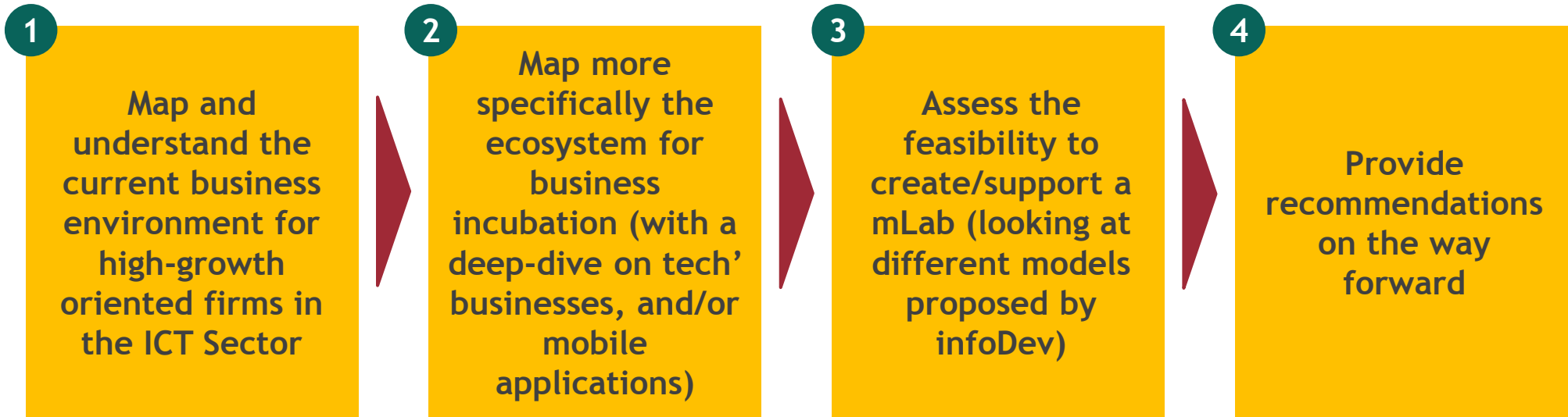
- A range of economic activity, including enterprises, involved along the value chain of **creating, distributing, and consuming digital content, services, and transactions over mobile technology.**
- Enterprises active in the app economy include app startups, device manufacturers, mobile operating system providers, network operators, software and content agencies, and others.



Several drivers contribute to make Afghanistan an attractive country to further develop mobile entrepreneurship.

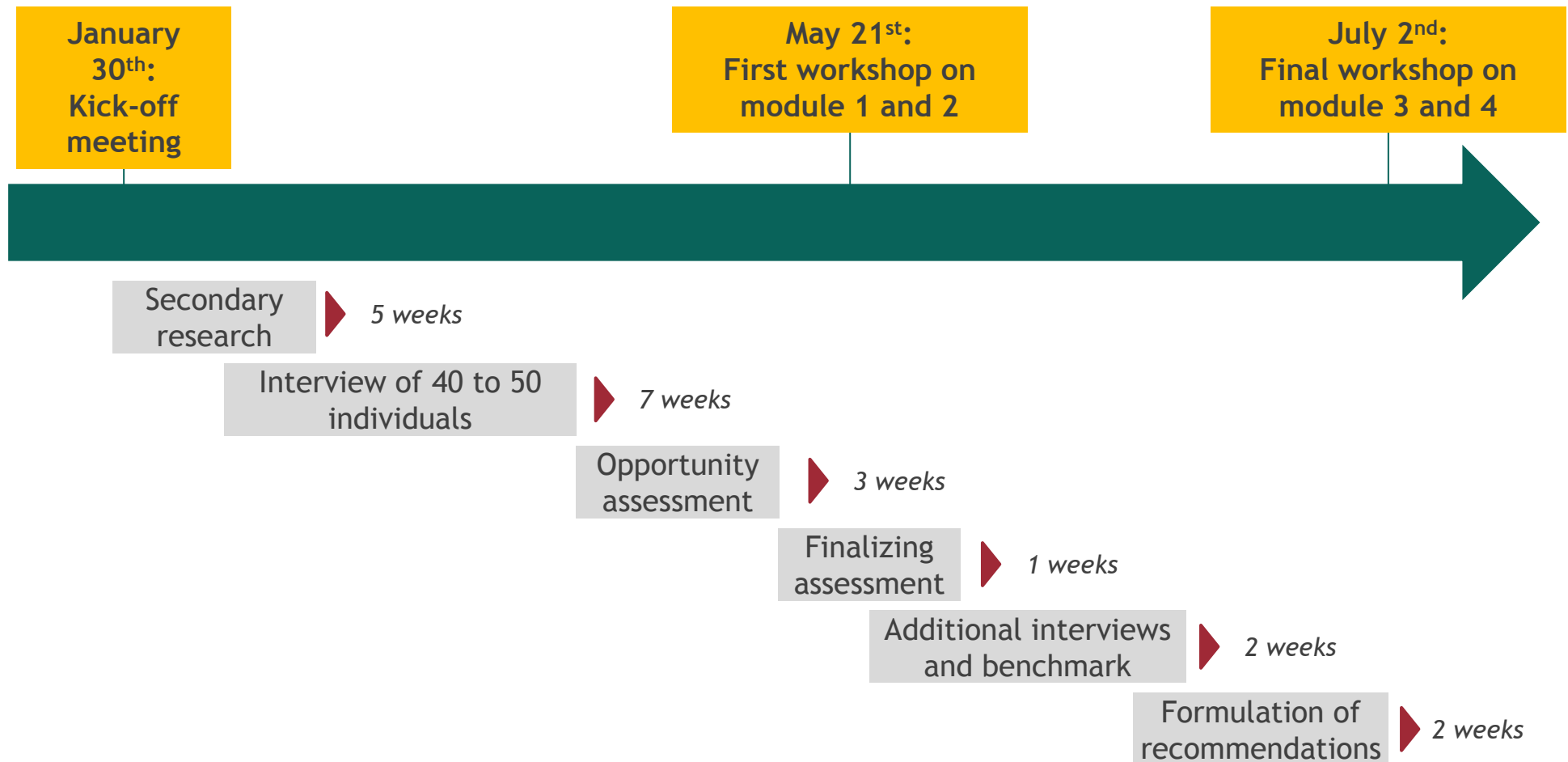


The feasibility assessment for the development of a mobile applications sector in Afghanistan encompasses 4 main objectives:



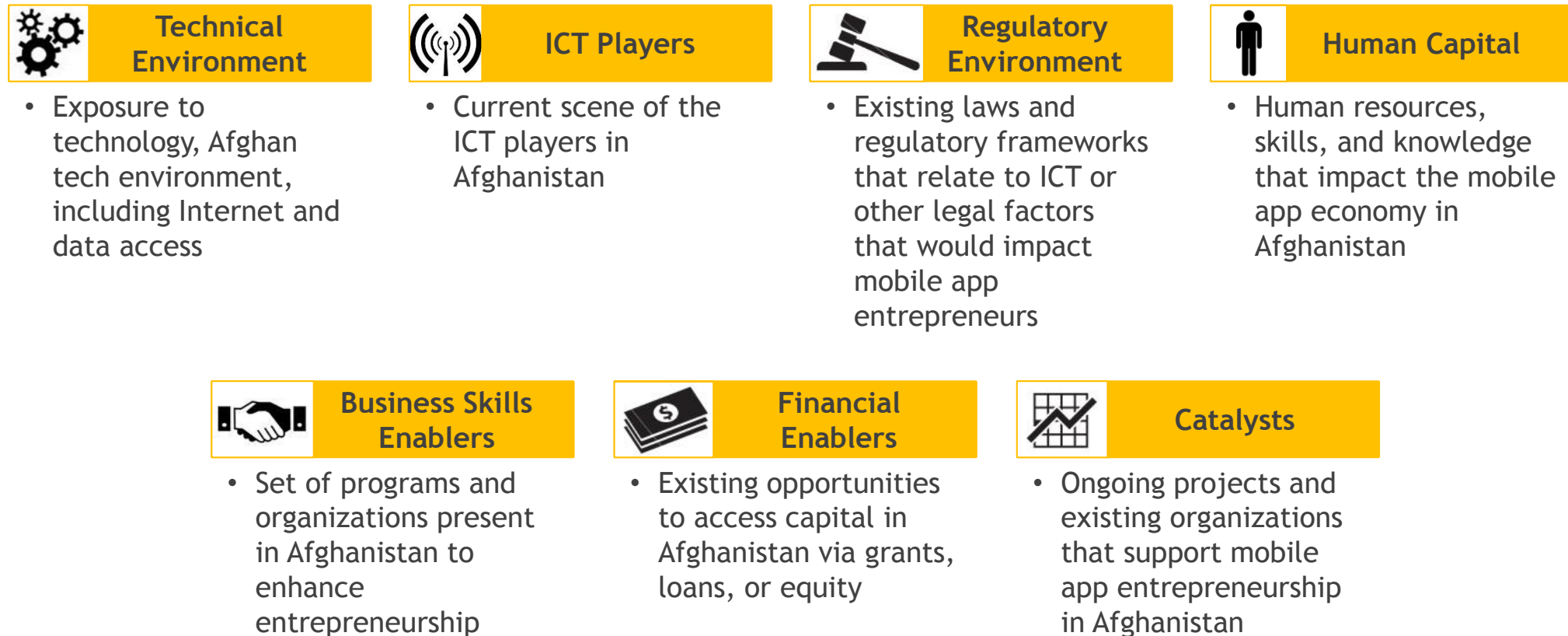
The overarching goal of the project is to support the emergence of a mobile applications sector in Afghanistan.

Two workshops have been organized to share findings and collect feedback from the project stakeholders:



1. Introduction
- 2. Mapping of the Business Environment for SMEs in the ICT Sector**
 - 2.1 Introduction**
 - 2.2 Technical Environment**
 - 2.3 Overview of the ICT Players**
 - 2.4 Regulatory Environment**
 - 2.5 Human Capital**
 - 2.6 Business Skills Enablers**
 - 2.7 Financial Enablers**
 - 2.8 Catalysts**
 - 2.9 Main Donors Active in the ICT Sector in Afghanistan**
3. Description of Current Initiatives Outside the Country and Relevance to Country
4. Opportunities for Incubation in Afghanistan
5. How We Plan to Accelerate the Mobile Ecosystem in Afghanistan
- ~~6. Implementation of the Mobile Ecosystem Enhancer~~

Seven components of the ecosystem of SMEs in the ICT sector have been identified as essential and will be developed in this section:

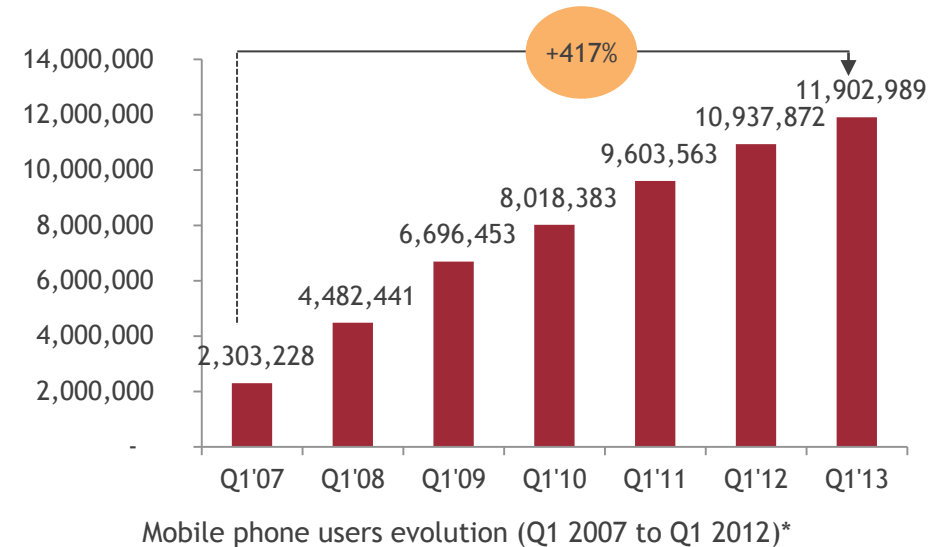


Mobile usage has soared in Afghanistan. Today, as many as 12 millions Afghans are mobile phone users.



**Mobile penetration
has boomed**

- Since the first operator was launched in 2003, Afghanistan has seen a tremendous uptake of its telecom market. **5 carriers are now operating in Afghanistan**
- Mobile penetration has grown from about 2 million users in 2007 to almost 12 million users at the beginning of 2013* which represents 2/3 of the Afghan adult population



- Among VAS offered today by MNOs, Ring Back Tones** (RBT) are by far the most successful: according to MNOs, between 18% to 30% of their customer base has at least once used this service, i.e., between 2 million to 3.5 million users

**Smartphone
penetration is
growing**

- 3G has been launched in March 2012 in Afghanistan and is now offered by 3 operators: Etisalat, MTN, and Roshan
- Smartphone penetration is estimated at 8% of total devices in circulation by several MNOs

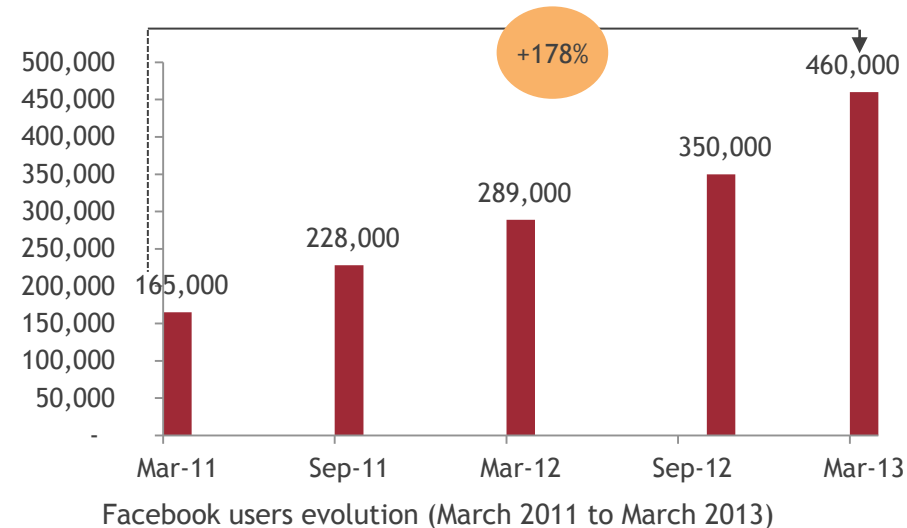
Source: (*) <https://wirelessintelligence.com/>; (**) Interviews with MNOs.

The number of Internet users has reached 1.7 million in Afghanistan in 2011 and is expected to grow significantly in the years to come with prices declining.



Internet usage remains limited but has grown rapidly

- At the end of 2011, the number of Internet users can be estimated to 5% of the total population* corresponding to approximately 1.7 million of Internet users (i.e., people who have accessed Internet over the last month) in Afghanistan, or much more according to other sources



- The dynamism of Internet usage is also reflected in the number of **Facebook connections**, which has experienced a strong growth over the past 6 months (+33%)** with 460,000 Facebook accounts
- While Internet offers used to be almost exclusively for corporations given the very high prices of subscriptions (in 2002, monthly connection cost up to \$10,000 for 64 kbps, in 2007 it cost up to \$250),
It is now affordable for rather affluent households:
 - For example, INSTA now offers a 256/128 kbps connection for 1,250 AFN/month (~\$22) and up to 2,048 kbps connection

Source: (*) <http://www.itu.int>; (**) Socialbakers.

Note: (***) Back in 2005, the Ministry of Communication planned to increased internet penetration from 0.25% to 10% in 2010.

The fiber optic backbone is partly completed, linking Afghanistan to international bandwidth. Barriers to Internet access still remain.



The backbone launched in 2006 has been partly completed

- In 2006, the Afghan government launched an initiative to build a 4,810km optical fiber cable ring around the country linked with Afghanistan's neighbors
- More than 2,678 km have been completed today, including connectivity with Iran, Pakistan, Tajikistan, and Uzbekistan



Afghanistan's optical fibre backbone

Barriers to Internet access still remain

- In spite of all those developments, penetration growth has been slower than expected and several factors could impede a further development of Internet usage:
 - Low literacy rate and limited command of English (as local content remains limited)
 - Connection prices have decreased but remains out of reach for the majority of the population
 - Lack of access outside city centers

Source: USAID and Internews report; Ministry of Communication and Information Technology; Afghan Telecom; http://www.instatelecom.com/trf_dsl.html.



ICT players in Afghanistan range from multimillion dollar ventures to small SMEs.

