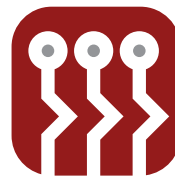
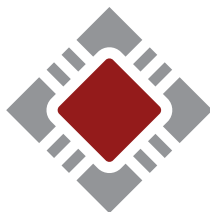


The Business Models of mLabs and mHubs— An Evaluation of *infoDev*'s Mobile Innovation Support Pilots



THE WORLD BANK





The Business Models of mLabs and mHubs—

An Evaluation of *infoDev's*
Mobile Innovation Support Pilots

The report “The Business Models of mLabs and mHubs—An Evaluation of *infoDev*’s Mobile Innovation Support Pilots” is available at <https://www.infodev.org/mobilebusinessmodels>

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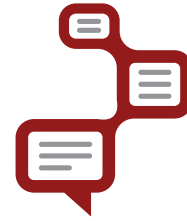
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About *infoDev*

infoDev, a global trust fund program in the Financial and Private Sector Development Network of the World Bank Group, supports growth-oriented entrepreneurs through creative and path-breaking venture enablers. It assists entrepreneurs to secure appropriate early-stage financing; convening entrepreneurs, investors, policymakers, mentors, and other stakeholders for dialogue and action. We also produce cutting-edge knowledge products, closely linked to our work on the ground.

About *infoDev's* Mobile Innovation Program

infoDev's Mobile Innovation Program supports growth-oriented mobile app businesses in emerging and frontier markets. *infoDev* does this by 1) enabling entrepreneurship in the mobile industry, through venture incubation and acceleration, 2) building mobile innovation communities of entrepreneurs, investors, partners, and mentors, and 3) researching the app economy of emerging and frontier markets. The backbone of *infoDev's* Mobile Innovation Program is a global network of Mobile Application Laboratories (mLabs) and Mobile Social Networking Hubs (mHubs), rolled out across eleven countries.

Acknowledgements

This report, commissioned by *infoDev*, a global partnership program within the World Bank, evaluates the business models of *infoDev*'s Mobile Application Laboratories (mLabs) and Mobile Social Networking Hubs (mHubs). mLabs and mHubs were implemented under the Creating Sustainable Businesses in the Knowledge Economy (CSBKE) program, funded by the government of Finland, in partnership with Nokia.

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The review and decision meeting was chaired by Chris Vein (Chief Innovation Officer for Global ICT Development at the World Bank). Peer reviewers were Chunlin Zhang (Lead Private Sector Development Specialist, World Bank), Mavis Ampah (Regional Coordinator for Sub-Saharan Africa, ICT Sector Unit, World Bank), Jussi Hinkkanen (Vice President for Corporate Relations and Business Environment for Nokia Middle-East and Africa), David Taverner and Marissa Drouillard (Mobile for Development, GSMA), and Tayo Akinyemi (Director, AfriLabs).

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Contents

Executive Summary.....	10
Part I: Rationale for a Business Model Evaluation of mLabs and mHubs.....	16
Introduction and Background.....	16
Why Evaluate the Business Models of mLabs and mHubs?.....	25
Results for mLabs and mHubs.....	28
Part II: Lessons Learned and Future Directions for mLab and mHub	
Business Models.....	32
Lessons Learned for mLabs and mHubs.....	32
Room for Debate: Open Questions for mLabs.....	45
Lessons Learned and Future Directions for <i>infoDev</i>	53
Conclusion.....	67
Part III: Case Studies of mLab and mHub Business Models.....	70
Applying the Business Model Canvas to mLabs and mHubs.....	70
mLab East Africa.....	73
mLab Southern Africa.....	83
mLab ECA.....	93
mLab East Asia.....	101
mLab South Asia.....	107
Mobile Nepal (mHub Nepal).....	111
TOPICA Mobile Social Networking (mHub Vietnam).....	117
Akirachix (mHub Kenya).....	121
Mobile Monday Kampala (mHub Uganda).....	126
Appendixes.....	134
References.....	137

Lists of Boxes, Figures, and Tables

Box 1: Why <i>infoDev</i> ?	17
Box 2: The Development Potential of App Economies and <i>infoDev</i> 's Mobile Innovation Program	18
Box 3: What Makes mLabs and mHubs Different from Other Entrepreneurship Support Channels?	21
Box 4: The Role of Innovation Competitions	34
Box 5: iHub's Influence, from mLab East Africa's Perspective	74
Box 6: Noted Startups and App Products Supported by mLab East Africa	78
Box 7: Noted startups and app products supported by mLab Southern Africa	85
Box 8: Noted App Products Supported by mLab ECA	96
Box 9: Noted Startups and App Products Supported by mLab East Asia	105
Box 10: Noted Startups and App Products Supported by Mobile Nepal (mHub Nepal)	115
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Figure 1: Foundational Concepts for mLabs and mHubs	19
Figure 2: Mobile Entrepreneurship Enablers at the Center of Mobile Innovation and Entrepreneurship Ecosystems	20
Figure 3: Location of mLabs	23
Figure 4: Location of mHubs	23
Figure 5: Comparison of Key Results across mLabs	29
Figure 6: mLabs' Positioning between an Ecosystem Builder and Startup Accelerator Model	33
Figure 7: Simplified Framework of Tradeoffs for an mLab's Potential Income Streams	41
Figure 8: Environmental Factors and mLabs' Strategic Positioning as Ecosystem Builders or Startup Accelerators	55
Figure 9: mLab Services as Originally Envisaged	59
Figure 10: The Business Model Canvas by Alexander Osterwalder	71
Figure 11: Business Model Canvas for mLab East Africa	72
Figure 12: Comparative Results for mLab East Africa	76
Figure 13: Business Model Canvas for mLab Southern Africa	82
Figure 14: Comparative Results for mLab Southern Africa	87
Figure 15: Business Model Canvas for mLab ECA	92
Figure 16: Comparative Results for mLab ECA	96
Figure 17: Business Model Canvas for mLab East Asia	100
Figure 18: Comparative Results for mLab East Asia	103
Figure 19: Business Model Canvas for Mobile Nepal (mHub Nepal)	110
Figure 20: Business Model Canvas for TOPICA Mobile Social Networking (mHub Vietnam)	116
Figure 21: Business Model Canvas for Akirachix (mHub Kenya)	120

Table 1: Service Portfolio Options for mLabs and mHubs.....	21
Table 2: Key Funding Amounts and Dates on mLabs and mHubs under CSBKE.....	22
Table 3: Basic Data for mLab East Africa.....	73
Table 4: Results Highlights for mLab East Africa.....	76
Table 5: Budget and Financial Projections for mLab East Africa.....	80
Table 6: Basic Data for mLab Southern Africa.....	83
Table 7: Results Highlights for mLab Southern Africa.....	86
Table 8: Budget and Financial Projections for mLab Southern Africa.....	90
Table 9: Basic Data for mLab ECA.....	93
Table 10: Results Highlights for mLab ECA.....	95
Table 11: Budget and Financial Projections for mLab ECA.....	98
Table 12: Basic data for mLab East Asia.....	101
Table 13: Results Highlights for mLab East Asia.....	103
Table 14: Budget and Financial Projections for mLab East Asia.....	106
Table 15: Basic Data for Mobile Nepal (mHub Nepal).....	111
Table 16: Results Highlights for Mobile Nepal (mHub Nepal).....	113
Table 17: Budget and Financial Projections for Mobile Nepal (mHub Nepal).....	115
Table 18: Basic Data for TOPICA MSN (mHub Vietnam).....	117
Table 19: Results highlights for TOPICA MSN (mHub Vietnam).....	118
Table 20: Basic Data for Akirachix (mHub Kenya).....	121
Table 21: Results for Akirachix (mHub Kenya).....	123
Table 22: Basic Data for Mobile Monday (MoMo) Kampala (mHub Uganda).....	126
Table A.1: Complete mLab and mHub Results data.....	132
Table B.1: List of mLab and mHub Affiliated Startups.....	133
Table C.1: Composition and Definitions of Indicators.....	136

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



Executive Summary

Part I: Rationale for a Business Model Evaluation of mLabs and mHubs

In 2010, *infoDev*, the government of Finland, and Nokia launched the *Creating Sustainable Businesses in the Knowledge Economy* (CSBKE) program to derive and test new approaches to advancing innovation and entrepreneurship in developing countries. Based on the vast growth of mobile content and access technology, a large part of the program focused on support for innovation in mobile applications and software (or “apps”).¹

Through CSBKE, the concept of “mobile entrepreneurship enablers” was developed, of which two forms were tested: Mobile Application Laboratories (mLabs) and Mobile Social Networking Hubs (mHubs). mLabs are specialized mobile app business incubation and acceleration service providers; mHubs focus on mobile tech community building by convening stakeholder groups at informal gatherings. mLabs were intended to reach a region comprising several countries, whereas mHubs serve only a single city. Underpinning the mLab and mHub models was the conviction that the enhancement of local innovation ecosystems—characterized by effective partnerships and coordination amongst stakeholders—would improve the enabling environment for mobile entrepreneurship. *infoDev* also ran a number of global projects (such as innovation competitions) and training sessions, complemented by analytical products, such as qualitative evaluations, a major report on user and app ecosystems in developing countries, and a generic business model for mLabs.

The total funding for Mobile Innovation programming under CSBKE was about \$4.2 million, with about \$2.4 million used for grants to local mLab and mHub implementers, \$1.5 million for technical assistance for mLabs and mHubs, and \$254,000 for research. Four mLabs and eight mHubs were implemented in eleven countries across East Asia, Sub-Saharan Africa, Eastern Europe, Central Asia, and the Caucasus (ECA). An additional mLab was intended for South Asia, but it never became operational because of governance and leadership issues. As of November 2013, periods of operation ranged from over two and half years for mLab East Africa to just over one year for mLab East Asia.

As an important step in learning from the mLab and mHub pilot projects, this report analyzes the business models that mLabs and mHubs have implemented, that is, how they generated value for stakeholders and income for themselves. The study derives its findings mainly from in-depth case studies of mLabs and mHubs that were based on almost 150 interviews and 13 focus groups with 240 stakeholders held between April and July 2013. The findings will be useful primarily for current

and future managers, consortium organizations, and funders of mLabs and mHubs. The report is also relevant for other stakeholders partnering with *infoDev* in the implementation of mLabs and mHubs, namely private-sector technology partners, investors, and World Bank units, as well as for external practitioners and researchers interested in technology innovation hubs.

The report also lists data for early results of mLabs and mHubs to illustrate their promise. The aggregate data for all mLabs and mHubs as of June 2013 show:

- About 2,500 individuals were trained in mobile technology and entrepreneurship topics.
- Over 500 apps were brought to market; more than 200 generated revenue. 2.6 million app downloads and more than 5,700 organizational app customers were reported.
- Nearly 100 startups were created.
- About \$2.6 million in investments has been raised by the supported startups; together they generated over \$1.1 million in revenue and created about 280 direct jobs.

The evaluation is complementary to additional analytical products on mLabs and mHubs examining their holistic effects beyond descriptive results, as well as entrepreneurial success stories. In particular, an outcome assessment of mLab ECA, mLab East Africa, and mLab Southern Africa—to be released in March 2014—finds a significant positive impact of mLabs on the mobile innovation and entrepreneurship ecosystems in which they exist, including improved linkages between ecosystem stakeholders and an overall enhancement of the enabling environment for startup creation. In addition, the outcome assessment documents the development impact of mobile apps developed by mLab-supported entrepreneurs in areas such as education, healthcare, financial inclusion, environment, transport, and governance.

Part II: Lessons Learned, Discussion, and Future Directions of mLab and mHub Business Models

The second part of the report includes the lessons learned and important open questions about the business models of mLabs and mHubs. The lessons learned, as the core contribution of the report, are grouped into four areas: value proposition and services; strategic decisions; financial sustainability; and governance, leadership, and consortia.

mLabs' and mHubs' value proposition and services:

- mLabs and mHubs tend to focus on three main areas of activity: startup creation and support, skills development, and community building.
- Although mLabs have elements of startup accelerators, they have assumed a broader function as ecosystem builders, focusing on activities that contribute to the enabling environment for mobile entrepreneurs at large, which sometimes results in more limited direct effects on startup creation.

- Startups see one-on-one mentoring as the key value proposition of mLabs, and they request that it be given stronger emphasis.
- An mLab or mHub generates the most value when it offers a portfolio of services that mutually reinforce each other.
- Innovation competitions lead to better results for startup creation if they are embedded in continuous support, including follow-up mentoring and contact brokering with potential partners and investors.
- Training programs are likely to have positive effects on the local ecosystem in the long run, but they do not appear as the most efficient means for direct startup creation.
- mLabs and mHubs add substantial value for entrepreneurs and startups through brokering relationships with clients, funders, and partners.

mLabs' and mHubs' strategic decisions:

- Prioritizing value-maximizing activities has been a major challenge for mLab and mHub managers as they have faced heavy resource and time constraints.
- It is important for mLab and mHub managers to engage with the developer and startup community, but mLabs need to evaluate the effectiveness of community building for startup creation and mitigate the risk of distraction.
- An mLab's location must be readily accessible, and colocation with other support organizations can provide the most value for developers and entrepreneurs.
- mLabs and mHubs benefit from building partnerships with a wide variety of stakeholders that have a partially overlapping interest in entrepreneurship and startup support.
- Events and competitions can be useful tools to build partnerships and select incubatees.
- mLab managers are aware that selection of incubatees and tracking them after they leave the program is crucial, but they have sometimes fallen short of doing this adequately.
- mLabs have struggled to achieve a strong regional footprint beyond their base country and city.

mLabs' and mHubs' financial sustainability:

- mLabs and mHubs have followed different strategies to work towards financial sustainability; activity-specific funding from tech partners and, for mLab Southern Africa and mLab ECA, funding from provincial and national governments have been the main sources of income.
- mLabs and mHubs were successful in securing financial contributions from private-sector partners primarily for events, competitions, and training, while mLab East Africa has also been successful in seeking sponsorship for its core program.
- Only in few cases were mLabs able to attract core funding that would cover the costs of overhead, infrastructure, and incubation from the private sector (for mLab East Africa); major contributions instead came from government agencies (for mLab Southern Africa and mLab ECA).

- Startups and entrepreneurs are usually open to paying for services or sharing success with mLabs, but they expect a high-value service and are uncertain about the appropriate procedure for far-reaching contractual agreements.
- At the end of the *infoDev* grant period in June 2013, several mHubs and most mLabs, despite progress in attracting revenue from services to private-sector partners and entrepreneurs, project financing gaps over the coming months and years.
- Based on the experience of the past two years, *infoDev* estimates that, with mLabs' current focus on ecosystem building and support for idea stage enterprises, initial donor financing should extend at least over six to ten years.



mLab and mHub governance, leadership, and consortia:

- Identifying the right mLab or mHub manager is critical for success.
- An mLab consortium should be led by a purpose-driven organization that has an inherent interest in supporting the innovation ecosystem.
- Consortia that are led by government-linked entities or universities often suffer from bureaucratic requirements that can conflict with the mission and mode of operation required for an effective mLab.
- Consortia leaders need to have sufficient institutional capacity and set clear expectations and roles for consortia partners.
- Each consortium organization needs to ensure internal stability and long-term backing of the mLab and its vision; risks of internal challenges and bottlenecks have to be mitigated early on.
- Consortium member organizations are important channels for resources and partnerships for an mLab; the organizations ought to complement each other in this respect.
- If consortium organizations directly contribute to the implementation of the mLab's activities, the consortium needs to be able to manage potential conflicts of interest.



Beyond findings, the report also highlights several unresolved questions about mLab business models. For example, should mLabs focus more on ecosystem building or startup acceleration? At which innovation and startup stage can mLabs add the most value? Should mLabs be purely market-oriented or also accommodate social enterprises? Which areas of expertise should mLabs emphasize as their unique value proposition in innovation ecosystems? Should mLabs build a portfolio of incubatees with complementary assets? And should mLabs make direct equity investments or rather broker investor contacts for client startups?