Four categories of ICT players have been identified:

MNOs and ISPs - Hardware companies - IT and software companies - Content providing companies

MNOs and ISPs

- **MNOs:** There are 5 operating carriers in Afghanistan. The four largest ones are:



- 6.3m users*
- Offers mobile money
- Offers 3G
- Launched their own web portal **Kahkashaan** that supports SMS, IVR, USSD, SDK, web, and WAP apps, including RBT
- Local content is provided by Yama Ramin and Tolo
- Offers **Malomat****: an IVR and SMS-based m-agriculture app



- 4.7m users*
- Offers a range of VAS based on short code and SMS, including a music, Islamic, educational, game content
- The platform is provided by regional contractors (India, Pakistan)
- Local content is provided by ACTC



- 5.7m users*
- Offers 3G
- Offers a range of SMS based apps, including Ring Back Tone (RBT)
- Offers four main IVR services: TeleMufti, TeleDoctor, TeleLawyer that provide advices and TeleVasar for classified ads
- MTN play, a web portal, will be launched in Q2 2013



- 4.5m users*
- Offers mobile money
- Offers 3G
- Offers a range of apps through SMS and IVR and Ring Back Tones (RBT),
- Will launch a web and mobile portal in end of May 2013: should support WAP, Web, USSD and SMS apps

• ISPs:

- There are 41 licensed Internet ISPs in Afghanistan
- Clients: mostly B2B and B2G
- Targeting large corporations/organizations that are less price sensitive
- Access is mostly provided through WiFi and VSAT technology

Source: (*) <https://wirelessintelligence.com/>; Interviews. Note: (**) In partnership with Mercy Corps and DAI - IDEA NEW.

IT services and content providers companies are usually SMEs facing similar challenges in terms of recruitment, training, access to market, and sustainability.



Hardware companies

- Clients: mostly B2C
- The market is dominated by small computer and mobile handsets dealers
- Essentially imported
- There are a limited number of large players and authorized dealers mostly for PCs



IT services companies



- Clients: mostly B2B and B2G
- Services include software database development, website development, web hosting, IT maintenance and support
- Very few players specialize in one area, mobile software development is still in its infancy
- IT services market had a limited number of players in 2007 (less than 30). It has grown to an estimated 176** active players to date



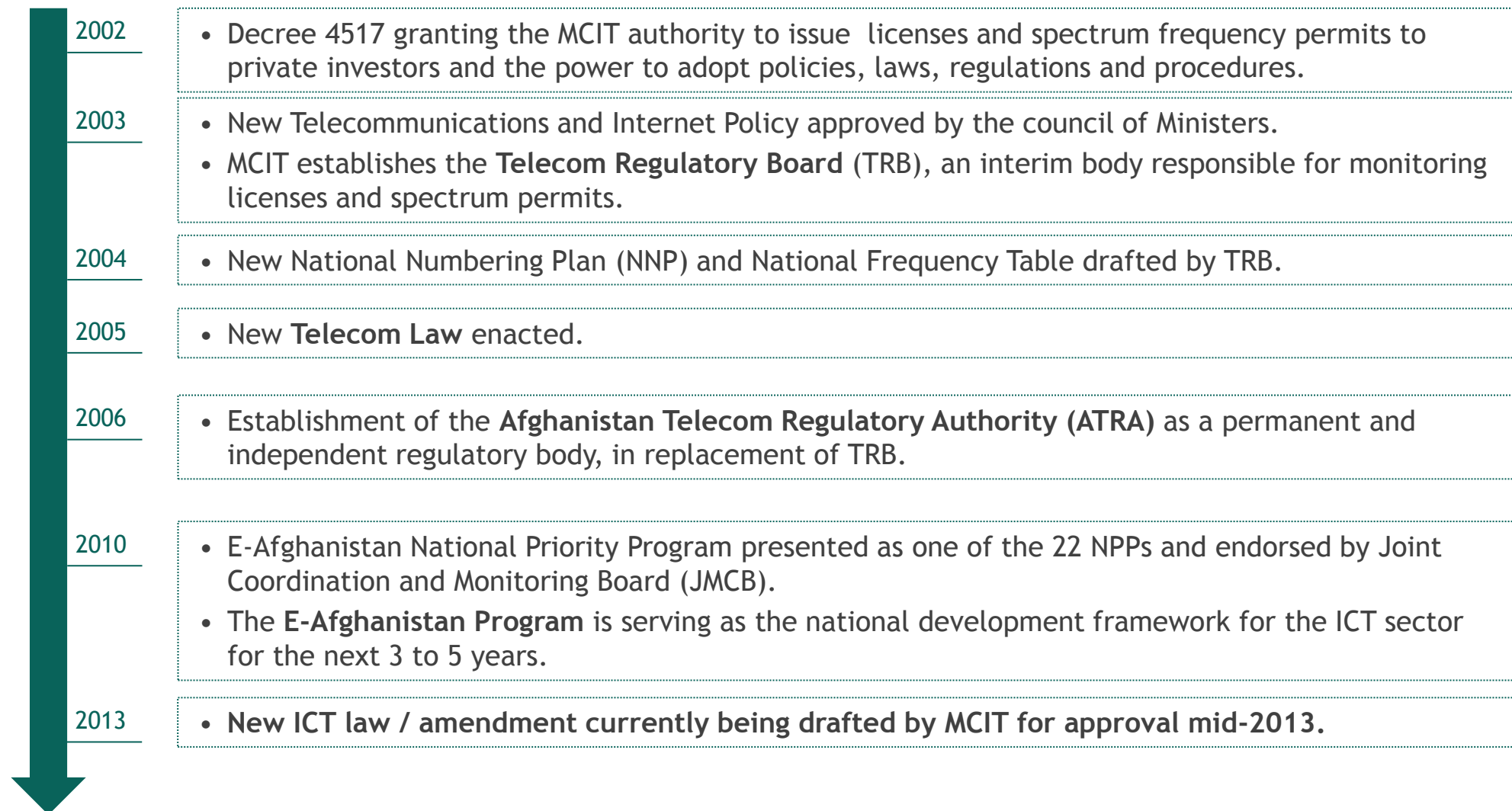
Content providers companies



- Media are natural content provider for mobile app developers. Tolo, for example, provides content to several MNOs
- Apart from the media, very few Afghan companies provide content to mobile app developers and MNOs
- Clients: mostly B2B and B2G
- Business models: revenue sharing, i.e., 25% to 50% of revenue per download
- This revenue sharing model can be a challenge as those companies don't benefit from a strong bargaining power with their potential partners

Source: (*) <https://wirelessintelligence.com/>; (**) AISA; Interviews.

The legal and regulatory framework for the telecom and Internet sectors is built on the Telecom Law and the Telecommunications and Internet Policy.



The current regulatory and legal framework concentrates on technical elements, rather than on content and services. A new ICT Law is currently being drafted.



The licensing regime

- 10 licenses distinguished in Internet policy
- There are **no specific licenses for mobile content or service providers**. The Value Added Services (VAS) concern MNOs and has not been issued so far
- No licensing regime for short code services

Short code procedure

- **ATRA is responsible for supervising the allocation of short codes** to private actors
- Procedure includes initial agreement with a provider (MNOs) and then getting the allocation of the short code by ATRA
- Based on a registration fee (5,000 AFN) + a fee by category (Gold, 70k AFN, Silver 67k AFN, Normal 57k AFN, and an annual renewal fee of 2,000 AFN)

Content providers fall under the media law

- As per the Constitutional Law, the **Ministry of Information and Culture is responsible for the regulation of content**
- There is no involvement of the MCIT / ATRA, apart for regulation of the content filtering policy
- This is not likely to be addressed by the new ICT Law

While software providers have no specific regulatory framework

- **There is currently no regulatory framework for software providers in Afghanistan, including mobile applications**
- Software providers can operate under the general business license regime (Ministry of Commerce / AISA)
- This is not likely to be addressed by the new ICT Law

SMEs face regulatory challenges while developing mobile apps:

SMEs complain that getting short codes or having content approved by the Ministry of Information and Culture takes time and significant resources. The process is not always clear to them.

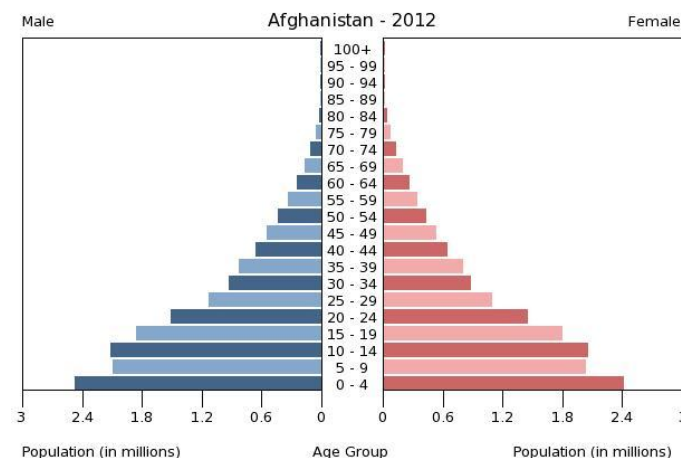
Afghanistan is one of the youngest countries in the world but only a small number of Afghans have access to higher education.



Afghanistan is a reservoir of human resource potential...

- 46% of the Afghan population is below 15 years of age. Afghanistan is the 8th youngest country in the world*
- Between 2001 and 2012, primary school enrollment rose from around 1 million to nearly 8.2 million**

- Universities have improved their curricula. They still suffer from a shortage of skilled teachers and a lack of equipment and facilities
- Some institutions, such as the American University of Kabul have positioned themselves as “state of the art”
- General access remains very low: In 2012, a record of nearly 40,000 university places got awarded for a formal admissions capacity of 34,260 students****
- Private training organisations complement university tuition and allow young Afghan to combine studying and having a job at the same time



Afghanistan's population pyramid graph***

- Dari and Pashto constitute barriers to access to global knowledge content, especially on the Web, since these languages are not very widespread

Language issues limit access to global knowledge

Source: (*) <http://unstats.un.org>; (**) Unesco; (***) United States Census Bureau (2012); (****) Ministry of Higher Education.

Afghanistan has a long tradition of entrepreneurship. The private sector is booming driven by SMEs, in spite of market distortions, especially in the field of HR.



Afghanistan has a long history of entrepreneurship

- Afghanistan has given birth to **large private ventures reaching regional markets** (e.g., the Safi Group or Alokozay Group) as well as SMEs
- Afghan entrepreneurs often benefit from strong networks overseas thanks to the large Afghan diaspora in North America, Europe, Pakistan, and Iran

The number of businesses launched since the fall of the Taliban has soared

- According to AISA:
 - **5,283 ventures have been registered in 2012** compared with 3,539 ventures in 2003
 - **176 ventures in the ICT sector have been registered in 2012** compared with 19 ventures in 2003. Ventures in the ICT sector represent 3% of the newly registered ventures in 2012

Afghanistan suffers from a distorted HR market

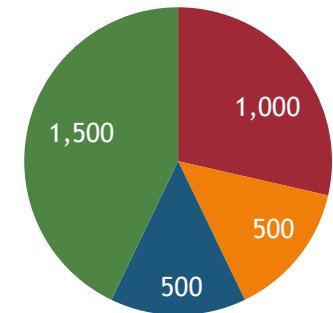
- The massive influx of aid money and international agencies, as well as foreign military presence, has deprived the Afghan private sector from precious skilled resources and created numerous **market distortions**
- As a consequence, for the same skills and capacity, labor is more expensive in Afghanistan than in neighboring countries

IT degrees are delivered by major universities and private institutes. Close to 3,500 students are currently enrolled.



Around 900 IT students graduate each year

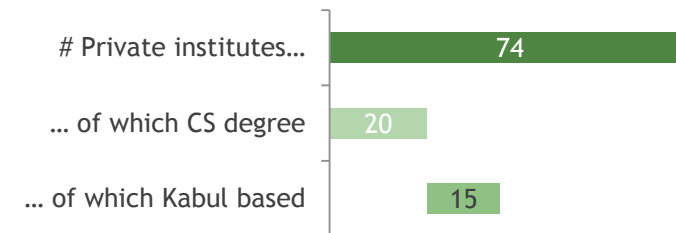
- 830 IT students graduated in 2013, with an overall **3,500 IT students enrolled***
- Students from public universities are mostly full time, while students at private institutes are mostly part time
- After graduation, the **majority of students go to work for banks and government ministries**. A lot of the graduates, in particular from the private institutes, are already employed
- **Curricula are centered around programming, database, and network management**



■ Kabul University & ICTI
 ■ Herat University
 ■ Nangarhar, Mazar, Khost, & Polytechnic
 ■ Private institutions

...but the skills levels are still unequal

- **Graduates need further training once they enter the market; 100% of private businesses interviewed have indicated that they conduct their own in-house training****
- Internship and hands-on experience are still missing for students
- **Mobile software is not taught and software programming is still very basic**



Source: (*) Ministry of Education; (**) Altai Consulting and interviews of universities and institutes.

The curriculum taught within the leading universities and institutes focuses on network and database. Internships and hands-on projects are still rare.



	Kabul University	Kardan Institute	American University
Launch	2008	2009	2006
Admission test	Koncor	Koncor	Koncor
Dedicated time	<ul style="list-style-type: none"> All students are full time 	<ul style="list-style-type: none"> Most students are part time 	<ul style="list-style-type: none"> All students are full time
Curriculum General	<ul style="list-style-type: none"> 4 years General curriculum includes maths, physics, Islam, history, language, and introduction to IT 	<ul style="list-style-type: none"> 3 years General CS are mostly all basics required CS core courses includes introduction to all IT fields 	<ul style="list-style-type: none"> 2 years General education includes maths, physics, humanities, and introduction to information technology
Curriculum Specialization	<ul style="list-style-type: none"> 2 years Specialization includes network, database, and software engineering 	<ul style="list-style-type: none"> 1 year 2 specializations: network or software Programming includes asp, .net, php, java, C++ 	<ul style="list-style-type: none"> 2 years Specialization includes network, database, security, programming
Internship / Project	<ul style="list-style-type: none"> Internship mostly within governmental organs Mandatory project for 4th year students 	<ul style="list-style-type: none"> Required as part of the final year Usually within current job 	<ul style="list-style-type: none"> Internship program recently started with IT private actors
Alumni	<ul style="list-style-type: none"> No alumni network 	<ul style="list-style-type: none"> No alumni network 	<ul style="list-style-type: none"> No alumni network

A large number of business development services (BDS) currently operate in Afghanistan supported by the donor community, GIRoA ,and professional associations



Donors have been involved in large private sector development programs focused on SMEs

An estimated number of 650 BDS providers now operate in Afghanistan

- Since 2007, the **USAID-funded ASMED program** has directly and indirectly provided business skill training to over 20,000 clients throughout the country, has supported more than 9,300 Afghan businesses, and facilitated access to bank loans and equity financing to 103 of those companies*
- **ABADE is succeeding ASMED with a goal to generate \$180 million of investment in the private sector, targeting SMEs and innovation**, with a initial target of more than 400 recipients**
- Other donors and entities, such as the **World Bank and GIZ (New Market Development Project)**, **DFID**, and **AUSAID** play a major role in private sector development
- There is an estimated number of **650 BDS providers in Afghanistan*****, their main areas of involvement include basic business training, business planning, marketing and sales, legal support, and others
- A national association of BDS has been created to group BDS providers: **Afghan Consulting Companies Association**
- **Afghan Ministries (such as MoCI)** are supporting entrepreneurs through targeted BDS programs
- **Afghan Chamber of Commerce and Industries (ACCI)** support entrepreneurs through training sessions, business matchmaking events, and fairs
- Portals, such as **Afghanistan Building Markets**, have been put in place to help Afghan businesses access market and support them in getting access to tenders***
- Some specific initiatives have positioned themselves as business accelerators, e.g., the Herat incubator

Source: (*) ASMED; (**) ABADE; (***) <http://afghanistan.buildingmarkets.org/>

Apart from the banking sector, other funding mechanisms are available to innovative SMEs. Venture capitals (VCs) are still a rarity in Afghanistan.



Accessing loans within the banking system is difficult for SMEs

- As of September 2012, loans by Afghan banks to SMEs accounted only for 6.3% of total loans*
- This is partly because of the limited capacity of the recipients to complete the collateral documentations required by the Banks
- Typical corporate loans are not adapted to the needs of Afghan SMEs, with an average mark at \$250k

Several donor initiatives provide grants to SMEs and invest in key infrastructure projects

- ABADÉ is planning to generate massive investment in the private sector within the next four years, with a specific focus on innovation and through **grant mechanisms**
- DFID has created **Imurabba**, the Afghanistan Business Innovation Fund (ABIF) in 2011 running until 2014 to support SMEs
- TFBSO has been operating since 2011 in Afghanistan and is the main supporter of the **International Center for Afghan Women's Economic Development**, which will be launched in May 2013
- The World Bank is funding, through its FSRPP* project, the deployment of a **modernized inter-bank card and mobile payments switch**

Private investment fund, aka VCs are still very rare

- Private investment funds are still a rarity in Afghanistan
- **SEAF-AGF** has been active since **2007** and devoted part of its funding to ICT ventures, including Rana technologies

Source: (*) Da Afghanistan Bank, Financial Supervision Department, Nov. 2012.

Following ASMED, USAID has launched ABADE, its new framework to provide assistance to SMEs in Afghanistan.