The report also discusses lessons learned and future directions for *infoDev*. In particular, it describes how enhanced scoping assessments and ecosystem mapping will enable the design of appropriate mobile entrepreneurship enabler models in future programs, and how improvements can be made with regard to *infoDev*'s future programs' timeline and grant administration. Further suggestions concern *infoDev*'s increasing role as a knowledge and analytics provider for mLabs and mHubs, as well as improved ways for global network facilitation. Finally, important knowledge gaps are highlighted that could be addressed through future research by *infoDev* or other organizations working in the area of innovation ecosystems of developing countries.

Part II of the report concludes that the mLab and mHub pilots have established proof for the viability of the mobile entrepreneurship enabler concept: mLabs and mHubs are capable of creating and supporting growth-oriented startups and filling gaps in innovation ecosystems of developing countries. At the same time, continuous learning will be needed for mLabs, mHubs, and *infoDev* to maximize their effectiveness. Depending on the local context and strategic choices, mLabs

and mHubs can implement a variety of business models, and experimentation and adaptation will remain necessary. In particular mLabs' revenue and financial sustainability models require further testing and adjustment.

The lessons drawn from the CSBKE pilots will not only help *infoDev* to deepen its continuous value proposition for its key stakeholders, but they will also guide the design of future activities included in the *infoDev* work program, such as *infoDev*'s upcoming regional Mobile Innovation Project in the Caribbean or its inclusion-oriented activities planned for Africa. Within the broader World Bank context, these findings will also be valuable to several projects that encompass models inspired by the mHubs and mLabs.

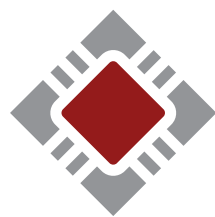
Part III: Case Studies of mLab and mHub Business Models

Case studies, as Part III of the report, provide additional information for stakeholders in the countries and regions of implementation. They should also give useful pointers and ideas for improved business model design of mLabs and mHubs as well as similar technology innovation hubs. The Business Model Canvas serves as the principal analytical framework. In seven in-depth case studies, the report derives rich illustrations and descriptions of the business models of mLabs and mHubs and considers the challenges they face, the results achieved, as well as their longer-term financial sustainability.

The report covers mLab East Africa (Kenya), mLab Southern Africa (South Africa), mLab ECA (Armenia), mLab East Asia (Vietnam), Mobile Nepal (mHub Nepal), TOPICA MSN (mHub Vietnam), and Akirachix (mHub Kenya). Essays on mLab South Asia (Pakistan) and Mobile Monday Kampala (mHub Uganda), which were based on interviews only with key implementers and decision makers, are included in addition to the in-depth studies, for a total of nine case studies. For reference, mHubs in Azerbaijan, Georgia, Moldova, and Tanzania were not covered as case studies.

Endnotes

¹ Another key activity pillar of the CSBKE program focused on agribusiness. See <http://www.infodev.org/workprogram> for an overview.



Part I: Rationale for a Business Model Evaluation of mLabs and mHubs

Introduction and Background

Developing countries face tremendous structural barriers to economic growth, and gaps in skills, financing, and infrastructure put a substantial strain on productive, competitive business activity. This is even more so the case in local knowledge economies, where output only marginally depends on material inputs but rather on people's ingenuity and networks. Much has been written about the high and rising contribution of the knowledge economy to total economic activity and growth, and it has been established that technology innovation and growth-oriented entrepreneurship are driving forces in this context (Wong, Ho, and Autio 2005).²

Importantly, gaps but also contributors to technology innovation are often interdependent and perpetuate themselves. As a simple example: if there are no innovators that start successful businesses, or if incumbents are not willing to mentor their peers, professional contacts and angel investments will be more limited for younger innovators, which in turn limits their potential to become role models for following generations of entrepreneurs. Often, the existence of at least rudimentary entrepreneurial

and innovation networks can be the necessary condition for a long-term upward spiral of learning and innovation processes to emerge (Feldman, Francis, and Bercovitz 2005; Martin and Sunley 2003; and Meyer-Stamer 2002).

The CSBKE Program

In 2010, *infoDev*, the government of Finland, and Nokia took aim at tackling structural barriers to technology innovation in developing countries through the Creating Sustainable Businesses in the Knowledge Economy (CSBKE) Program. The program is informed by a philosophy that acknowledges the complex interactions in local knowledge economies, making use of the notion of innovation ecosystems.

infoDev sought to leverage its institutional knowledge on business incubation and information and communication technology (ICT) to strengthen the mobile innovation ecosystems of developing countries. Moreover, *infoDev* seemed well-situated to implement CSBKE because of its unique positioning and mission: as a trust-funded program within the World Bank, *infoDev* has the mandate to pilot and experiment innovative programs, and it can engage directly with private sector and grassroots organizations in developing countries,

but also access the World Bank's infrastructure, networks, and brand (see box 1). The program was also in line with Finland's development policy, at the time focusing on private sector development and fostering information societies.³

The overarching ambition of CSBKE was to bring about positive changes in the innovation and entrepreneurship

ecosystems of partner countries that would benefit the broader economy and society, job creation through small and medium enterprises (SMEs), as well as improved knowledge on the opportunities of business incubation and mobile apps to enhance the productivity of SMEs. To achieve such far-reaching goals, it became clear that the funding should not simply

Why *infoDev*?

"*infoDev* is privileged to work with a range of donors and partners who value our grassroots innovation communities and our cutting-edge approach to piloting new ideas and seeking new knowledge. [...]"

infoDev has the necessary agility to pilot new concepts at the grassroots, and to ensure that workable solutions are scaled and mainstreamed into larger projects. It supports the World Bank Group's commitment to innovation and entrepreneurship through these approaches. It also bridges operations and knowledge through best-practice assessments, research, and publications, and through a regular and rigorous evaluation of its activities. *infoDev* supports the World Bank Group's commitment to the growth of a strong private sector in developing countries in a manner that leverages technology and innovation and feeds overall growth, competitiveness and inclusion.

Our work extends around the world, allowing us to leverage the ideas and lessons generated in one country for the benefit of other countries. Our stakeholders in developing countries create and design practical solutions with *infoDev* and work with us as partners in ensuring success on the ground. These stakeholders and our networks also request reliable and rigorous research and participate in *infoDev*'s research and knowledge agenda. This research, which draws upon grassroots voices, in turn informs effective operations. [...]"

Over the past few years, *infoDev* has built on its success in incubating technology-enabled businesses to launch specialized programs aimed at promoting the growth of new ventures in the mobile, climate and agribusiness sectors. Supporting these strategic sectors contributes to broader growth and competitiveness, and leads to the development of value-adding jobs suited to the new knowledge economy."

Source: *infoDev* Work Program 2013-15, www.infodev.org/workprogram

be infused in local economies of the nineteen countries of implementation. Rather, projects were intended to stimulate and catalyze locally driven, sustained dynamics in innovation ecosystems.

The program advocated piloting of high potential development interventions, coupled with continuous evaluation and learning, as the best way to push the emerging field of innovation ecosystem support. First, this led to a focus on the early stages of innovation, where, arguably, the most potential for technology innovation is yet untapped because few existing support institutions cover this “pioneer gap” (Auerswald and

Branscomb 2003; Baird, Bowles, and Lall 2013; and Heydebreck, Klofsten, and Maier 2000). Second, the program did not emphasize subsistence and necessity entrepreneurship (including micro-entrepreneurship), but instead targeted growth-oriented entrepreneurs as potentially the most significant contributors to overall economic growth and transformation (Autio 2008; and Fritsch 2008).

A Public-Private Partnership Program for Mobile Entrepreneurship Enablers

infoDev and the government of Finland opted to focus a substantial share of

The Development Potential of App Economies and *infoDev*’s Mobile Innovation Program

Innovation and entrepreneurship are key drivers of development. Among the most vibrant areas for entrepreneurship are mobile applications and software, or simply “apps.” The growth of “app economies” is forecast to further increase over the coming years, implying enormous potential for app entrepreneurs and developers. Mobile apps also enhance opportunities in areas such as healthcare, government, empowerment, and entertainment.

App entrepreneurs face substantial challenges in fledgling innovation ecosystems of developing countries. They might have unique insights into local circumstances and abundant creativity but they often lack professional networks, favorable policy environments, information access, business skills, mentors, spaces for exchange, and access to investors. In most cases, ecosystems also have to integrate policy makers, mobile network operators, investors, donors, and so on, for mobile app entrepreneurs to thrive.

infoDev’s Mobile Innovation Program supports growth-oriented mobile app businesses in emerging and frontier markets. *infoDev* does this by 1) enabling entrepreneurship in the mobile industry, through venture incubation and acceleration, 2) building mobile innovation communities of entrepreneurs, investors, partners, and mentors, 3) researching the app economy of local markets.

For more information on “mobile innovation ecosystems” and “app economies,” see www.worldbank.org/ict/ic4d2012, http://unctad.org/en/PublicationsLibrary/ier2012_en.pdf, and <http://www.visionmobile.com/product/app-economy-forecasts-2013-2016/>

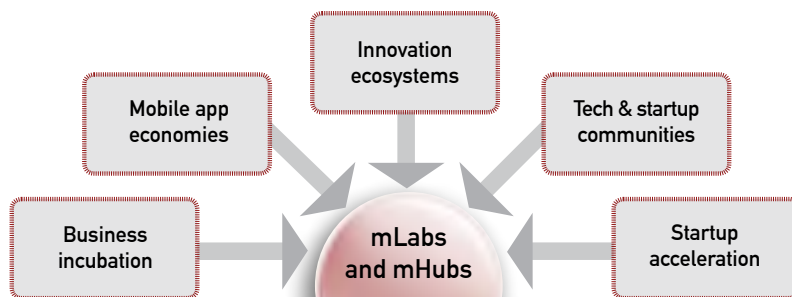


Figure 1:
Foundational
Concepts for
mLabs and
mHubs

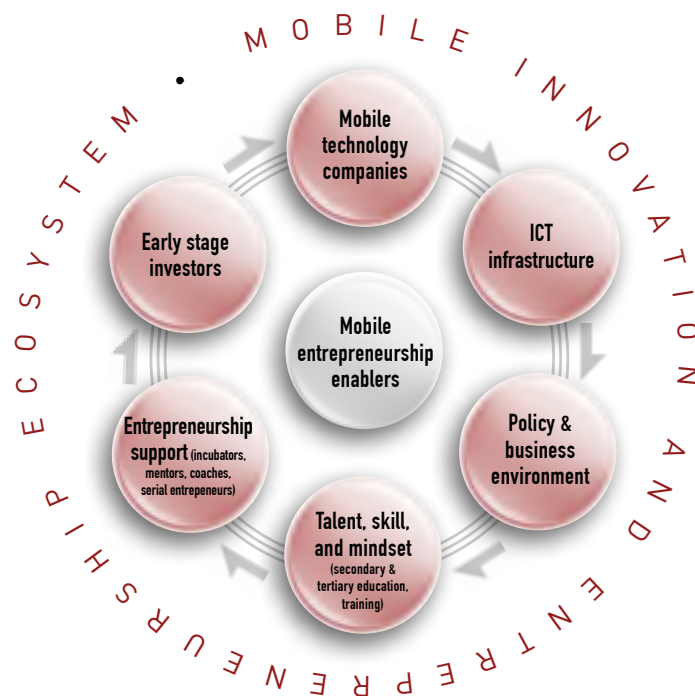
CSBKE programming on the mobile app⁴ industry, which later led to the establishment of the Mobile Innovation Program as one of *infoDev*'s work streams (see box 2). The program was set up in a public-private partnership with Nokia—one of the leading mobile communications equipment suppliers for developing countries.

Participation in the program was in line with Nokia's goals as it hoped to foster innovation in mobile content ecosystems and support app developers generally, while ensuring that its technology would play an important role in the process. Nokia's main role was seen in bringing in technical and market expertise and strengthening the program's private-sector orientation. The company played a strong role especially in the setup phases: it helped conceive the concept and general business model for mLabs (see below for details), and the company also contributed to the consortium selections. Nokia's participation was also expected to enhance the value proposition of projects mainly through in-kind support from its local subsidiaries, for instance, in the form of training material, software toolkits for app development, knowledge sharing with project managers and clients, as well as support for program scoping and design. At some of the sites, Nokia would also be involved in the later stages of project rollout, for example, in

recruitment decisions of managers and provision or facilitation of core funding. *infoDev* and Nokia agreed that any tech partnership would be non-exclusive towards other mobile platform providers. This focus on the mobile app industry was made to tap into the tremendous potential of growth in app economies to contribute to overall economic growth and development, which had begun to become more apparent towards the end of the last decade. Moreover, a focus on mobile apps also built on each partner's strengths and on the large impact potential for innovation ecosystem support in the mobile sector (low capital requirements and barriers to entry, a fast growing distribution platform of mobile infrastructure and data-enabled devices, as well as an emerging skills base in app development).

The backbone of the Mobile Innovation Program would be built by implementation partners on the ground. This was seen as the best way to enable contextualization and adaptation to the evolving conditions of innovation ecosystems, and to contribute to sustainable development of local knowledge economies. In the design of potential implementation models, *infoDev* took the familiar concept of business incubation and integrated it with design elements drawn from areas such as startup acceleration⁵, app economies⁶, and tech and startup communities⁷(see figure 1).

Figure 2: Mobile Entrepreneurship Enablers at the Center of Mobile Innovation and Entrepreneurship Ecosystems



This implied that *infoDev* would move from traditional incubators towards more flexible mobile entrepreneurship enablers that would create and support startup companies, but also help to grow the entire local mobile innovation and entrepreneurship ecosystem (see figure2).⁸

What Are mLabs and mHubs?

infoDev decided to experiment with two different models of mobile entrepreneurship enablers, mobile application labs, or mLabs, and mobile social networking hubs, or mHubs (see table 1 for a list of services).

mLabs are specialized mobile business incubation and acceleration facilities, offering physical workspaces, mentoring and coaching, devices for app-testing, training, and startup competitions.

mHubs build mobile tech communities by convening a variety of stakeholder groups at informal gatherings, peer-learning sessions, conferences, and ideation and prototyping competitions.

InfoDev aimed to establish mLabs and mHubs through a market-driven approach, achieved via the global partnership with Nokia and a focus mainly on nongovernmental local implementation partners. This was seen as the basis to push and support entrepreneurs to generate viable, sustainable mobile app business models, fit for the global marketplace or highly relevant locally. mLabs and mHubs were expected to become important contributors to the growth of competitive mobile app industries. Their market orientation was envisioned as the foundation for mLabs and mHubs to attract strong participation and endorsement by private-sector technology companies and other stakeholders of local innovation ecosystems.

Typically, mLabs would only be implemented if the local innovation ecosystem had already reached a certain degree of maturity. When critical inputs such as entrepreneurial and technical talent, early-stage investors, and strong partners with support resources are

What makes mLabs and mHubs different from other entrepreneurship support channels?

- Focus on growth entrepreneurship and startups
- Focus on venture creation and early stage innovation support ("From Mind to Market")
- Expertise in mobile tech and apps as attractive growth sectors with particular market dynamics
- Rooted in notion of complex multistakeholder ecosystems (innovation ecosystems, entrepreneurship ecosystems, startup ecosystems, mobile tech ecosystems)
- Participatory, demand-driven codesign by *infoDev* and local stakeholders
- Independent implementation through grantees as local mobile entrepreneurship enablers; leeway to fill out a conceptual framework provided by *infoDev*
- Local enabler has access to global *infoDev* network (peer enablers, knowledge, experts, and so on)
- Local enabler has indirect access to World Bank infrastructure, branding, and networks

Box 3: What Makes mLabs and mHubs Different from Other Entrepreneurship Support Channels?

unavailable, mLabs can hardly realize their full potential. mLabs have a regional focus, beyond their host city and country. While mHubs also rely on partner organizations as sponsors and in-kind contributors, they can form communities from the ground up

with small amounts of resources and funding, which means that they can fit into even the most nascent innovation ecosystems. In sum, mLabs and mHubs have several attributes that differentiate them from other entrepreneurship and business support organizations (see box 3).