ABADE framework

- Time frame: 4-year program, from November 2012 to October 2016
- Implementing partners: VEGA / IESC
- Objectives: increase domestic and foreign investment, stimulate employment within the private sector
- Key targets:
 - Generate \$180 million in private sector investment
 - 365 public-private alliances
 - 41 innovation public-private alliances

Components

SMEs and Public-Private

- Through a competitive process, awards to SMEs ABADE to provide matching grants on a 1:2 basis
- Public Private Innovation Alliance (PPAs) are designed to stimulate innovation focused initiatives. ABADE funding to be matched on a 1:1 basis

Technical assistance and business advisory services

- Technical assistance provided to recipients and program stakeholders, including operations & management, access to finance, and quality

Business enabling environment

- Improve business environment by lifting specific regulatory and procedural barriers, including support to ministries and analytical studies

Roll out

- 1st round of requests for application launched in Feb. 2013
- PPAs innovation alliances (Jan. to Sept. 2013), estimated funding: \$3m, total awards 15, average award \$150k
- SMEs enterprises alliances (Jan. to Sept. 2013), estimated funding \$10m, total awards 100, average award \$250k

The Afghanistan Business Innovation Fund (ABIF) is a donor-backed investment challenge fund that supports innovative projects within traditional private sectors.



ABIF is now into its second competitive round of investment challenge with 7 projects funded so far

- ABIF is a \$7.5 million investment challenge fund financed by DFID & AUSAID, launched in 2011 and due to run until March 2014
- ABIF offers grants as an incentive to invest in **innovative business models**, products, or services / typical grant size is \$250k
- Committed capital to date: \$2.5 million and 7 projects funded
- Key sectors include:
 - Horticulture, livestock, carpets, furniture
 - Health care, household services
 - Mining services



ABIF wants to incentivize, not subsidize

- The challenge is mostly advertised through the partnering networks of AISA and ACCI (including local provincial branches) along with dedicated road shows & workshops
- Throughout the selection process, applicants, supported by the ABIF team and a selected number of BDS firms, move from the initial concept note to a complete Business Plan (BP) / financial model, including a 4-year cash forecast
- The grantees propose different milestones within their BP: **funding is provided upon completing of milestones** supported by documentation, to ensure that the agreed upon investments have been made

Source: ABIF Interview.

One of the grantees of the first round, the Al-Hadi project introduces the first branded pharmacy chain of Afghanistan embedding mobile into its approach.



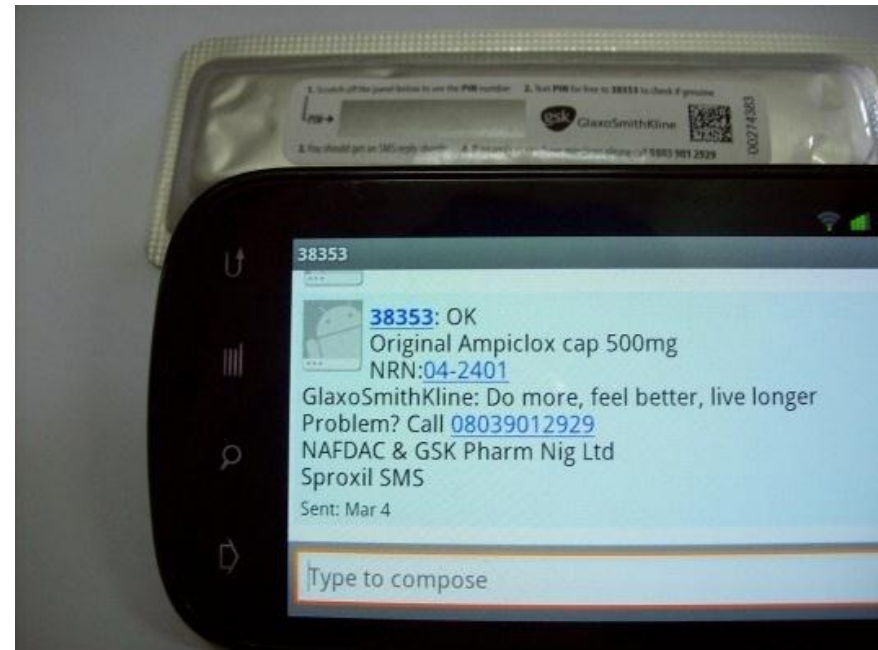
Project background

- Al-Hadi Ltd is a family-owned business active in the pharmaceutical sector since 1994 (import)
- It has the license to import more than 80 products and a national distribution network
- There are to date no pharmaceutical chain in Afghanistan
- **Counterfeit medicines are a real issue on the market**



Bringing in innovation through mobile

- The Al-Hadi project introduces the first pharmacy chain to leverage the **commercial potential of quality assurance** while specifically targeting lower income customers
- **Using mobile technology to support the brand strategy**
 - Every product sold by 786 is barcoded. Customers will be able to send the barcode by SMS to a short code number, 786
 - Once the barcode has been verified against the 786 database, the customer will then receive an automatic reply confirming the product and the expiry date
- **The project is currently in pilot phase**, with 5 shops being set up. If the pilot is successful, 15 additional shops will be launched across Kabul



Source: ABIF.

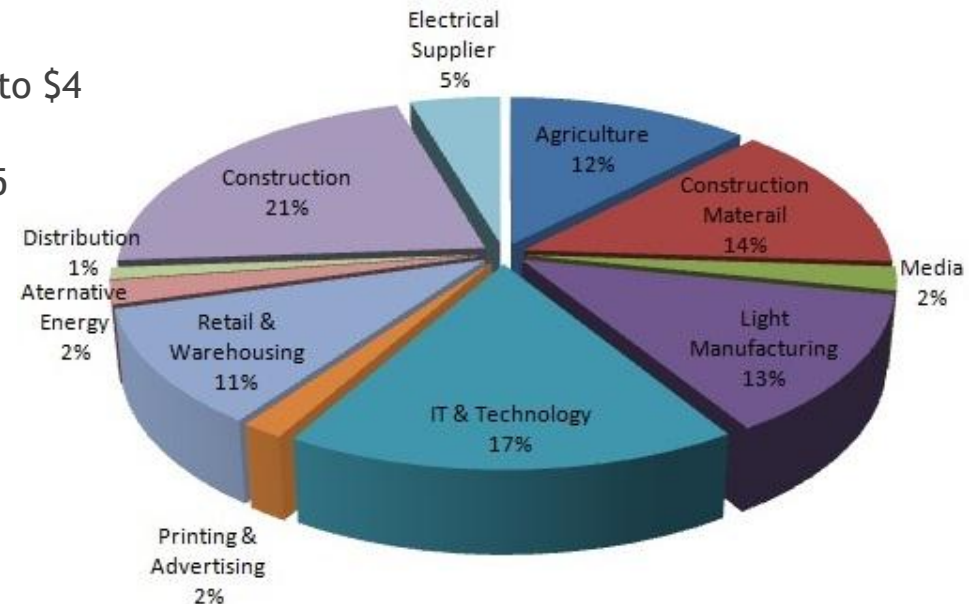
The SEAF backed Afghan Growth Finance (AGF) fund is the most active VC in Afghanistan for SMEs.



Afghan Growth Finance has been active in Afghanistan since 2007

- AGF is a \$55 million investment fund seeking to provide long-term assistance to SMEs
- Investments range from \$100k to \$4 million
- Committed capital to date: \$25 million
- Key sectors include
 - It & Technologies
 - Dry fruits and Nuts
 - Transports and logistics
 - Cold and dry storage
 - Carpets
 - Marble and stone

Sector Breakdown: Total Approved & Disbursed



...and invested, for instance, in Rana technologies

- The objective is to help Rana tech to become first ISP/ICT company to offer broadband Internet services to all 34 provinces of Afghanistan.

Source: SEAF-AGF.

Initiatives within the MCIT, under the umbrella of the E-Afghanistan National Priority Program, have been designed to leverage the mobile infrastructure.



MCIT Policy

- The MCIT has launched several ambitious initiatives to stimulate the IT sector in Afghanistan, while improving the access of governmental services to Afghan citizens
- Those initiatives include:
 - eGov projects
 - mGov projects

The MCIT is implementing 4 mGov projects, funded by the World Bank

1

mGov strategy

- The aim is to formulate the mGovernment strategy and includes governmental employees training

2

Mobile Service Delivery Platform

- Awarded to Paywast/Ustronics
- Includes the development of 30 mobile apps delivering governmental services

3

DEWAE Innovation Support Program

- Awarded to AIMS
- In 4 years, a total of \$5 million will be awarded through grants

4

ICT Village

- The aim is to gather all IT related private and public organizations in the same area
- Includes an ICT incubator

The MCIT is working on formulating the mGov strategy. Training has been provided to governmental employees so that they can identify mobile apps opportunities.



Scope of work

- The aim is to :
 - Formulate the mGovernment strategy
 - Train governmental employees so that they can identify and report opportunities for mobile apps to deliver governmental services
- Timeframe:
 - The report published 2013
 - About 150 governmental employees and 1,500 individuals have already been trained
- Two other documents will be published in the coming months that will help shape the mGov strategy: the **ICT policy and the IT industry report**
- « *The report will provide an assessment of the current situation and a recommendation of the mobile strategy that can be implemented in Afghanistan until 2016*» Mr. Payab - MCIT
- The report emphasizes that although the mGov strategy is centrally designed through the MCIT, its success will require local representatives that can raise awareness and build capacity locally
- Health, education, and agriculture will be addressed as a priority



mGovernment Strategy Formulation and Capacity Building Training for the Government of Afghanistan

A world Bank funded project on the mobile government strategy to have mobile technologies wide-spread in the country for delivering services to the citizens, and on conducting mobile government training of the government officials.

Expressed needs / Opportunities

- Needs to be create synergies between all mGov projects: “all these projects should go hand in hand”
- Capacity building is key

The mGov platform will be set up within the next 6 months with a initial delivery of 10 applications. The platform will be called HOSA.*



Organization in charge

- **Paywast/Ustronics:**
 - Launch year: 2011
 - Location: Kabul
 - Ownership: Subsidiary of UStronics
 - Manager: Khaled Qaderee
 - Staff: 30 employees
 - Core business: Providing SMS-based services



Scope of work

- **Develop and launch a platform that will host and make accessible mobile applications that provide governmental services**
 - The platform will support IVR, SMS, and USSD apps. It will be available in Dari, Pashto, and English
 - The platform will provide hosting to applications developed by private companies as long as they offer a governmental service
 - An API will be provided for approved third party applications to connect to
- **In addition to the platform, 30 mobile applications providing governmental services will be developed**
 - Mobile applications are developed in collaboration with ministries. Apps copyright will belong to the ministries
 - Billing will vary: some apps might be free for end-users, others might not be
- **Timeframe: 24 months contract. 1st step: October 2013, the platform and 10 mobile applications launched**
 - Tentative apps (still in discussion) include: citizen survey, exams results, mobile health alerts, school admissions, transports alerts, disease surveillance and outbreak reporting, request and tracking

Expressed needs / Opportunities

- Create a formal association for mobile developers where they can exchange their ideas (following the model of AMMOA)
- Enhance the current curriculum of universities
- Create a platform similar to the platform developed today for the mGov project to host apps not linked to government services

• Note: (*) HOSA means “easy, convenience”

The Innovation Support Program will last until 2015 with a \$5 million grants to boost the application economy.



Organization in charge

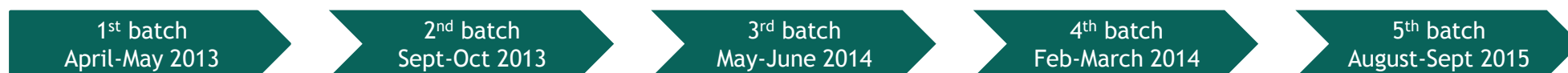
- **AIMS:**
 - Launch year: 1997, a UNDP-funded NGO until 2008
 - Location: Kabul
 - Executive Director: Mr. Azizi
 - Staff: 17 employees
 - Core business: Management Information System and Geographic Information System

Submission to Awarding Process



Time frame and governance

- Time frame: 4-year contract
- \$5 million of grants will be awarded in 5 batches:



- **DEWAE reports to the Special Executive Board** constituted of : two representatives of the MCIT, one representative of the Ministry of Higher Education, one of the Ministry of Education, one of the Ministry of Public Health, one of the Ministry of Rural rehabilitation and development program, one of the Ministry of Agriculture, one of the Computer Science Department at Kabul University
- Applications will be first reviewed by a **Panel of experts**: 7 experts from the public and the private sector will shortlist applications. A **panel of judges**: 3 to 5 representatives from the public and the private sector will award the grants. Members of both panels remain to be appointed

Expressed needs / Opportunities

- Create a mentorship program to accompany grants winners
- Create a technology awareness program
- Create a certification body as there can be doubt on the authenticity of apps and software offered in Afghanistan

The scope of grants focuses on 4 categories with the objective of making governmental services accessible to a wide audience.



Scope of grants

- Process:
 - 4 different types of grants
 - For mTechnology, mGovernance and Students award, AIMS in collaboration with the MCIT will issue challenges on the topic of government services that could be made more accessible. Applicants will have to answer those challenges
 - « It will be a two-way traffic »: AIMS will gather challenges raised by the public and issue some of them for the competition

mTechnology awards

To award and support the development of mobile apps to address challenges and services delivery, program management, and performance management

- 28 Idea awards:
 - Value: \$2,000
 - Concept
- 28 Solution awards:
 - Value: \$5,000
 - Concept + implementation plan
- 28 Practice awards:
 - Value: \$80,000
 - Ready to roll out

mGovernance awards

To reward and support a specific impact through the use of mobile apps for service delivery programs

- 28 Practice awards
 - Value: \$80,000
 - Concepts ready to roll out

Students awards

To encourage innovative and socially geared thinking and ideas, targeting students in the field of technology

- 27 Young ICT Innovator awards
 - Value: \$5,000
 - Mobile apps
- 27 Technologists awards
 - Value: \$5,000
 - Any IT solution

IT Champion awards

To reward the services of people who have contributed to the promotion of ICT in Afghanistan

- 21 IT Champion awards
 - Value: \$2,500
 - The Special Executive Board will nominate those awards

The ICT Village, a public-private initiative will not be operational in the coming year. But an incubator dedicated to support IT entrepreneurs will open by the end of 2013



Organization in charge

- Ownership: MCIT
- Management: through private contractors
- Location: Kabul
- Scope: support to IT entrepreneurs

Scope of work

- The ICT village is a **medium/long-term plan of the MCIT to locate all IT-related organizations in one location in Kabul**: the MCIT office will be established in the ICT village as well as headquarters of private companies such as software companies and Mobile Network Operators
- **Included in the ICT village is the ICT incubator which should be launched in 2013:**
 - It will be located in Kabul. Location is still under discussion
- **The incubator will be set up within the next 6 months; it should be up and running by December:**
 - Currently in the first phase of the request for expression of interest phase
 - Final proposals should be received by end of May
 - Mid-summer: the incubator manager should be in place
- **The Incubator is would possibly host:**
 - Ideas & projects coming out of the Innovation Support Program, DEWAE
 - Talents having gone through the Skills Development Project (World Bank/MCIT)
- The incubator would have to reach sustainability within 2 to 3 years



REQUEST FOR EXPRESSIONS OF INTEREST (CONSULTING SERVICES – FIRMS SELECTION)

Country: Islamic Republic of Afghanistan; Ministry of Communications and IT;

Name of the Project: Afghanistan ICT Sector Development Project;

Project ID: P121755;

Grant No: IDA-665-AF;

Assignment Title: Consultancy Services by a Firm for Incubator Management;

The ICT sector has seen several professional organizations emerging over the past few years.



Professional organizations represent the interest of both the public and the private sector

- **National ICT Council**
 - Formed in 2007 to define & coordinate technological standards across ministries
 - Chaired by 1st VP, members include key Ministers & representatives from private sector, media association, ICT consumers
- **ACSA: Afghanistan Computer Science Association**
 - Founded in 1999 to advance professional excellence in ICT
 - Projects include localization of software, ICT awareness campaign, promotion of internet policy, regulatory reform
- **NICTAA: National ICT Association of Afghanistan**
 - Formed in Feb 2006 as an alliance & umbrella association of non-government ICT players
 - 3 permanent seats at National ICT Council are reserved for NICTAA
- **NISPAA: National ISPs Association of Afghanistan**
 - GIPI-AF (Global Internet Policy Initiative) initiated establishment of NISPAA in 2006
- **iHub**
 - Informal network of IT professionals organizing monthly events open to all
 - Soon to start “weekend code”
- **AMMOA**
 - Newly formed associations of the 4 leading MNOs to promote mobile money
 - Acts as a lobbying and coordinating entity. Sponsored by USAID
- **Open Source Afghanistan**
 - Promotes open source software in Afghanistan
 - Recently held an event at Nangarhar University

3 organizations are covering new grounds

Impactful events have taken place in the past couple of years to mobilize the Afghan ICT community.