Service Portfolio Options	mHubs	mLabs
Informal community building and networking events (e.g., thematic presentations & discussions, showcasing events)	✓	✓
Facilitation of online collaboration and learning	✓	✓
Multi-stakeholder conferences	✓	✓
Mentorship by successful entrepreneurs and investors*		✓
Technical and business-skill training*		✓
Innovation competitions and prototyping events like hackathons for talent sourcing*		✓
Assistance with marketing apps, e.g., advice on pricing, facilitating delivery channels*		✓
Contacts to investor networks*		✓
Provision of co-creation and ideation spaces		✓
Formalized incubation program		✓
Free/subsidized office spaces		✓
Mobile app testing facilities		✓
Access to early stage financing and seed-funding**		✓

Table 1: Service Portfolio Options for mLabs and mHubs

*Advanced mHubs can implement this activity, for instance, assisted by an mLab.

**mLabs can only provide direct access to seed capital if they receive additional funding.

Table 2::
Key Funding
Amounts
and Dates on
mLabs and
mHubs under
CSBKE

Funding

Total CSBKE	\$19,500,000
Mobile Innovation programming under CSBKE	\$4,171,000
Funding for mLabs and mHubs	\$3,917,000
Grants	\$2,439,000
Technical assistance	\$1,478,000
Research ^a	\$254,000

Dates

CSBKE launch	December 2009
First tranche received by <i>infoDev</i> /the World Bank	April 2010
First selection process (for mLabs in Africa)	February to September 2010
First activities launched by an mLab or mHub (mHub Uganda)	February 2011
First official launch of an mLab (mLab East Africa)	June 2011
Most recent official launch of an mLab (mLab East Asia)	September 2012
End of mLab grant periods	June 2013

Note: Funding amounts are based on expenses as of September 10, 2013, excluding few outstanding commitments. Amounts have been rounded to thousands.

a. CSBKE research outputs that fall under the Mobile Innovation Program include the IC4D2012 – Maximizing Mobile report as well as an overview report and country studies on South Africa and Kenya on the topic of Mobile Usage at the Base of the Pyramid.

Funding and Rollout of mLabs and mHubs under CSBKE

About \$2.4 million of CSBKE funding was used for recipient-executed activities in the form of grants to local partners that would implement mLabs and mHubs. An additional \$1.5 million was spent on technical assistance for mLabs and mHubs, executed by *infoDev*. The overall duration of CSBKE was four and half years, from December 2009 to June 2014. Grant periods, which imply the grantees' timeframe for implementation, were scheduled to last from mid-2011 to mid-2013, while mLab East Asia was officially launched only in September 2012 (see table 2).

infoDev currently has four mLabs in countries in the developing world.² Originally, three mLabs were due to be launched, one each in Africa; Asia; and Europe, Caucasus, and Central Asia

(ECA). Shortly after the trust fund had been established, *infoDev*, the government of Finland, and Nokia reached consensus that a wider spread of the network—which could enhance its reach and the potential for experimentation—would be feasible with the available funding. Accordingly, five mLabs would now be implemented, one in each the following regions: East Africa, Southern Africa, ECA, East Asia, and South Asia (see figure 3). However, the mLab intended for South Asia never became operational because of governance and leadership issues (see essay on [mLab South Asia](#)). With regard to mHubs, three each were funded for the Africa and ECA regions, as well as two in Asia, for a total of eight (see figure 4).

Given their pilot character, it was difficult to set concrete targets for mLabs and mHubs, both at the program and project level. Originally, each mLab

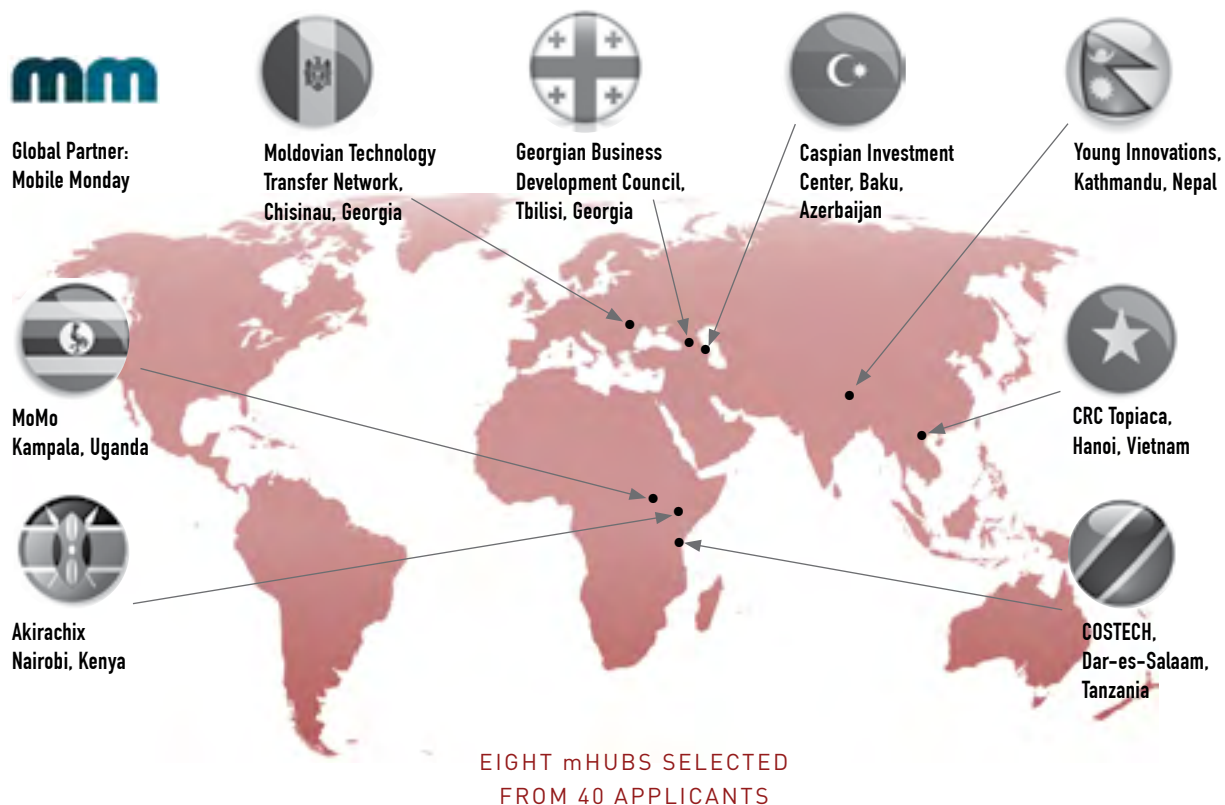


Figure 3: Location of mHubs



Figure 4: Location of mLABs



was expected to incubate ten mobile application entrepreneurs. The CSBKE work program also specified, in hindsight, a quite modest outcome target for the development and success of apps through mLabs and mHubs: eight to ten mobile apps with potential to enhance productivity in local knowledge economies were expected to be launched and scaled by each mLab. Later, grant agreements with mLabs specified additional targets, mostly at the output or immediate outcome level, such as the number of students that should be trained or the number of teams that should be incubated. Most mHubs were not given explicit targets other than the number of events they were expected to organize.

Such targets had the function to ensure accountability for deliverables but they were not seen as comprehensive indicators for the overall impact that mLabs and mHubs would have. The

pilot character and catalyst function of mLabs and mHubs had always informed the goals of the program, namely to experiment with viable business models for mobile entrepreneurship enablers and explore the overarching impact that they could have on local innovation ecosystems and knowledge economies.

Similarly, at the outset of the CSBKE, it was unclear if mLabs and mHubs would be able to reach financial sustainability within the program timeframe of about three years, with just over two years of implementation. While program designers hoped that mLabs and mHubs would be able to attract substantial financing from private-sector entities, follow-on funding from other donors and local governments had always been considered as a likely option. Ultimately, *infoDev*, the government of Finland, and Nokia—although aware that not all mLabs and mHubs might

achieve sustainability by the end of the CSBKE program—decided that it was paramount to get projects off the ground as quickly as possible. The hope was that additional funding would be generated once any local business models' promise would start to materialize and proof of concept (locally and/or globally) would be reached.

Despite mLabs' and mHubs' operational independence, they cannot be seen in isolation from *infoDev* as their global umbrella organization. At the beginning of implementation, *infoDev* provided in-depth conceptual guidance to new mLab managers by commissioning a generic mLab business plan¹⁰, presentation material on the mLab concept¹¹, and a business plan workbook. These resources made the case for mobile technology-specific incubators, outlined potential service portfolios and partnership models, and gave ideas for revenue generation. At the same time, it was emphasized that mLabs would have to adapt this generic model to local circumstances.

Over the course of the rollout of CSBKE, *infoDev* had an interest in seeking information from the local level in order to report and showcase the results of its programming and to learn for future projects. More importantly, *infoDev* also aimed to create a network of mobile entrepreneurship enablers that was more valuable than the sum of its parts. To do this, *infoDev* explored the following:

- Running global activities such as innovation competitions and hackathons, with mLabs and mHubs as local implementation partners.¹²



- Facilitating partnership building, especially with global technology and development partners.¹³
- Evaluating mLab and mHub pilots to generate business analytics and good implementation practices.
- Enabling and encouraging peer learning and knowledge exchange between mLabs and mHubs.

Why Evaluate the Business Models of mLabs and mHubs?

The pilot character of mLabs and mHubs implies the appropriate measures for success. Of course, any given mLab or mHub has the goal to increase its clients' business success, skills, and professional networks, and this can and should be tracked in numbers. While quantitative results cannot tell the whole story of technology innovation hubs such as mLabs and mHubs, quantitative measures are relevant and will increase in importance as more

sophisticated benchmarks and assessment methods become available over the coming years. *infoDev* encourages mLabs to systematically track and communicate the success of their client startups over time as such transparency is critical for incubators and accelerators to continuously attract interest from new startups and investors.¹⁴

This report does not claim to comprehensively assess the holistic impact of mLabs and mHubs, but rather, it aims to identify models and lessons that appear likely to lead towards the largest possible catalytic impact.¹⁵ It makes this assessment based on *infoDev*'s experience and the qualitative evidence collected from stakeholder interviews, reflected against the current understanding of startup ecosystems and the role of (grassroots and tech) innovation for economic growth.

In order to do this, the report analyzes mLabs' and mHubs' business models. "Business model" is defined broadly, and encompasses how mLabs and mHubs "make money" but also how they generate value for various stakeholder groups, even if this does not translate into an immediate revenue stream. *infoDev* collected initial quantitative data, but mLabs and mHubs should not be evaluated uniquely based on such information on startup revenue generation, startup creation, individuals trained, and so forth. A strong focus on models and a lesser focus on quantitative data are mandated by the following reasons.

First, mLabs' and mHubs' outcomes are highly interdependent with the dynamics of the innovation ecosystems

in which they exist. None of the mLabs and mHubs have been analyzed by means of rigorous impact evaluation methods that could more clearly attribute impact and quantify any effects. Hence, it is misleading to assume that there is a linear relation between standardized observed indicators and performance for a given mLab or mHub. It should not be inferred that results are a direct consequence of only the mLabs' and mHubs' activity, so, for instance, the results cannot lead to a clear conclusion such as "mLab East Africa was the most successful because it had the best results."

Second, in the programmatic context of CSBKE, mLabs and mHubs were pilot projects. The fundamental purpose of the mLab and mHub projects was to get them to a proof of concept stage, upon which working models could be scaled or replicated elsewhere. The underlying goal was to push frontiers in innovation for development practice and to identify mobile entrepreneurship enabler models that work in complex multistakeholder ecosystems. While direct positive effects on private sector development were a key goal, concrete impact targets were deliberately held to a modest level. mLabs and mHubs were allowed to try out different models that could lead to the highest holistic impact, without them being held accountable to extensive impact goals such as startup revenue or job creation.

Third and most importantly, mLabs and mHubs are catalytic, innovation ecosystem-oriented private sector development instruments, and their power is not expected to lie in the immediate

An mLab's or mHub's holistic impact on the local innovation and startup ecosystem goes much further than what short-term results can capture. Entrepreneurs learn and get inspired, and even if they do not start a business right away or if their business fails, they might found a successful company at a later point in time.

results they produce, even if they reach the proof of concept stage. The support of ecosystems and communities cannot be understood as a mechanistic relation between input and output. An mLab's or mHub's holistic impact on the local innovation and startup ecosystem is likely to go much further than what descriptive, short-term results can capture.¹⁶ Coupling resources with a culture that embraces tech innovation and a startup mentality can ultimately create fruitful "co-opetitive" exchanges and positive feedback cycles in ecosystems, as examples such as Boulder,¹⁷ Bangalore,¹⁸ and Tel Aviv¹⁹ have shown. For instance, entrepreneurs learn and get inspired, and even if they do not start a business right away or if their business fails, they might found a successful company at a later point in time. mLabs and mHubs

also create business connections that otherwise would not have been created, and there are many more examples of indirect positive effects.

Accordingly, this study will list quantitative results of mLabs and mHubs, but only insofar as they help to understand the viability of their business models. Also, this analysis does not aim to yield a definite, universal mLab or mHub business model. Local conditions and constraints will always dictate, for example, which services add the most value or which types of partner organizations can meaningfully contribute.

Instead, the study carves out high-level lessons across contexts, and highlights which choices mLab and mHub managers can make to adjust their business model to their local context or to fulfill a specific mission focus. Case studies further complement high-level findings through illustrations of context-specific implementation opportunities and challenges. Through this combination, the report provides suggestions and ideas for business model design and conceptualization of innovation hubs in general and new and existing mLabs and mHubs in particular. The findings were derived from 148 interviews and 13 focus groups with 240 stakeholders of these seven mLabs and mHubs.

This part of the report (part I) concludes by describing aggregate results data that illustrates the promise of mLabs and mHubs. A more substantive analysis is included in [part II](#) of the report, which summarizes generalized lessons learned as well as discussions of inconclusive evidence and future directions for *infoDev*. In [part III](#), the

report employs rich illustrations and descriptions of nine case studies (out of a total twelve mLab and mHub pilots), including seven in-depth discussions of mLabs' and mHubs' business models.

The report's findings will be useful for the following audiences:

- Current and future mLab and mHub managers and consortium organizations.
 - Current and future stakeholders and partners of mLabs and mHubs.
 - Current and future private-sector partners of mHubs, mLabs, and *infoDev* (in particular, mobile tech companies).
 - Donors and funders for mLabs and mHubs (including local government agencies).
 - Other entrepreneurship enablers (such as innovation hubs, incubators, and accelerators).
 - Donors and funders of *infoDev*'s Mobile Innovation Program.
 - Researchers and practitioners working in the innovation for development space.
 - *infoDev* and other World Bank units working on tech innovation support.
- More than 280 direct high-quality jobs have been created.²⁰
 - Almost 100 startups have been created and close to 300 startup teams have received mentoring and coaching.
 - Over 500 apps have been brought to market, of which more than 300 have made revenue.
 - 2.6 million app downloads²¹ and more than 5,600 organizational app customers²² were reported.
 - About 370 events have been organized (such as startup events and app contests) and 2,500 individuals have been trained in mobile technology and entrepreneurship topics.
 - Overall, an estimated 32,000 developers and entrepreneurs have been reached.

Such quantitative evidence, if contextualized and compared properly, can be useful to understand the potential of mLabs and mHubs, to learn about and improve their operations, and to showcase and promote them to funders and partners. When comparing mLabs against each other, it clearly emerges that, to date, mLab East Africa has produced the most promising results, with the highest score in nine out of the eleven indicators analyzed (see figure 5). This certainly reflects how active this mLab has been. mLab East Africa has pursued an expansive strategy, implementing virtually every service line possible for an mLab, while maintaining a high pace (see [case study on mLab East Africa](#)). At the same time, without taking credit away from mLab East Africa's achievements, these scores are only indicative measures for success (see [appendix C](#) for details). For

Results for mLabs and mHubs

infoDev has collected data for mLabs and mHubs directly from their managers. Key results and outputs reported by the four operational mLabs and eight mHubs are summarized below:

- About \$2.6 million has been raised by startups supported by mLabs and mHubs.
- The startups together have generated over \$1.1 million in revenue.