Kabul Innovation Lab

- Organized by: **Internews**, sponsored by **USAID**
- Participants are media, information and ICT and companies and NGOs
- Goal: **To develop innovative technology-based systems to improve the reach of the media, professional standards, and quality of content**

Latest: **February 11th to 14th 2013**

- Frequency: once a year
- 1 day session and 3 days workshop
- Number of events completed: 2
- Location: in Kabul



Open Source Afghanistan

- Organized by: **Open Source Afghanistan**, last event sponsored by **FirstRate Afghanistan** (private ICT company)
- Participants are ICT students and professionals
- Goal: **Provide awareness and training on Linux and Free/Open Source Software (FOSS)**

Latest: **February 19th to 21st 2013**

- Frequency: once a year
- 3 days event
- Number of events completed: 7
- Location varies. The last event was organized in Jalalabad



iHub

- Organized by: **Farshid Ghyasi** (Netlinks) and **Javid Hamdard** (Internews)
- Participants are ICT students and professionals, any ICT enthusiast
- Goal: **informing the ICT community on opportunities in Afghanistan and on the latest technologies available**

Latest: **April 3rd 2013**

- Frequency: once a month, usually the first Thursday of the month
- A couple of hours long sessions
- Number of events completed: 12
- Location: in Kabul



The most active donor in Afghanistan on ICT and entrepreneurship is USAID, as well as the World Bank and DFID.



USAID
FROM THE AMERICAN PEOPLE

FAIDA

- The Financial Access for Investing in the Development of Afghanistan program is helping the Afghan government and the private sector develop a robust financial sector. Includes AMMOA, which groups the four main MNOs of Afghanistan and aims at developing the mobile money economy



- ABADE is succeeding ASMED with a goal to generate \$180 million of investment in the private sector, targeting SMEs and innovation, with a initial target of more than 400 recipients

mSTAR

- The Mobile Solutions Technical Assistance and Research program aims at fostering the rapid adoption and scale-up of mobile money, mobile technologies, and mobile data solutions



TASK FORCE FOR BUSINESS AND STABILITY
OPERATIONS

- TFBSO's initiatives include the Herat incubator and the American University



- Event aiming at developing innovative technology-based systems organized once a year since 2012 by Internews



THE WORLD BANK
Working for a World Free of Poverty

- Funds the deployment of a modernized inter-bank card and mobile payments switch
- Funds 4 mGov projects for the MCIT: i) mGov strategy, ii) Mobile Service Delivery Platform, iii) DEWAE Innovation Support Program, iv) ICT Village
- In collaboration with GIZ, funds the New Market Development Project, which aims at the revitalization of private sector activities in Kabul, Mazar, Jalalabad and Herat

giz



Department
for International
Development

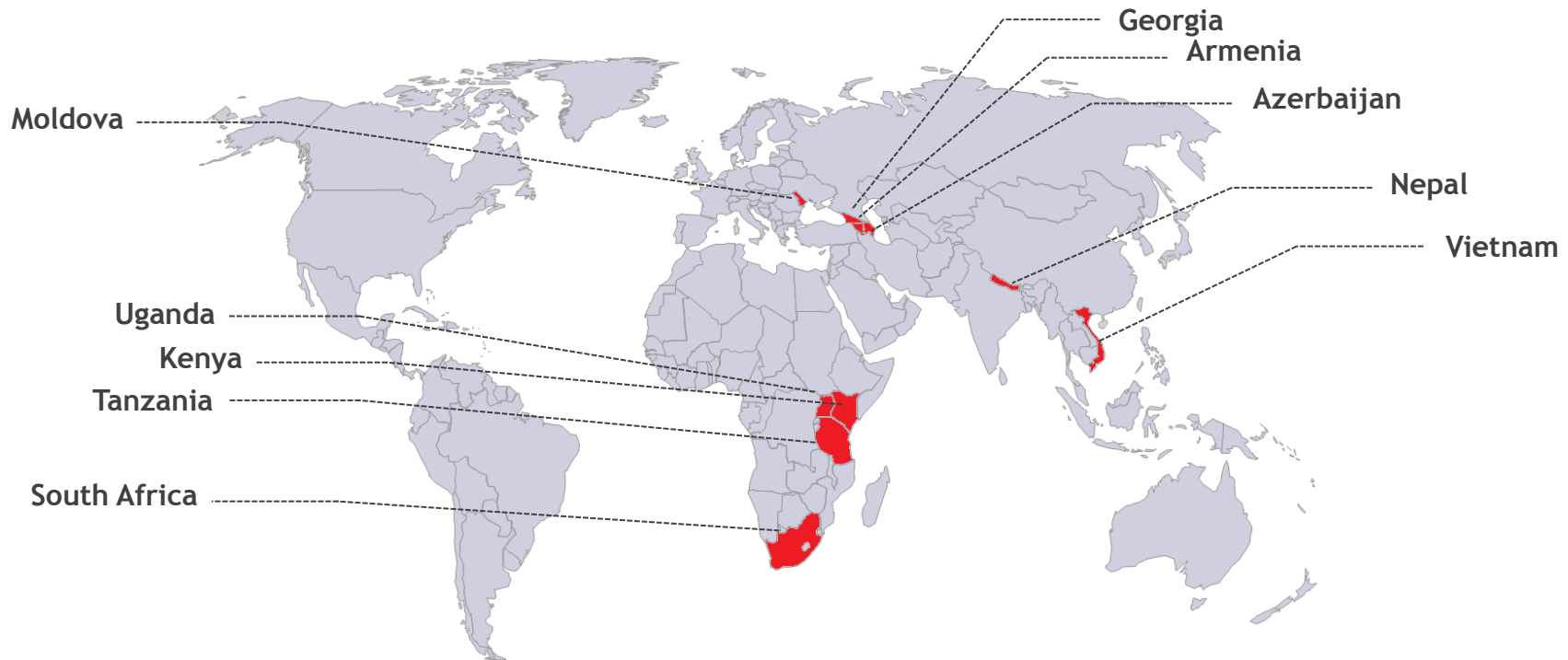
- Funds Imurabba, previously known as ABIF (the Afghanistan Business Innovation Fund): a **\$7.5 million investment challenge fund** financed by **DFID & AUSAID**, launched in 2011 and due to run until March 2014. Offers grants as an incentive to invest in **innovative business models**, products or services / typical grant size is \$250k. Committed capital to date: \$2.5 million and 7 projects funded.

1. Introduction
2. Mapping of the Business Environment for SMEs in the ICT Sector
- 3. Description of Current Initiatives Outside the Country and Relevance to Country**
 - 3.1 Introduction**
 - 3.2 Three Models**
 - 3.3 Lessons Learned**
 - 3.4 Best Practices / Suggested Ideas**
 - 3.5 Operational KPIs**
 - 3.6 Financial KPIs**
4. Opportunities for Incubation in Afghanistan
5. How we Plan to Accelerate the Mobile Ecosystem in Afghanistan
6. Implementation of the Mobile Ecosystem Enhancer

Some infoDev activities are focused on mobiles. Its program Creating Sustainable Businesses for the Knowledge Economy program (CSBKE) has supported 12 initiatives to date.

Promote and support mobile entrepreneurship

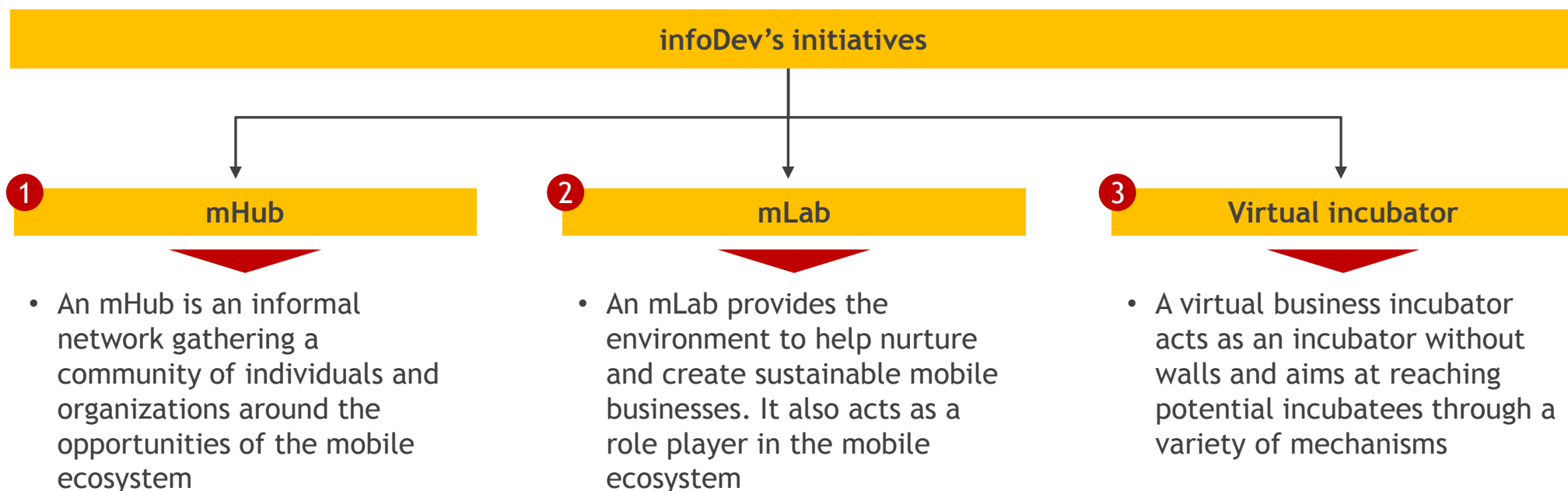
- CSBKE was launched in 2010 and is based on a public/private partnership with the Ministry of Foreign Affairs of Finland and Nokia
- With a focus on mobile applications, business incubation, and technology entrepreneurship, it has supported the launch of 10 regional initiatives



Reviewing infoDev supported initiatives in other countries sheds light on different concept models* than can be used to engage entrepreneurs around mobile technology.

mHub, mLab, and virtual incubator follow different models

- All initiatives are designed to **maximize the development impact of mobile technology and generate innovative entrepreneurship**
- The concept models are different and go from a light footprint model based on social networking—mHub—to a full incubator model—mLab
- The virtual incubator model is an alternative model, focusing more on supporting entrepreneurs than on technology
- Depending on the countries and initiatives, **governance schemes vary** (and range from NGOs to fully private contractors)



Note: (*) The models are here presented for the purpose of discussion. Initiatives on the ground adjust to local market conditions and are often built on a portfolio of services across models.

An mHub is an informal network gathering a community of individuals and organizations around the opportunities of the mobile ecosystem.

An mHub is a social networking hub

- A mHub is a **social network** focused on mobile
- Its aim is to **bring together organizations and individuals** who are interested or willing to work around mobile technologies
- It is an **informal network** building a community of shared practice, lobbying to lift the constraints of the ecosystem and channelling opportunities

Based on informal meetings, it brings in mobile-centric events to the community

- The social networking hub is typically based on:
 - **Regular informal meetings** bringing together industry professionals, individual developers and academics
 - An **online platform** acting as a forum and a networking tool for the community
- In addition, mHub can be used as a **channel to advertise or organize specific events** such as:
 - Hackathon
 - Challenges and contests
 - Informal meetings with VCs

And does not need any specific governance requirements

- As it is mostly based on informal networking, an mHub **does not require any specific governance in the way it is designed**, at least in the early stages
- It can be **endorsed or animated by a private organization** whose business interests are in line with the emergence of an active innovative mobile scene

The infoDev supported program in Nepal, Mobile Nepal shows what can be achieved by setting up a networking hub.

Key figures

- Mobile Nepal, a mHub, started its activities in June 2012
- Location: Nepal
- Ownership: **local private contractor YoungInnovations**
- 1 full time project manager + 1 project coordinator
- Budget : \$25k for 2 years / additional grants from the WB (\$15k + \$25k) to organize events
- Funding secured for 2 years

Services and activities

- **Raise awareness among students about the potential of mobile for innovation**
- **Programs at university, training sessions, and modules**
- **Competition and challenges, including hackathon**
- **Pitching events, idea submission**
- **Online forum, discussions and community**



Projects

Among the many projects of Mobile Nepal

- **Hackathon:** 3 organized so far. The latest included 39 participants, 10 applications developed over 2 days, and 3 winning apps
- **Training:** 6 sessions, including 1 iOS, 3 Android (basic), and 2 development fest in association with Google Developer Group
- **Workshop:** 1 advanced workshop on Android apps development
- **Outreach and talk program:** focus group discussions, visits to universities to raise awareness around mobile applications, organized events
- **Regular meetings:** every 2nd and last Saturday of the month, open discussions around mobile technology
- **Events:** Pivot Nepal currently running, competition for mobile app ideas, 116 submitted, 15 selected, \$1,000 for the top 3 ideas, \$3,000 for the winning idea

Local mobile ecosystem

- Mobile penetration in Nepal: 62%, 3G available but only covers 30% of the population. Smartphone penetration remains low
- No access to international credit card; thus, billing is an issue with mobile money still in its infancy

Mobile Nepal was built on: starting small, an appetite for constantly bringing new ideas, and the involvement of a private actor.

Thoughts on the mobile app sector

- Mobile entrepreneurship is mostly smartphone apps and most developers are focusing on this ecosystem:
 - *“As a company we have worked with the ministry of public health to launch a SMS-based app. It took us 2 years to launch the solution which is too long for young entrepreneurs.”*
- Creating a local app store is an option to bypass the billing constraint:
 - The local app store will work only on Android
 - It will require cooperation from the MNOs



Key learnings

- Built the community first and then establish the partnerships:
 - 10 to 15 champions have been identified to get traction from the communities
 - The large set of partners includes business organisations, such as the local Chamber of Commerce for Pivot
 - *“Focusing on mHub, and getting to know the sector and be identified within the sector was good.”*
- Always bring new ideas into the hub to keep up the brand:
 - Topics and organization of the hackathon have constantly changed
 - New events and meetings organised (Pivot, Spaceapps challenge)
- To have a private company in charge of the program brings additional value

An mLab provides the environment to help nurture and create sustainable mobile businesses. It also acts as a role player in the mobile ecosystem.

An mLab is an infrastructure for mobile entrepreneurs

- An mLab will have a physical location, incubating technology entrepreneurs who can interact, work, gain access to tools and expertise to start and grow their businesses
- It also aims at playing a leading role in the mobile ecosystem, supporting nonresidents and acting as a gateway to access industry players and investors

It offers a wide range of services both to residents and nonresidents

- **Residents benefit from premium services on site:**
 - Office space / Internet access / testing facilities / equipment
- In addition, a wide range of services are proposed to both residents and nonresidents:
 - Training / workshops
 - Consulting / mentorship
 - Access to investors
- The location is often used to organize various events in relation with the community:
 - Mobile Monday, code sharing, contests, hackathon, and others

Governance schemes can vary

- An mLab can be an NGO, run by a private organization or by a consortium of organizations
- Given the wide objectives of an mLab, a consortium of organizations seems to be appropriate as it brings together various stakeholders with each its own area of expertise, for example, university, private IT venture, government

mLab East Africa was launched as an incubator, based on a consortium of 4 public and private organizations. It hosts a yearly start-ups pitching competition: Pivot East.

Key figures

- mLab East Africa started its activities in 2011
- Location: Nairobi, Kenya, but also covers Tanzania, Uganda, Rwanda, Burundi
- Ownership: Consortium of 4 organizations, public and private
- Team: CEO, 2 assistants, 1 admin, 1 com, 1 tech, 1 social media
- Budget for 2 years: \$700k grants, \$350k generated revenue. Objective of 50% self-funded for 2013

Services and activities

- Incubation space and facilities
- Support mobile entrepreneurs
 - Training
 - Business skills
 - Access to finance
- Marketing intelligence
- Training programs
- Events (hackathon, Devcamp)
- Challenges



Incubated projects & tools

- 6 incubated projects supported with a target of an additional 5 in 2013:
 - 3 projects targeting mass market, through health, students, agriculture
 - 3 projects focusing on businesses, 2 products with mobile payment for retailers and one mobile marketplace
 - In addition, mentorship and other incubation services provided to another 5 companies
- The main channel to reach the target audience is through the organization of a yearly competition: Pivot East
 - It is a start-ups pitching competition, on a regional base. Advertised through social media, dedicated workshops, and road shows
 - All entries are managed online, processed by a jury
 - The event is sponsored by major players of the industry: Qualcomm, Intel, Microsoft, Facebook, and Nokia

Local mobile ecosystem

- Mobile penetration: 30m mobile subs, 3G coverage in all major cities, smartphone penetration around 2m, Android lead
- Access to billing remains a big challenge for developers and editors of content and services

For mLab East Africa, building a sustainable model requires to bank on start-ups targeting mass market.

Thoughts on the mobile app sector

- **Developers and business model**
 - Strong belief that skills and money will come from the mass market. *“The idea is to support companies that will scale beyond service / commissioned development.”*
 - Looking for \$35k to \$50k micro VCs, *“We are trying to build a community of local investors, which could help bridge the gap between expectations of the VCs versus the capacity of the start-ups.”*
- **mLab as an equity partner?**
 - *“Long-term revenues for the lab will come from the success of the people we incubate.”*



The Pivot East 2012 edition

Key learnings

- **mLab East Africa is a consortium of 4 organizations, both private and public, each bringing an area of expertise**
 - eMobilis: a training institute, focusing on mobile software
 - iHub: bringing the network and the reach to the tech community
 - The University of Nairobi / School of Computing
 - World Wide Web Foundation, for curriculum and content
- **The challenge of sustainability**
 - Building the physical premises took a lot of capital expenditures and time
 - *“A lot of our operations have revolved around fundraising, instead of delivering.”*
 - Once brand is installed and strong partners and sponsors on board, it has been possible to sponsor each space of the premises

A virtual business incubator acts as an incubator without walls and aims at reaching potential incubatees through a variety of mechanisms.