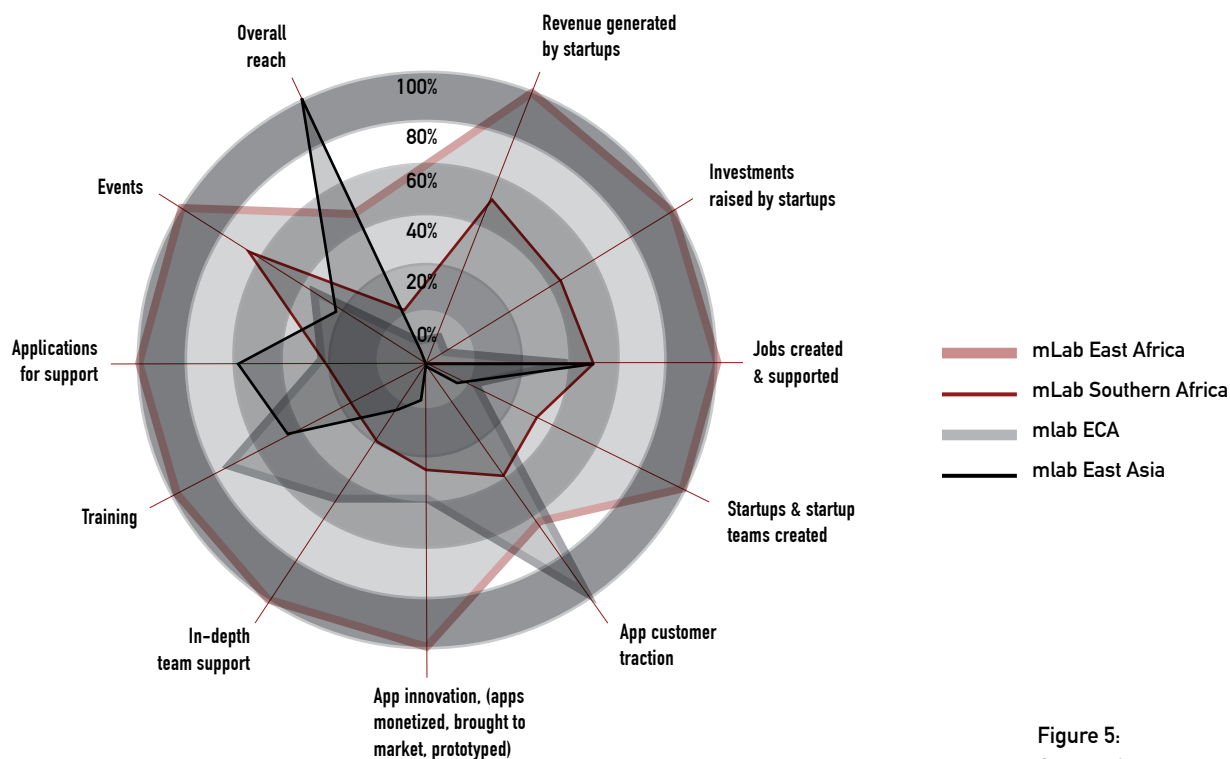


Figure 5:
Comparison
of Key Results
across mLabs

Note: The percentage values represent linear comparisons across data for all four mLabs, with the mLab scoring highest for a given indicator receiving 100%. [Appendix C](#) provides details on the calculation methods

example, mLab East Africa has been operational for the longest time and it has not faced implementation delays or management changes as mLab East Asia and mLab Southern Africa have. mLab East Africa also thrives on the buzz of the Nairobi ecosystem and high demand for its services.

Interestingly, some of the strategic priorities of the other three mLabs are reflected in the comparative results. For instance, mLab ECA's long term approach to support talented developers with no entrepreneurial experience from the ground up has yielded extremely popular consumer apps, while the results for startup revenues and investments raised have remained modest after the first year of implementation (see [case study on mLab ECA](#) and [At Which Startup Stage Can mLabs Add the Most Value?](#)). On the contrary, mLab Southern Africa's

strategy shift towards a focused, vertical mobile incubator model (see [case study on mLab Southern Africa](#)) has resulted in a relatively low number of people trained and teams supported, while those startups that have been supported were successful, generating fairly high numbers for startup revenues and investments raised. Finally, mLab East Asia—after a somewhat bumpy path to implementation—has reached the largest number of developers and entrepreneurs and trained many individuals in a short period (see [case study on mLab East Asia](#)), but the startup teams will need more time and in-depth support until they are able to raise substantial investments and generate revenue.

Endnotes

² Or see <http://www.nytimes.com/2013/08/18/business/why-innovation-is-still-capitalisms-star.html>.

³ See, for instance, Finland's Aid for Trade Action Plan (2008–2011),

<http://formin.finland.fi/public/default.aspx?contentid=137494&contentlan=2&culture=en-US>.

⁴ In this report, “app” is defined broadly and includes any mobile application, software, or content on any vendor platform, including USSD and SMS-based technologies.

⁵ Startup acceleration is distinct from business incubation through a greater emphasis on investment-readiness, mentoring and coaching, peer learning within badges of entrepreneurs, as well as pitching and demos. In contrast to incubation, acceleration de-emphasizes physical work and office space, provision of business support functions such as accounting and legal, and other physical infrastructure such as app testing facilities.

⁶ See, for instance, World Bank, 2012; UNCTAD, 2012; or <http://www.visionmobile.com/product/app-economy-forecasts-2013-2016/>.

⁷ See, for instance, <http://steveblank.com/2012/10/08/startup-communities-regional-clusters/>.

⁸ This report defines mobile innovation and entrepreneurship ecosystem broadly, encompassing all factors mentioned in figure 2.

⁹ mLab regions are not equivalent to World Bank regions and instead cover subregions of neighboring or otherwise geographically/culturally/politically related countries.

¹⁰ http://www.infodev.org/infodev-files/resource/InfodevDocuments_1087.pdf.

¹¹ <http://www.vitalwaveconsulting.com/pdf/2011/mLabs-Speaker-Series.pdf>.

¹² infoDev implemented the m2Work project (<http://www.infodev.org/m2work>), consisting of a global idea competition (<https://ideasproject.com/web/m2work>) and a multisite hackathon (<http://m2workhackathon.org/>); the mAgri Challenge (<http://www.infodev.org/mAgri>), and the VentureOut challenge (<http://ventureoutchallenge.org/>).

¹³ For instance, together with Nokia, infoDev facilitated a partnership between AppCampus and the mLabs, according to which mLab startups applying for the program would have privileged access to earmarked funds, see <http://infodev.org/press-releases/nokia-world-bank%E2%80%99s-infodev-and-appcampus-announce-collaboration-press-release>.

¹⁴ For a recent op-ed on the topic by David Cohen, founder of Techstars, see <http://blogs.wsj.com/accelerators/2013/08/20/david-cohen-entrepreneurs-deserve-full-transparency/>. The importance of continuous tracking of client startups for impact accelerators was also highlighted in a recent report by the Aspen Network of Development Entrepreneurs (see Baird, Bowles, and Lall, 2013). The study gives the following advice to impact accelerators: “Tracking & Measurability: [1.] Invest in platforms and systems to encourage and enable quality data collection from the enterprises you support. (Check out the free PULSE platform on Salesforce.) [2.] Collect data from all enterprises that apply to your programs, even the ones that are not accepted or do not receive services, to more comprehensively assess performance against a control group. [3.] Collect data from participating enterprises for at least five years post-program years to track progress and growth over the long-term. Partner with academic institutions and industry associations to develop stronger data collection systems.”

¹⁵ An upcoming outcome assessment of mLabs and mHubs implemented under CSBKE will evaluate additional qualitative and quantitative evidence. infoDev commissioned the assessment from the global private sector development evaluation and research agency, CAD (<http://cad.globalcad.org/en/que-es-cad/>).