Virtual business incubators are concentrating on services

- A virtual business incubator goes **beyond a physical space**
- **Three types of concepts exist:**
 - Incubators offering mainly business development services
 - **Networking focused incubators**
 - **Finance focused incubators**

Services are delivered to entrepreneurs to help them get their business off the ground

- Virtual incubator will focus on three types of different service concepts: **training and mentoring, networking, and seed capital**
- **Training and mentoring:**
 - The focus is on developing entrepreneurial capacities to get start-up off the ground. Typical example is to connect a would be entrepreneur with a mentor to coach the business plan phase
- **Networking:**
 - The aim is to bring together entrepreneurs and investors into the same network. Typical examples are business plan competition or mobile Mondays
- **Seed capital:**
 - The objective is to provide seed investment capital combined with short or long term mentoring

Governance can vary depending on the type of services

- **Governance of virtual incubators may vary depending on the type of services provided**
- **Examples of governance vary from foundation to private venture**

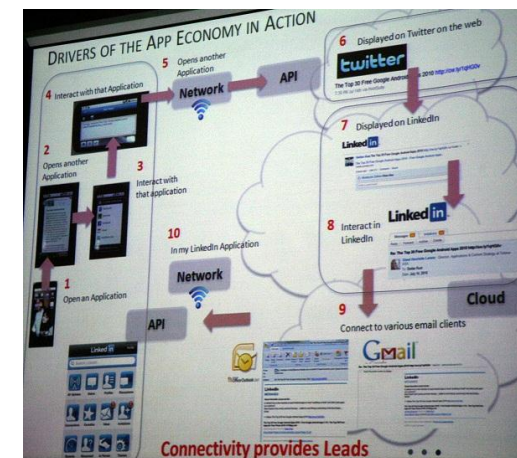
The virtual incubator in Vietnam is supporting the existing state-owned incubator as well as building a network of entrepreneurs and investors.

Key figures

- Location: Hanoi also covers main cities in Vietnam
- Ownership: **private Topica** (main business is eLearning)
- Team: 1 project manager, 1 admin, 2 team members
- Budget for 2 years: \$300k grants. Objective of sustainability within 2 years

Services and activities

- **Mobile social network:**
 - Demo days
 - Development camps
- **Virtual incubator / support to entrepreneurs, incubators:**
 - Start-up events
 - Training for incubation managers
- **Virtual incubator / network of investors:**
 - Develop network of international and local investors / business angels



Projects & tools

- **Initial KPIs:** 8 mobile events - 700 participants, 5 start-up events- 500 participants, Demo day events - 100 participants, investment network - 10 deals generated
- **Training to Vietnam incubators managers:**
 - Mostly directed at government run incubators. Ongoing training sessions based on use cases (start-up & entrepreneurs)
- **Start-up events**
 - Close links with all main universities. Very successful in attracting young audience to events, mostly mobilizing through Facebook (9,000+ followers)
- **Investment network:** business angels group set up, but no investment generated so far
 - The event is sponsored by major players of the industry: Qualcomm, Intel, Microsoft, Facebook, Nokia

Local mobile & ICT ecosystem

- Mobile penetration: 3G widely used in all major cities, smartphone penetration: iOS, Android, Windows
- Private mobile software ventures exist, only small size. Most of the services billed are through MNOs, with revenue share for editors

Topica has come up with a simple and cheap way to build a strong network of would be entrepreneurs, targeting mostly the youth.

Thoughts on incubation & the local ICT sector

- **Target the youth:**
 - Vietnam has numerous start-ups in the ICT domain
 - Topica has been targeting students, mostly through universities and entrepreneurs clubs
 - *“They are the ones who are missing the finance and the capacity for IT.”*
- **Network: online and regional**
 - The network has been mostly consolidated through a very active online community via Facebook
 - But also completed by a set of satellite centres to reach the region, through contacts with local students and entrepreneurs clubs



A start-up event in a coffee shop

Key learnings

- **A simple methodology to build the virtual network:**
 - Mostly based on organizing events for entrepreneurs to network
 - Potential investors are also coming
 - The venue generally takes place in a coffee shop, with a deal with the owner => no cost
 - 700 entrepreneurs reached so far
- **For Topica, supporting this initiative is complementary to its core business:**
 - Main business is on eLearning. By building the network of entrepreneurs, Topica gets access to use case, for which they produce online videos that they distribute on their eLearning platform, as online teaching material
 - They are quick in delivery, able to take risk and to provide the business support

Some lessons learnt are common to all models. Others are specific to each model.

Lessons learnt across all models

- The key is to understand **who you are serving and what are their needs. Building on the community you want to reach is a critical first step**
- **Once the community is built, the brand becomes strong.** It is then possible to attract a large set of partners & sponsors that will generate revenues and make the brand even more relevant to the community
- **Designing the appropriate governance for the model is important.** Whether a foundation, an NGO, a private company, the governance has to be in line with the overall objectives

1

mHub

- Use a limited number of champions to build the community: once on-board they will act as ambassador for the hub and bring their network of partners and individuals
- New ideas are constantly needed to keep the community attracted, whether it is events (for example, hackathon) or opportunities (new challenges) or exposure to a new technology (training on latest Android API)

2

mLab

- Building or setting up the physical premises can take a lot of time and capital expenditure...
- ... which can divert from delivering other services or getting the brand & the community installed
- A secured place can become a disadvantage as it makes the mLab less accessible to the audience it wants to reach
- In a place where you don't have the critical mass of innovators, you might need a physical place where individuals can come together and support each other

3

Virtual incubator

- Possible to be creative in organizing events at no cost
- Events are organized based on existing networking organizations (students groups, clubs)
- Online social network support the consolidation of the community
- Attracting and building the network of business angels is not a short term effort, it requires more time and effort

Best practices have emerged among the initiatives interviewed: they include focusing on design, internship, and tools all built to fill in the gaps.

Enhance product design

- Some labs have built up a specific offer or a range of services in regards to product design:
 - Based on findings that the capacity to design products (user interface, user experience) was poor
- Expertise and training are provided to incubatees and nonresidents to:
 - Select the appropriate platform for their project
 - Understand and get trained on how to design a best in class application
- This new area of expertise also provides more attractiveness toward the lab reinforcing its position as a hot bed for innovation
















Provide internship and mentorship opportunities

- In most of the countries where infoDev initiatives are based, it is hard for developers to try and find an internship in relation to new mobile technology
- Some labs have created and provided internship opportunities for young graduates or individual developers to be able to get their first experience in developing application
- The interns are mentored by experts from the labs, receive training and work directly on a project or idea generated by the lab and the community















Open access to the mass market

- Access to billing is a constraint common to many emerging countries
- Some labs are trying to tackle the issue either through a dedicated portal that would be operated by the lab or through the project of an incubatee (for example, a start-up who wants to provide a market place)

Five operational KPIS have been defined as a framework to identify which model can be operationally successful in a given context.

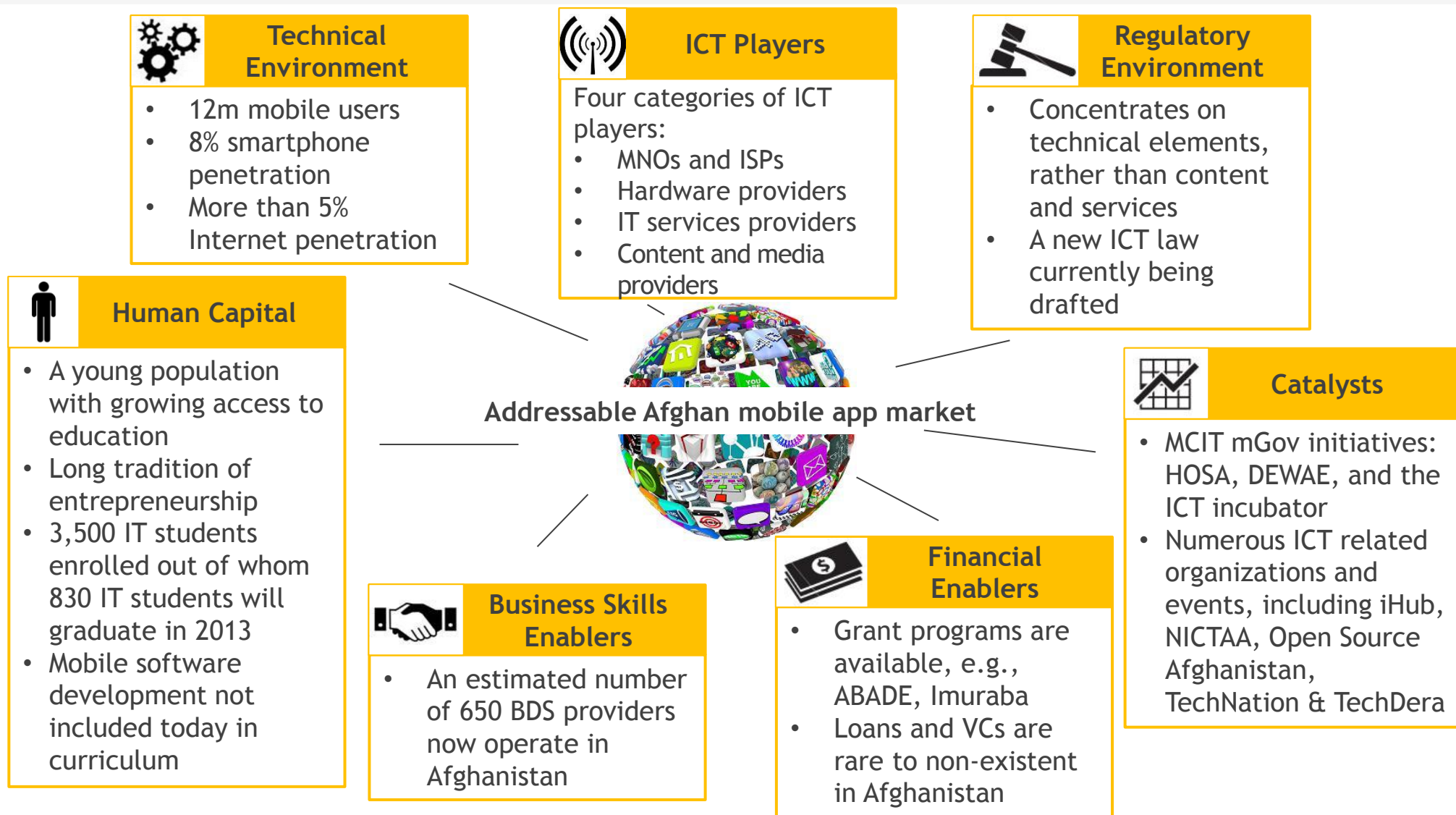
KPIS	<ul style="list-style-type: none"> Definition Typical output 	mHub	mLab	Virtual Incubator Based on mentoring model
Reach & community	<ul style="list-style-type: none"> Ability to engage with the community # of IT individuals 	 <ul style="list-style-type: none"> Based on events Dependent on online tools 	 <ul style="list-style-type: none"> Lab = innovation hot bed + focal point Access to nonresidents also through events 	 <ul style="list-style-type: none"> Limited community mobilization Engagement through mentorship
Brand	<ul style="list-style-type: none"> Brand equity x% of brand awareness / equity 	 <ul style="list-style-type: none"> Mostly online Dependent on community 	 <ul style="list-style-type: none"> Both online + physical location Dependent on community 	 <ul style="list-style-type: none"> Mostly online Impact of quality of ideas / projects
Services	<ul style="list-style-type: none"> Scope of services provided # of projects / indiv. supported 	 <ul style="list-style-type: none"> Mostly events and informal gatherings Depends on partnerships 	 <ul style="list-style-type: none"> Full scope provided to residents To nonresidents through events and meeting 	 <ul style="list-style-type: none"> Mostly focused on access to finance & business development services Mentorship
Partnership	<ul style="list-style-type: none"> Capacity to generate partnerships # of partners 	 <ul style="list-style-type: none"> Specific as per type of events or community addressed 	 <ul style="list-style-type: none"> Strong potential of physical location Event based 	 <ul style="list-style-type: none"> Limited to challenges / contests organized And / or quality of ideas catalyzed
Access to finance	<ul style="list-style-type: none"> Depth of financial support provided # of projects funded 	 <ul style="list-style-type: none"> Through challenges & networking events only 	 <ul style="list-style-type: none"> Incubated projects act as a showcase Capacity to attract the best ideas 	 <ul style="list-style-type: none"> Core expertise of such incubator Capacity to attract the best ideas

Building a sustainable model remains a challenge. Each model has its own strengths and weaknesses.

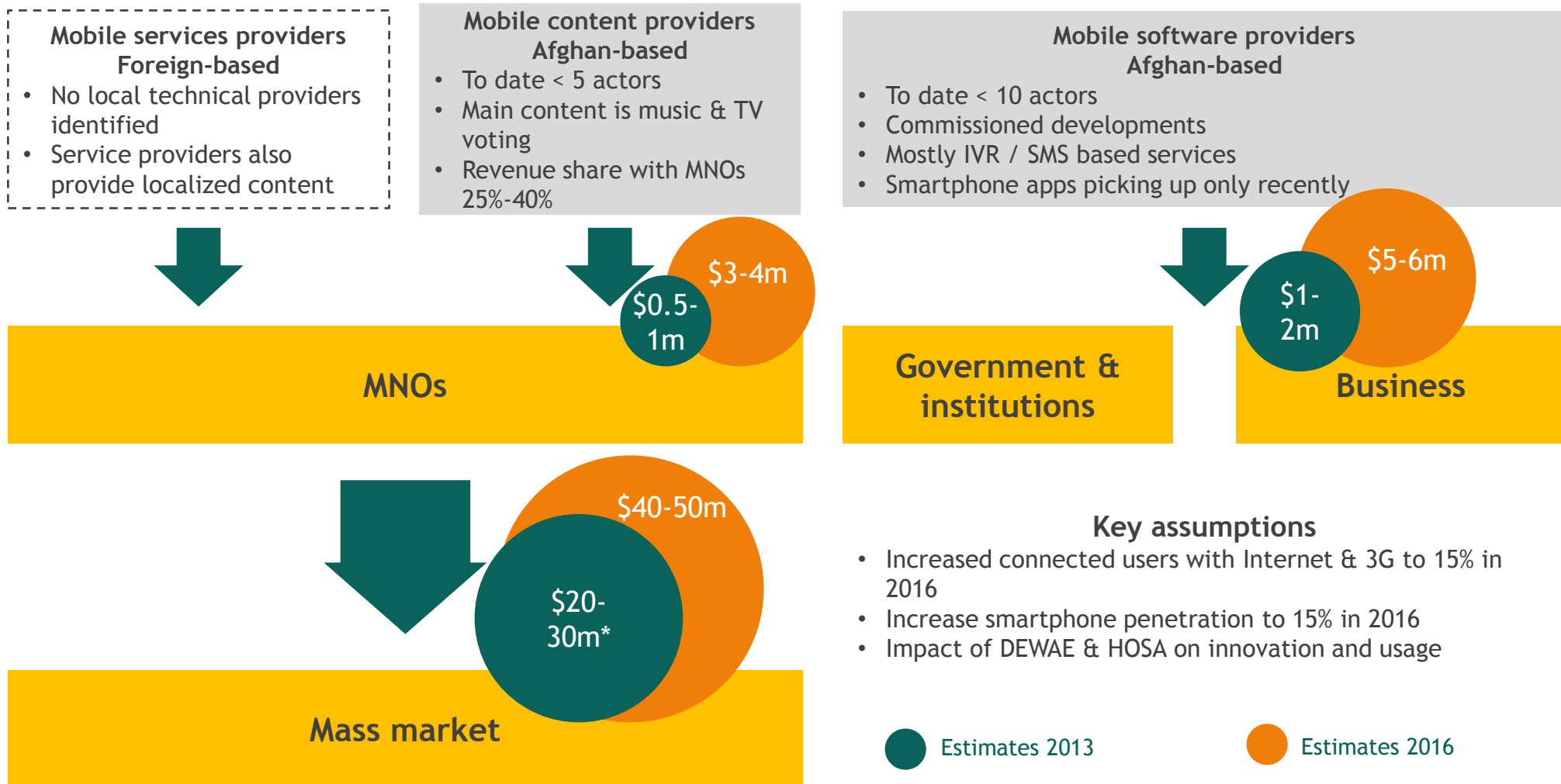
KPIs	• Definition • Typical output	mHub	mLab	Virtual Incubator Based on mentoring model
CAPEX	<ul style="list-style-type: none"> Level of Capex required x% of total budget 	 <ul style="list-style-type: none"> Low Capex required 	 <ul style="list-style-type: none"> Cost of setting up physical location 	 <ul style="list-style-type: none"> Low Capex required
OPEX	<ul style="list-style-type: none"> Level of running cost x% of total budget 	 <ul style="list-style-type: none"> Limited to management team Event based 	 <ul style="list-style-type: none"> Management team + maintenance of location Event based 	 <ul style="list-style-type: none"> Limited to management team Event based
Revenues from partners	<ul style="list-style-type: none"> Revenues generated from partners x% of running cost 	 <ul style="list-style-type: none"> Mostly from sponsoring events Limited contribution to running cost 	 <ul style="list-style-type: none"> From sponsoring events From physical location (rents) 	 <ul style="list-style-type: none"> Mostly from sponsoring events Limited contribution to running cost
Revenues from services	<ul style="list-style-type: none"> Revenues generated from services x% of running cost 	 <ul style="list-style-type: none"> Based on sponsorship, e.g., Industry sponsor for a training session 	 <ul style="list-style-type: none"> Access to office space or testing labs Mostly sponsorship 	 <ul style="list-style-type: none"> Access to business development services
Revenues from capital investment	<ul style="list-style-type: none"> Revenues generated from capital x% of running cost 	<ul style="list-style-type: none"> Not applicable 	 <ul style="list-style-type: none"> Possible if governance allows equity Commissioned based e.g. % of funding raised / apps published 	 <ul style="list-style-type: none"> Possible if governance allows equity Commissioned based, e.g., % of funding raised / apps published

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 - 4.1 Overview of the Mobile App Ecosystem in Afghanistan**
 - 4.2 Sizing the Opportunity**
 - 4.3 How to Get There?**
 - 4.4 Key Triggers**
 - 4.5 Applying the Most Appropriate Model in Afghanistan**
5. How we Plan to Accelerate the Mobile Ecosystem in Afghanistan
6. Implementation of the Mobile Ecosystem Enhancer

An overview of the ecosystem of SMEs in the ICT sector can be provided through seven essential components:



The mobile app market is deemed to grow from \$21.5-33m to \$48-60m. The main growth potential concerns SMEs, be it mobile content or software providers.



Source: Estimates based on mobile applications in Afghanistan, a World Bank report, international benchmarks, and interviews with actors; (*) Based on current VAS estimate of which 90% is RBT.

Serious gaps have been identified when it comes to seize the mobile app opportunity in Afghanistan.

1

People & Skills

- Lack of awareness: awareness of mobile technology and its opportunities remains low, including among IT students. This is not a surprise since so far no IT institute includes mobile app development in its curriculum
- Skills and experience: companies often remark that their junior employees, although IT graduates, lack not only skills in mobile app technology but also practice in IT in general

2

Accessing Tools

- A majority of Afghans don't speak English and even if developers and ICT students are more likely to, English fluency remains inconsistent
- Mobile apps development necessitates tools. Some of those tools are open source and easily available online but remain inaccessible to Afghans because of language and cultural barriers

3

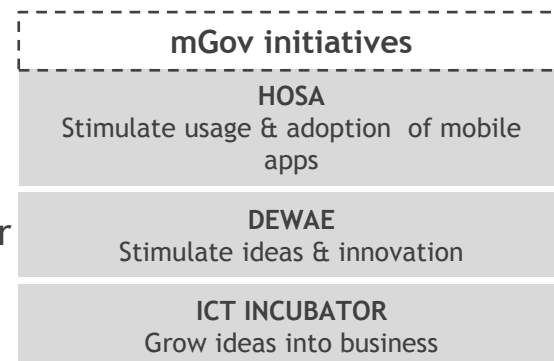
Accessing the End Users (that is, the mass market)

- The developers and entrepreneurs mastering mobile technology and who have identified opportunities complain of barriers to access the mass market:
 - Most Afghans don't have a compatible handset
 - When they do, most don't know about the platforms (for example, iTunes)
 - When they do, most don't have credit cards or payment means
- The only channels for independent developers and entrepreneurs in Afghanistan today are:
 - Commissioned development, i.e., not the mass market
 - Negotiating with the MNOs

3 areas have been identified to deepen the support to the mobile ecosystem. These should come as a complement to the MCIT / mGov initiatives and the growing networking arenas.

Build on the momentum around HOSA, DEWAE, and the ICT incubator

- With 10 government applications available before the end of the year, **HOSA can have a positive collateral effect in boosting apps usage & adoption**
- **DEWAE aims at supporting the emergence of innovative ideas** both from students and the ICT sector
- The ICT incubator is to focus on **bringing sustainable innovative ICT SMEs to the market**



Leverage the existing networking arenas

- With the **networking activities deployed by several organizations**, e.g., iHub, NICTAA, Open Source Afghanistan, and TechNation & TechDera, **a tech community is emerging**
- It provides an **active arena of tech-driven individuals and institutions**, both from the academic and private sector that can be leveraged



How could infoDev accelerate the mobile app sector growth in Afghanistan?

- In collaboration with the existing initiatives, there still is a need to deepen the support provided to the mobile ecosystem in Afghanistan. Initial scope should include:
 - 1 Increase awareness, skills, and access to practical experience
 - 2 Provide tools, derived and localized from mobile open source software, to accelerate the adoption of mobile technology by entrepreneurs
 - 3 Enable access to the mass market and the capacity to monetize services, by creating an alternative application distribution mechanism for SMEs

Immediate opportunities for action include raising awareness around the mobile ecosystem, increasing the skills in mobile software, and improving hands-on experience of IT students.

Raise awareness around mobile ecosystem opportunities

- The level of awareness among individuals and SMEs about the business potential of mobile technology is still low
- Initial efforts should be put into creating a community of interests around mobile opportunities
- A natural first step is to increase this through events (competitions or hackathons)
- This should also be done through industry partnerships (all main platforms and technology providers), who can provide training boot camps and challenges

Adapt the skills to the mobile ecosystem

- To date, none of the IT institutes, whether private or public, provide specific training on mobile software development
- All stakeholders interviewed were interested and ready to adjust their curriculum to include mobile software development courses
- This should be adapted as per the current market demand, with a focus on java, SMS, and IVR technology, as well as anticipate the demand for the next generation of native apps based on major operating systems and technologies

Increase experience of IT students with mentorship and internship

- Most ICT private actors interviewed stated that IT graduates lack hands-on experience
- All IT institutes suggested that they would be more than ready to give to their students internship opportunities and project-based courses
- This gap can be bridge by:
 - Adjusting curriculum to include compulsory internships
 - Building partnerships among ICT private sector companies and the main IT institutes to provide internships & projects opportunities

Providing mobile open source tools that are relevant to the Afghan market could help accelerate adoption by tech entrepreneurs of business ideas & projects.

Select open source mobile software

- Select a list of open source tools and software relevant to the Afghan context taking into account the business potential per sector
- Open source mobile software are available on all platforms and can address many business issues / sectors:
 - eLearning
 - Data collection and monitoring
 - Content publishing tools
 - Streaming radio
 - Geo-localization tools

Provide a localized version and bring it to the community

- Support private and public initiatives to produce a local (Dari, Pashto) and documented version of the software
- Bring the set of localized tools to the community of developers, entrepreneurs, and training institutions who can then use them to:
 - Learn and improve their technology skills
 - Launch projects and prototypes to improve hands-on experience
 - Grab a business opportunity provided by the technology with a minimum of investment in capital and little barrier to entry

Accessing the end users remains a hurdle. Replicating HOSA, with a dedicated distribution platform for apps coming from the private sector, would benefit the whole ecosystem.

A independent platform for service & content providers

- The platform would provide **integrated billing access** (via airtime and mobile money) to all MNOs
- It would act as a **distribution portal for content & service providers enabling SMEs to target the mass market easily and bill content and services**
- It should be designed to benefit all stakeholders: users, MNOs, providers

Benefits for MNOs

- Boost of app usage
- Revenue share deal
- Identification of talented SMEs



Benefits for mobile content & service providers

- A unique brand is marketed as providing local content & services: heighten reach
- Direct access to end users and integrated billing system with all MNOs
- Revenue share deal



Platform

- The platforms allows access to IVR, java and SMS... • The platform is marketed under a unique brand
- ... as well as smartphone apps



Benefits for the end users

- Users are exposed to one brand, marketed as the portal that delivers local content and services
- Access to the platform is free of charge
- Services are available across all networks
- Each service listed by the platform can be free or at cost
- Users are billed as per airtime or using mobile money payment

The mHub model would concentrate on providing mobile centric services, with the primary objectives of complementing the mGov initiatives and existing networking arenas.

KPIs	Pros	Cons
Reach & community	<ul style="list-style-type: none"> Comes as a complement of ICT incubator and in support of existing social network Focus on marketing the MCIT initiatives 	<ul style="list-style-type: none"> Difficulty to raise interest among developers with no physical location No ownership of events & ideas
Brand	<ul style="list-style-type: none"> A brand could be built around the tools provided (such as HOSA or Open Source tools) 	<ul style="list-style-type: none"> Brand could be inaudible if strong efforts in marketing other initiatives are made in parallel without synergies
Services	<ul style="list-style-type: none"> Services designed to support identified gaps Focus on mobile technology training and training on tools 	<ul style="list-style-type: none"> Can drain out interests from community of developers and entrepreneurs Maintenance of the tools
Partnership	<ul style="list-style-type: none"> Dedicated partners for the tools Partnership with IT institutes on training and projects 	<ul style="list-style-type: none"> Links more difficult with private actors Capacity to attract sponsors
Access to finance	<ul style="list-style-type: none"> Could be added but not the primary focus 	<ul style="list-style-type: none"> Redundant with the role of the ICT incubator?
Sustainability	<ul style="list-style-type: none"> Very low Capex needed, limited Opex Capacity to attract sponsors to self fund events & training 	<ul style="list-style-type: none"> If low brand equity, impact on capacity to attract sponsors

Note: (*) The models are here presented for the purpose of discussion. Initiatives on the ground adjust to local market conditions and are often built on a portfolio of services across models.

The mLab model would provide the full scope of services, be strongly supportive of the private sector, and be solely dedicated to the mobile ecosystem.

KPIs	Pros	Cons
Reach & community	<ul style="list-style-type: none"> Physical location: a must to catalyze the community Focus on marketing the MCIT initiatives 	<ul style="list-style-type: none"> Comes in competition with all other ICT incubators, even though it is purely focused on mobile Community is too small?
Brand	<ul style="list-style-type: none"> Brand could be built on full scope: services, tools, hot bed for innovation Easier to establish links with private sector 	<ul style="list-style-type: none"> Can come in competition with branding effort of ICT incubator if not hosted in the same structure
Services	<ul style="list-style-type: none"> Full scope of services provided Possibility to set up internship and mentorship programs onsite 	<ul style="list-style-type: none"> Redundancy of services offered by different incubators Need to coordinate incubators in order to avoid duplication
Partnership	<ul style="list-style-type: none"> Physical location is an asset to attract sponsors and establish long term partnerships 	<ul style="list-style-type: none"> Too many recipients, risk of too few sponsors and partners Risk of redundancy
Access to finance	<ul style="list-style-type: none"> Could act as a role player in providing access to donor-funded private sector investment programs (e.g., ABADE) 	<ul style="list-style-type: none"> Competition with other ICT incubators Lack of focus on building the applicants business skills
Sustainability	<ul style="list-style-type: none"> Physical location provides a long-term asset for potential revenue 	<ul style="list-style-type: none"> Negative impact of high running costs

Note: (*) The models are here presented for the purpose of discussion. Initiatives on the ground adjust to local market conditions and are often built on a portfolio of services across models.

The virtual incubator model comes as a support to already existing IT incubation initiatives, with a focus on building the community of ideas, entrepreneurs, and local investors.

KPIs	Pros	Cons
Reach & community	<ul style="list-style-type: none"> Will be based on the reach of MCIT / mGov initiatives, thus national and at least for 3 years 	<ul style="list-style-type: none"> No fully owned community Dependency on other initiatives
Brand	<ul style="list-style-type: none"> More of a supportive brand 	<ul style="list-style-type: none"> With no specific branding, could lose impact and capacity to attract the best ideas
Services	<ul style="list-style-type: none"> Core activity to provide support and training to incubators Strong focus on access to BDS and finance 	<ul style="list-style-type: none"> Should all incubators be included? Risk of redundancy with the many BDS already available
Partnership	<ul style="list-style-type: none"> Will focus on building partnerships with financial enablers Capacity to attract and build networks of local investors 	<ul style="list-style-type: none"> Limited number of actors Difficulty to coordinate with all donors and governmental initiatives
Access to finance	<ul style="list-style-type: none"> Access to financial enablers Build local investors network 	<ul style="list-style-type: none"> The market place of ideas, entrepreneurs, and local investors may not be large enough at the beginning to be attractive
Sustainability	<ul style="list-style-type: none"> Low Capex involved Capacity to self fund events 	<ul style="list-style-type: none"> Potential negative impact of low brand equity in attracting sponsors and partners

Note: (*) The models are here presented for the purpose of discussion. Initiatives on the ground adjust to local market conditions and are often built on a portfolio of services across models.

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 - 5.1 Model & Governance**
 - 5.2 Services Offered**
 - 5.3 Focus on the Afghan App Store**
 - 5.4 Risks & Mitigators**
6. Implementation of the Mobile Ecosystem Enhancer

We recommend following a light footprint model that will support current initiatives and fill the gaps, as it is more relevant to the Afghan context.

Building on existing incubators initiatives

- No need to open new physical premises

Two different models can be considered to support the mobile ecosystem

Model	mHub	Virtual Incubator
Core focus	Build a community of techno entrepreneurs	Support other incubators and provide access to finance
Reach	National	National
Pros	<ul style="list-style-type: none"> • Relatively low cost • Efficient to mobilize and organize a community around the mobile economy • Complementary to current initiatives • Enables national reach through networks of regional IT institutes 	<ul style="list-style-type: none"> • Relatively low cost • Focused on supporting startups and existing ventures, incl. access to finance • Comes in support of various incubators initiatives, with dedicated services • Access to international networks
Cons	<ul style="list-style-type: none"> • No or limited support to early stage startup development • Not focused on providing access to finance, a critical step in the Afghan context 	<ul style="list-style-type: none"> • Could miss the initial effort required to build tech capacity • Difficulty in reaching the tech community if few tech services are provided • Difficulty in building sustainable model as most services will be provided at cost

We recommend a hybrid of the mHub and Virtual Incubator: the Mobile Ecosystem Enhancer.

The governance of the Mobile Ecosystem Enhancer should be looked at in line with its core objectives.

Designing the right governance

- The overall objectives is to support SMEs and the private sector

Two governance schemes are applicable to the Mobile Ecosystem Enhancer

Scheme	Fully private	Consortium
Description	One or several privately owned companies	An alliance of organizations, whether public or private
Pros	<ul style="list-style-type: none"> Brings additional value as the implementer(s) are in the same sector Complementary to company's core business Clear leadership, capacity to implement and roll out 	<ul style="list-style-type: none"> Can bring in various stakeholders each with a specific input for the project: institutes, private companies, gov. Broad support and involvement across the ecosystem
Cons	<ul style="list-style-type: none"> Difficulty in acting as a legitimate center piece of the ecosystem Market distortion if only one private actor is selected 	<ul style="list-style-type: none"> No clear leadership identified Not core business for the stakeholders / participants to the consortium Limited capacity to resolve disputes

We recommend that the program should be built around a portfolio of services, with the aim of increasing technical capacity and the sustainability of the emerging mobile ecosystem.

The Mobile Ecosystem Enhancer will...



1

Mobilize talents and develop skills

- Mobilize talents and ideas around the opportunity of the app economy
- Increase skills, with basic and advanced mobile software training to be proposed to as many IT individuals as possible
- Support IT universities and institutes to adjust curricula
- Provide more internship opportunities to students to increased level of hands on experience



2

Support the emergence of sustainable actors

- Provide support to startups and existing actors toward investment readiness, including:
 - Mentorship
 - BDS
 - Access to finance
- Provide capacity to the community to access the mass market and monetize content & services by building an independent Afghan app store
- Support other incubation initiatives, through training, and access to services for incubatees




3

Provide tech tools to the community

- Localize mobile software tools that can have a sectorial or a social impact
- Demonstrate / train IT individuals and entrepreneurs on the potential for venture
- Cooperate with universities and IT institutes in localizing the tools to bring hands on experience to students


The aim is to rapidly build a strong community of tech entrepreneurs within the mobile ecosystem, while increasing mobile software skills.

Activities	Output	Components			
Events	Talents mobilized	<ul style="list-style-type: none"> • Organization of regular meetings, e.g., once a month, to gather entrepreneurs and tech individuals or groups interested in the mobile ecosystem • Organization of tech driven events, such as hackathon or dev camp to promote specific sectorial agenda, e.g., mHealth, mAgriculture, mLearning 			
Competitions	Ideas and apps developed	<ul style="list-style-type: none"> • Competitive events based on idea submission and selection, best ideas / team to be funded and nurture in relation with other incubation programs 			
Training	Upgraded skills	<ul style="list-style-type: none"> • Provide basic mobile software training to IT students and IT professionals • Provide advanced mobile software training to IT students and IT professionals • Provide specific tech platform training, e.g., Android or Windows phone, to IT students and IT professional • Provide support & resources to IT universities / institutes to design and incorporate mobile software into curricula 			
Partnerships	Training content & techno available	<ul style="list-style-type: none"> • Built partnerships with local IT SMEs to get them involved in events, training, and workshops • Built partnerships with main mobile platform providers to get them involved in events, training, and workshops 			
Internships	Increased experience	<ul style="list-style-type: none"> • Use network of partnering IT companies & IT institutes to generalize internship programs for IT students • Get IT students / institutes to participate to hands on projects, such as hackathon or dev camp 			
Organizations Initiatives		ICT incubator	MNOs	IT Institutes	HOSA / MCIT

This module is designed to support local ICT incubators & incubatees. With the Afghan app store, the objective is to provide the capacity for SMEs to access the mass market.

Activities	Output	Components			
Mentorship	Support to startups	<ul style="list-style-type: none"> • Provide mentorship, business or technical, to projects incubated within other incubators as well as to any mobile technology startups 			
Access to finance (1)	Access to international funding	<ul style="list-style-type: none"> • Build connexion and give access to international funding programs, such as WB, ABADE, or ABIF, to mobile entrepreneurs • Organize mobile startups pitching events to create network of entrepreneurs and financial institutions, whether private or public 			
Access to finance (2)	Network of local investors	<ul style="list-style-type: none"> • Organize mobile startups pitching events to try and attract network of local business angels 			
Afghan app store	Access to mass market	<ul style="list-style-type: none"> • Build legal and business framework for the Afghan app store: contract with MNOs, develop revenue sharing agreement among all parties, content regulation, and management • Build technical infrastructure, including mobile and web store front, gateway interconnected to MNOs billing systems, content management platform for services providers • Manage store, animation, marketing, litigation 			
Support to existing incubators	Focus on training and incubatees support	<ul style="list-style-type: none"> • Support other ICT / innovation incubators, with a focus on mobile • Provide training module regarding mobile software to incubatees • Provide access to finance • Build specific mentorship alliances with incubated projects 			
Organizations Initiatives	ICT incubator	ABADE, ABIF, WB	MNOs	AMMOA	

Specific mobile software tools will be localized to provide more opportunities for ideas and entrepreneurship.

Activities	Output	Components
Training on tools	Exposure to technology enablers	<ul style="list-style-type: none"> • Use available localized tools to promote mobile technology toward tech and entrepreneurs, through events • Train IT students, business students, and SMEs on how to use tools and leverage them to build services
Support of tools	Maintenance and upgrade of tools	<ul style="list-style-type: none"> • Maintain tools, including documentation and product upgrade
Software localization	Localized tools to build services with	<ul style="list-style-type: none"> • Assess and prioritize mobile software tools available either by economic sector, health, education, agribusiness, or linked to specific activities with economic or social potential, such as mLearning, monitoring, or gaming • Build localized versions of tools that have the largest potential for Afghanistan, also in relation with HOSA and DEWAE programs
Internships	First hand experience on tools	<ul style="list-style-type: none"> • Cooperate with universities and IT institutes to use localization projects as enablers to gain experience for IT students
Organizations Initiatives		IT institutes SMEs HOSA / MCIT Open Source AF

Kabul is the hub of most ICT and entrepreneurship initiatives today in Afghanistan. It is a natural first step to develop mobile app entrepreneurship.

Kabul is the hub of the Afghan ICT community

- Most ICT students are completing curriculum in Kabul either at Kabul University, Polytechnic, ICTI, or within a private institute
- The private sector regarding ICT is also mostly based in Kabul: MNOs manage their network from there and ICT SMEs are for a large majority in Kabul
- The MCIT, a major actor of the development of ICT in Afghanistan, is focusing on Kabul with the ICT village and the ICT incubator
- Numerous initiatives concerning ICT and entrepreneurs are based in Kabul: the ICT incubator but also monthly iHub meetings, International Center for Afghan Women's Economic Development, and others

Locating the Enhancer in Kabul will help accessing targeted beneficiaries, participate in galvanizing the Afghan ICT community to create a momentum, and allow for more numerous and relevant partnerships opportunities

National outreach through ad hoc events & training

- Other provinces will be targeted through ad hoc events and training workshops,
- which can be implemented through partnerships with initiatives and associations already targeting the provinces: the Open Source Afghanistan event was organized in Jalalabad in February 2013; the DEWAE - Innovation Support Program aims at building awareness of its grants in the provinces

The Mobile Ecosystem Enhancer will welcome female entrepreneurs the same way it will welcome their male counterpart.

A reservoir of female IT students

- 830 IT students will graduate in 2013, with an overall **3,500 IT students enrolled***
- On average, **10%**** of those students are women

A role model: Roya Mahboob, CEO of Afghan Citadel

- Roya Mahboob founded her software company, Afghan Citadel Software Co. in Herat in 2010
- The company develops software for private and public entities and now employs 25 people, 18 of whom are women
- She also launched <http://www.womensannex.com/>, a web platform that hosts videos and blogs of women from Central Asia
- Her profile in Time's 2013 list of the 100 most influential people in the world, written by Sheryl Sandberg, COO of Facebook, has put her on the map for international recognition



Potential partners

- The International Center for Afghan Women's Economic Development, hosted by the American University of Afghanistan and funded by a \$5 million grant from the U.S. Department of Defense Task Force for Business and Stability Operations
- Techwomen, launched by TechNation, an Afghan IT firm, the National ICT Alliance of Afghanistan (NICTAA) and other ICT professionals



Source: (*) Ministry of Education; (**) Interviews of universities and institutes; (***) <http://auaf.edu.af/about/international-center-for-afghan-womens-economic-development/>.

Accessing the end users remains a hurdle. An independent Afghan app store, built initially on Android, will enable content and services providers to monetize their apps.

A independent platform for service & content providers

- The platform would provide **integrated billing access** (via airtime and mobile money) to all MNOs
- It would act as a **distribution portal for content & service providers**, enabling SMEs to target the mass-market easily and bill content and services
- It should be designed to benefit all stakeholders: users, MNOs, providers

Benefits for MNOs

- Boost app usage
- Revenue share deals
- Identification of talented SMEs



Benefits for mobile content & service providers

- A unique brand is marketed as providing local content & services: heighten reach
- Direct access to end users and integrated billing system with all MNOs
- Revenue share deals



Platform

- The platform allows access to IVR, java, and SMS...
... as well as smartphone apps
- The platform is marketed under a unique brand
- **The initial focus is on Android**



Benefits for the end users

- Users are exposed to one brand, marketed as the portal that delivers local content and services
- Access to the platform is free of charge
- Services are available across all mobile networks
- Each service listed by the platform can be free or at cost
- Users are billed via airtime or through mobile money payment

The Afghan app store is the infrastructure that will foster the Afghan app economy. Its funding is key in enabling a sustainable ecosystem.

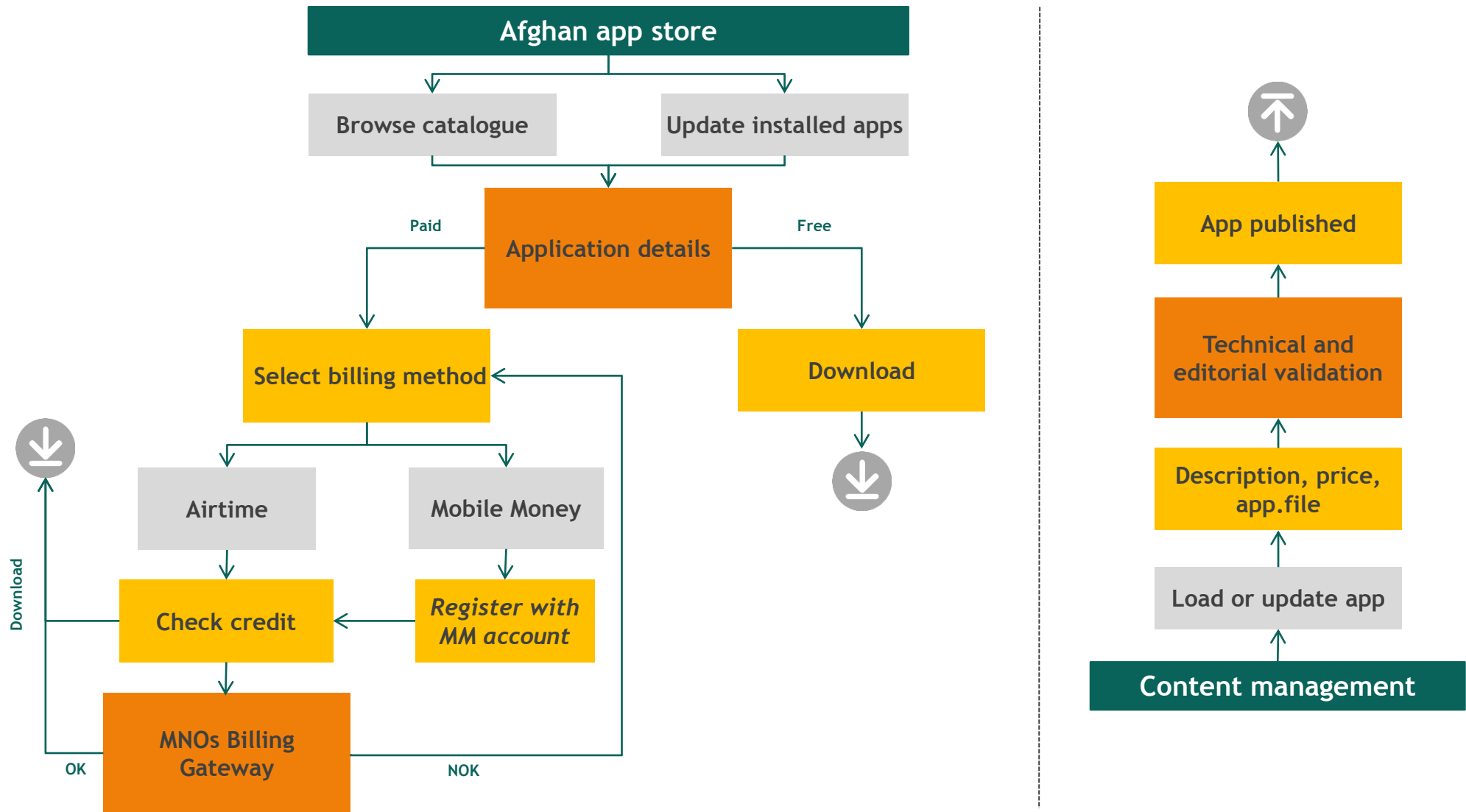
The platform will be the corner stone infrastructure of the Afghan app economy and will benefit all actors

- The platform is the intangible infrastructure through which all private providers or end-users of mobile apps will be able to connect and exchange
- It will benefit providers, MNOs, and mobile content and service providers by fostering mobile app adoption in Afghanistan, galvanizing its usage and providing a framework for revenue share deals
- It will benefit end-users as it will facilitate access to mobile app whatever the operator end-users have chosen
- It will facilitate payment through an integrated billing system that is beneficial to both providers and end-users

Financing the platform depends on donors involvement

- Private actors today either don't have the interest or the capacity to invest in the platform by themselves:
 - MNOs are already investing in proprietary platforms, incentives for them to partner and fund the platform by themselves are low
 - Other private actors do not have access to sufficient funding
 - The MCIT is in the process of creating its own platform dedicated to apps providing governmental services
- In the media sector in Afghanistan, USAID is currently funding a platform that will enable producing automated media ratings. The objective is to provide transparency to the media and advertisement sector.
 - The initial investment is of \$250k with an objective of a commercially viable platform within 2 years

The platform will be a game changer: for app developers to access the end-user and for users to access Afghan content, with an initial focus on Android.



The Afghan app store will be accessible via a smartphone app with a primary focus on Android.

1

Marketing & branding

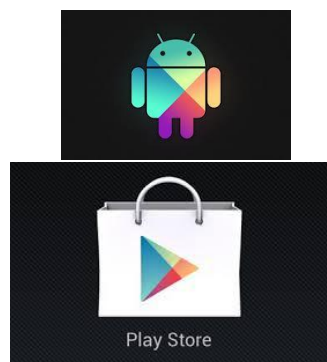


- The Afghan app store is advertised using relevant media, with a focus on web banners: blog, web, and others
- Facebook network with an information page on the Afghan app store service

2

Distribution

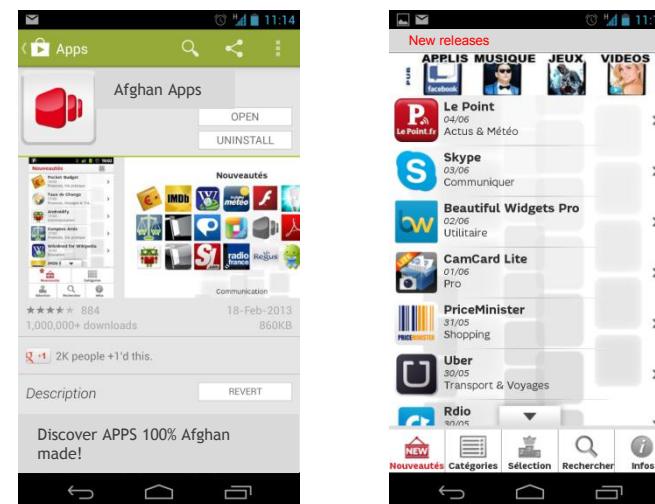
Available on Google Play / Android smartphones



- The Afghan app store is published and made available for download on Google Play
- Download mechanisms can also be triggered by SMS, email, via Facebook or a website

3

Delivery

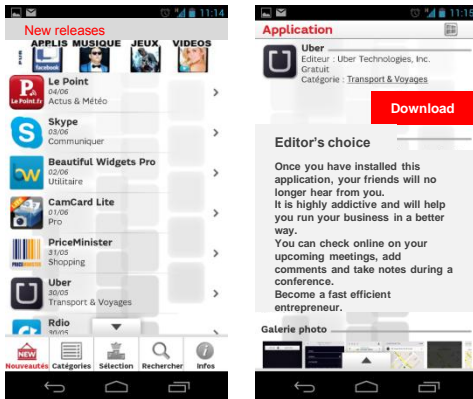


- The app store is available for free
- All that is required from the end user is a connection to Google Play, that is, an Android smartphone, data, and a Google account
- The Afghan app store displays a list of apps, with a brief description of what it does, including text and images

Users can browse through the available applications and download them for free or for a fee that is paid using their operators billing system.

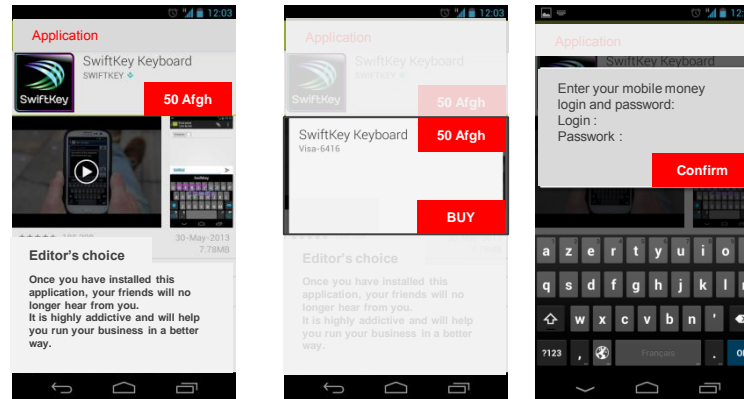
4

Discover



5

Billing & download



6

Use

The End!

- The user can browse through all the available applications, per categories, per latest releases
- Each application is presented in detail, including users rating

- If the application chosen is for free, the user can download it directly
- If it is a paid application, the user is prompted to login, using its operators login ID
- How the service will be charged can then be selected, using airtime or a mobile money account
- Payment confirmation is issued per SMS
- The user can also check the list of past purchases

- The application selected is downloaded onto the smartphone
- The user can now enjoy the app or services

In order to mitigate risks for this initiative, a step-by-step approach is recommended during the implementation as well as establishing strong links with stakeholders in the ICT sector.

Risks	Mitigators
<ul style="list-style-type: none">• Gap between skills built and market demand	<ul style="list-style-type: none">• Establish strong links with the private sector and mGov programs to dimension and design the training curricula to their needs
<ul style="list-style-type: none">• Lack of absorption capacity and difficulty to identify the right candidates	<ul style="list-style-type: none">• Implement the program in a modular/step-by-step approach so as to take corrective measures when necessary
<ul style="list-style-type: none">• Lack of coordination with other ongoing initiatives: risk of duplication• Difficulty to attract enough candidates because of multiplication of offers for IT students and SMEs	<ul style="list-style-type: none">• Conduct additional research to size the potential audience and get a thorough assessment of the needs by type of candidates• Establish strong links with ongoing initiatives, such as the ICT incubator, from start to differentiate the offering of each initiative and create complementary programs

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- 6. Implementation of the Mobile Ecosystem Enhancer**
 - 6.1 KPIs**
 - 6.2 Budget**
 - 6.3 Roadmap**
 - 6.4 Feedback from Workshops**

The Mobile Ecosystem Enhancer's impact will be measured through nine KPIs:

After 3 years...

- ✓ 25 startups created
- ✓ 20 startup teams have received mentoring and coaching
- ✓ 425 highly skilled jobs created (including in existing ventures)
- ✓ 100 internship positions filled
- ✓ 25 local investors identified
- ✓ 15+ million apps downloaded (including 12+ million in year 3)
- ✓ 500 apps commercialized
- ✓ 40 events organized
- ✓ About 600 individuals trained on mobile technology

Investment required: \$1.1m for 3 years

*Gross revenue generated: \$5+ million in Year 3
With the app store*

This module should address IT students in priority, and set an ambitious target in the number of students going into the mobile app economy.

Activities	KPIs	Risks & challenges	Mitigation strategies
Events	<ul style="list-style-type: none"> 1 monthly event: hackathon, dev camp, pitching events Reach 1,000 people 	<ul style="list-style-type: none"> Activities too concentrated in Kabul 	<ul style="list-style-type: none"> At least all 5 major cities exposed (roadshows)
Competitions	<ul style="list-style-type: none"> 1 yearly competition 150 applicants 5 projects selected 	<ul style="list-style-type: none"> Confusion with HOSA and DEWAE activities 	<ul style="list-style-type: none"> Identify clearly the technology platform, for example, Android with links with Afghan app store
Training	<ul style="list-style-type: none"> 10% of IT graduates trained 300 IT professionals 20% of IT institutes supported 	<ul style="list-style-type: none"> Full-time students not available or interested in attending Difficulty for IT institutes to implement mobile curricula 	<ul style="list-style-type: none"> Organize onsite training, for example, in the IT institutes Provide specific support and training to IT teachers Development and adaptation of curricula
Partnerships	<ul style="list-style-type: none"> 10 local partnerships 3 technological partnerships 	<ul style="list-style-type: none"> Limited interest from international partners 	<ul style="list-style-type: none"> Connect with foundations
Internships	<ul style="list-style-type: none"> 10% of IT graduates enrolled on mobile-centric internships 	<ul style="list-style-type: none"> Limited number of SMEs offering internship opportunities 	<ul style="list-style-type: none"> Increase number of hands on projects with IT institute, such as app prototypes or tools

The Afghan app store is the cornerstone of this module to support the emergence of the app economy. It requires a strong involvement of local MNOs.

Activities	KPIs	Risks & challenges	Mitigation strategies
Mentorship	<ul style="list-style-type: none"> 20 startups supported 		
Access to finance (1)	<ul style="list-style-type: none"> 2 startups funded per year on average 6 mobile startups pitching events organized per year 25 local investors identified 	<ul style="list-style-type: none"> Limited seed funding available for tech startups Limited interest of local investors for tech ventures 	<ul style="list-style-type: none"> Involve key international stakeholders at a very early stage Involve international Afghan diaspora
Afghan app store	<ul style="list-style-type: none"> All MNOs on board Afghan app store available within 6 months 50 apps available within 1st year 600k download within 1st year 	<ul style="list-style-type: none"> No legal and tech agreement with several or even all MNOs Lack of apps providers Number of download below expectations 	<ul style="list-style-type: none"> Collect MNOs vision and inputs at a very early stage of the project Use competition to boost attraction of the Afghan app store Localize hit international games to boost attractiveness
Support to existing incubators	<ul style="list-style-type: none"> 100% of ICT incubators supported 	<ul style="list-style-type: none"> ICT incubators do not get involved with mobile entrepreneurship 	<ul style="list-style-type: none"> Involve ICT incubators

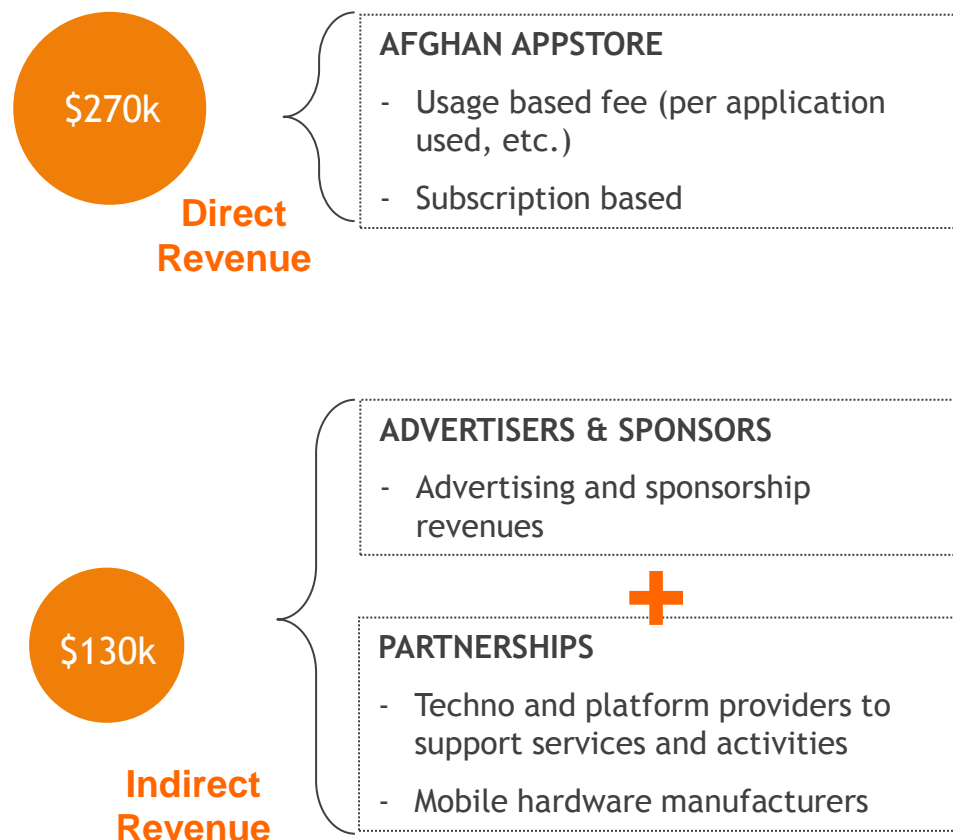
The tools provided to the tech community should match their needs and interests, and be easy to adopt and maintain.

Activities	KPIs	Risks & challenges	Mitigation strategies
Software localization	<ul style="list-style-type: none"> • 10 tools localized 	<ul style="list-style-type: none"> • Difficulty in bringing tools that need limited IT capacity to use 	<ul style="list-style-type: none"> • Design framework for selection that includes easy to use / exploit as a must have
Training on tools	<ul style="list-style-type: none"> • 5 workshops organized • 300 people reached 	<ul style="list-style-type: none"> • Tools do not meet the needs of local IT / entrepreneurs 	<ul style="list-style-type: none"> • Test interest & appetite of tech community before localizing the tool
Support of tools	<ul style="list-style-type: none"> • 100% of tools maintained and upgraded 	<ul style="list-style-type: none"> • Tools potentially difficult and costly to maintain over time 	<ul style="list-style-type: none"> • Tools selection criteria should include robustness and ease of maintenance
Internships	<ul style="list-style-type: none"> • 30% of tools co-developed with IT institutes 	<ul style="list-style-type: none"> • Limited number of IT institutes on board with localization projects 	<ul style="list-style-type: none"> • Involve institutes from the very early stages, that is, design and selection

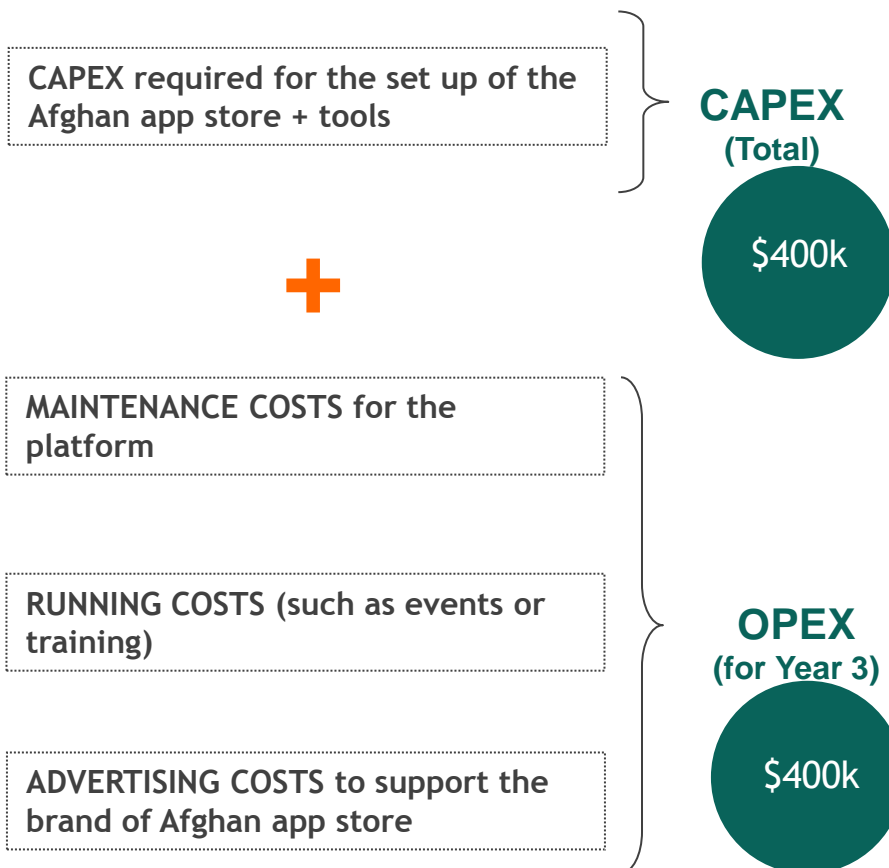
6.2 IMPLEMENTATION OF THE MOBILE ECOSYSTEM ENHANCER > BUDGET

After 3 years, the program should be mostly supported by the revenues generated by the Afghan app store, partners and sponsors.

Revenue for Year 3 (growth phase)



Costs (initial & running)



Capital needed before sustainability in year 3 would be about \$1.1m.

Yearly running costs amount to a total of \$400k for year 3. Training and recruitment of experts are an important part but key to trigger a massive impact.

Item	Assumption	Costs
Human resources	4 full-time local project managers, in charge of organization and daily operations, one dedicated to the app store. 2 part-time experts, one for training, one for mentorship	\$182k
Office expenses	Covers share of office space, laptops, and communications as well as the yearly audit	\$31k
Travels & logistics	Covers roundtrip tickets every 3 months - for each of the experts and 5 roundtrip travels to the provinces	\$31k
Offered activities	12 events per year, 1 competition, training design & workshops and app store maintenance	\$135k
Branding & advertising	TV and other media	\$20k
Total yearly running costs		\$400k

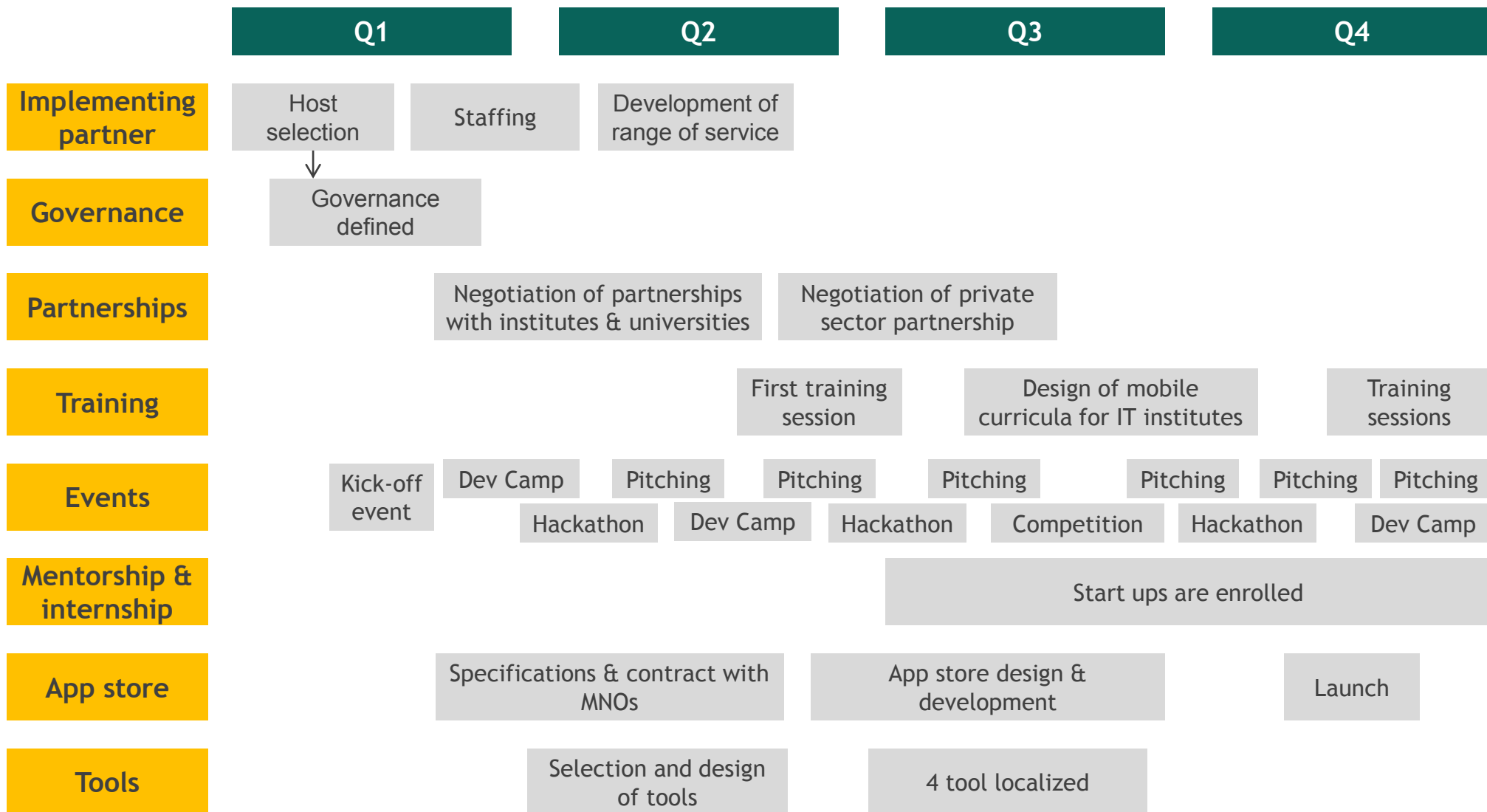
The Afghan app store could generate sales of \$5.4m in year 3, with an increased number of available apps.

Item	Assumption	Year 1	Year 2	Year 3
Number of apps available	Number of apps increases as more actors gets in	50	200	500
Number of active users	15 to 30% of Android smartphone users are active on the Afghan app store	100,000	250,000	500,000
Download per user per year	The more apps, the more downloads	6	12	24
Downloads per year		600k	3,000k	12,000k
% of paid apps	Number of paid apps increases with app quality	10%	20%	30%
Average price	Based on current VAS pricing	\$1	\$1.25	\$1.5
Gross revenue		\$60k	\$750k	\$5.400k

With an operating fee of 5%, year 3 revenue for the Afghan app store will reach \$270k.

6.3 IMPLEMENTATION OF THE MOBILE ECOSYSTEM ENHANCER > ROADMAP

Key milestones for year 1 of Mobile Ecosystem Enhancer initiative are represented in the roadmap below.



All stakeholders agree on the potential of the mobile app sector in Afghanistan. They insist on having a collaborative approach and premium support to the private sector.

Business environment and the mobile ecosystem in Afghanistan

- Stakeholders agree on the initial key findings regarding the business environment for SMEs
- Current sizing of the number of people having access to Internet and potential target within 3 years is debated. The view presented in the analysis is seen as pessimistic
- All stakeholders insist on the necessity to focus the activities on Kabul first and then reach out to the provinces
- Stakeholders also suggest that infoDev initiative should support and not duplicate the current initiatives launched by the Afghan government / MCIT (HOSA, DAWAE)

Incubation model and recommendations for action

- Stakeholders agree that a full mLab, such as incubator, would replicate the MCIT incubator initiative
- The portfolio of services and the approach proposed by the Mobile Ecosystem Enhancer is considered as appropriate
- The app store is seen as an opportunity to unlock the mass market for SMEs and entrepreneurs
- Stakeholders insist that security is a key issue when it comes to implementing the app store and that it should be addressed accordingly, for example, by using an independent testing / certification entity
- Other billing alternative, especially within the banking sector, should be looked at
- Stakeholders insist that the app store is a temporary solution

The Afghan app store is the infrastructure that could foster the Afghan app economy. Ownership and security are perceived as main constraints.

The app store is
forseen by
stakeholders as a
tremendous
opportunity

- The app store would benefit small private tech actors who cannot at present address the mass market
- Android seems the right platform to build the app store on
- Being able to access the billing infrastructure of the MNOs through the app store is a must
- The app store is a good short or mid-term temporary solution to lift the billing constraint

Ownership
and security
are perceived
as the main issues to
address

- Security could be an issue, and it should therefore be addressed very carefully
 - Security of the overall platform
 - Quality and reliability of the applications that will be released on the app store
- Stakeholders suggest that an independent entity be in charge of supervising a testing procedure / certification before publication on the app store
- Ownership of the app store should be very clear
 - Content management will be sensitive
 - If successful, the revenue fees should be allocated in transparent manner
- Other billing solutions should be looked at, especially with the banking sector

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