¹⁶ For a strong rebuttal of the usefulness of short-term quantitative indicators as measures of a startup ecosystem's success, see this interview with Brad Feld <http://www.technologyreview.com/news/516521/its-up-to-you-entrepreneurs/>.

¹⁷ See, for instance, <http://www.kauffman.org/newsroom/2013/08/young-hightech-firms-outpace-private-sector-job-creation>.

¹⁸ See, for instance, <http://www.forbes.com/sites/quora/2012/12/07/how-can-a-young-twenty-something-american-find-meaningful-work-in-indias-tech-startup-scene/> or <http://tech.co/india-startup-scene-shradha-sharma-2012-05>

¹⁹ See, for instance, <http://startupnationbook.com/>.

²⁰ Some of these jobs are employees in fledgling incubatee startups. More reliable figures for sustainable job creation will only become available in the coming months and years.

²¹ Downloaded apps only include apps for which downloads were tracked and the actual number is likely to be much higher.

²² Organizational customers include enterprises, public agencies, and other organizations.





Part II: Lessons Learned and Future Directions for mLab and mHub Business Models

Lessons Learned for mLabs and mHubs

The mLab and mHub pilots analyzed showed a set of commonalities. This section summarizes findings that appear to hold across local contexts, or that seem to be rooted in general trends and attributes of mobile innovation ecosystems in developing countries.

These generalized findings should not be seen to imply a set of definite best practices. Of course, each mLab and mHub is designed and implemented differently, and responsiveness and adaptation to local innovation ecosystems and market conditions are paramount. Still, if applied to local contexts with care, the findings and lessons should provide useful guidance for mLab and mHub managers, *infoDev* and donor organizations, as well as partners and other ecosystem stakeholders. At the least, they can help to avoid repetition of mistakes that were made and set more realistic expectations.

Services and Value Proposition

mLabs and mHubs focused on three areas of activity, with varying emphasis depending on the local strategy and ecosystem requirements:

- (1) **Startup creation and support** through incubation and acceleration,
- (2) **Skills development** through training and workshops, and
- (3) **Community building** through events and online platforms.

Startup and innovation competitions contributed more or less to all three areas, depending on their design.

Although mLabs have elements of startup accelerators, they have assumed a broader function as ecosystems builders, focusing on activities that contribute to the enabling environment for mobile entrepreneurs at large, which sometimes results in more limited direct effects on startup creation. While startup creation and support have been important goals for mLabs, they have also assumed a broader function as enhancers of local innovation ecosystems. In part, this was a direct consequence of the original mobile entrepreneurship enabler concept as imagined by *infoDev*. mLabs have delivered training and community building, even if there were no direct or immediate effects on startup creation. What is more, mLabs have helped entrepreneurs from the early stages onwards; often mLabs supported recent university graduates with not much more than an idea—enabling them to

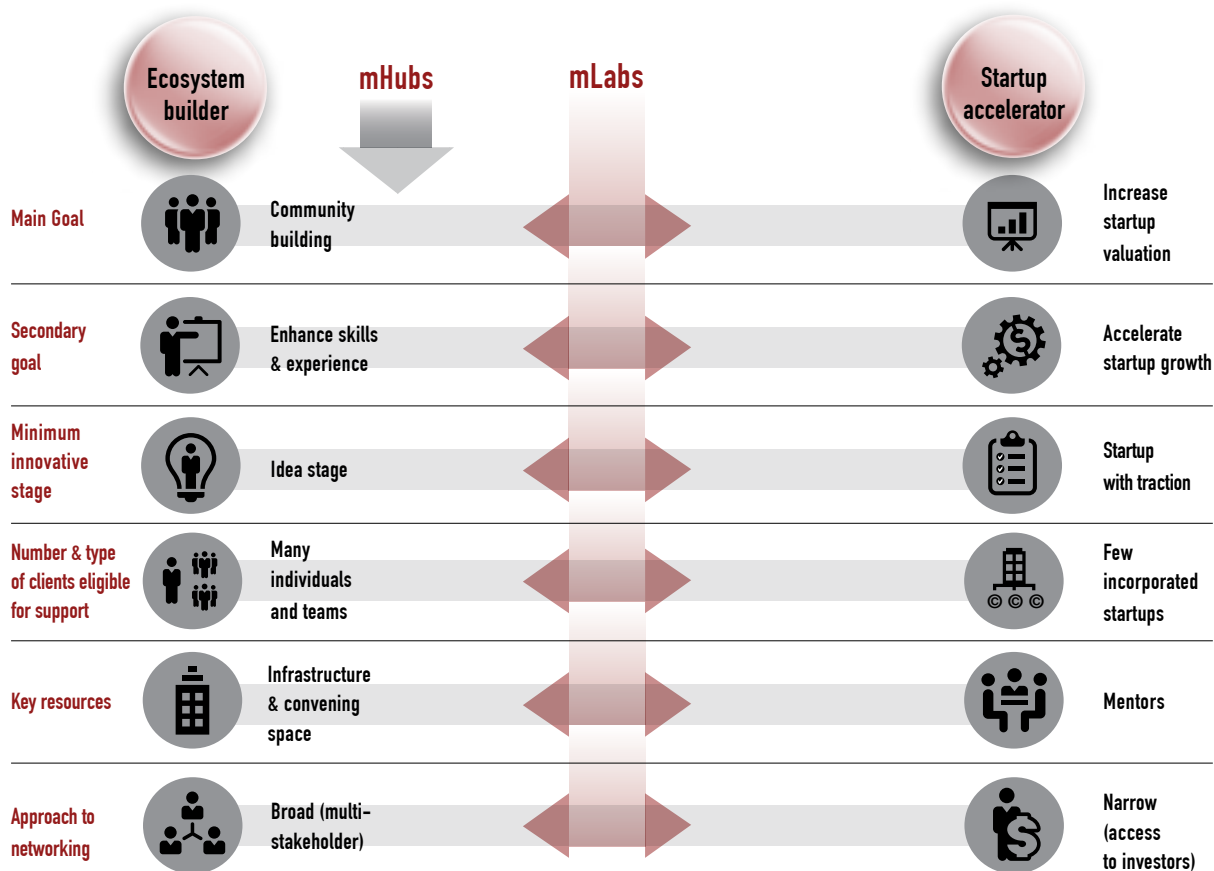


Figure 6:
mLabs' Positioning
between an
Ecosystem Builder
and Startup
Accelerator Model

build startups from the ground up—even if this implied a higher failure rate and more modest business successes. Accordingly, many interviewees considered mLabs' greatest impact to lie in ecosystem building (nurturing talent and ideas, teaching business and technical skills, and enhancing

linkages between ecosystem stakeholders), and not primarily in startup creation. A simplified framework that depicts key differences in the goals and support strategies between an ecosystem builder and a startup accelerator model is presented in figure 6. It remains an open question whether mLabs should shift their emphasis towards startup acceleration or maintain services that enhance the innovation ecosystem at large (see [section Should mLabs Focus on Ecosystem Building or Startup Acceleration?](#)).

Startups see one-on-one mentoring as the key value proposition of mLabs, and they request that it be given stronger emphasis. Yet, it is usually hard to find good mentors, even for payment.

Startups see one-on-one mentoring as the key value proposition of mLabs, and they request that it be given stronger emphasis. Early-stage startup entrepreneurs seek feedback on common business issues (such as negotiations, partnership building, fundraising, business planning, financial modeling, recruiting, and legal), but the specific problems that a given startup grapples with vary too much to offer

support through standardized formats such as workshops. The typical cycle of mentoring sessions should be between weekly and monthly. Mostly, mentors and coaches are not expected to be high-level, well-established, highly successful professionals. The interviewed startups looked for depth and familiarity with their businesses' intricacies more than for big names and lofty visions. Yet, in the countries where mLabs and mHubs operate, it is usually hard to find good mentors, even for payment. In particular, it has been a challenge to recruit competent subject matter experts that know a given sector or industry, irrespective of business and

technical skills, who are also willing to work with young mobile entrepreneurs.

An mLab or mHub generates most value when it offers a portfolio of services that mutually reinforce each other. Most mLabs and mHubs have experienced that innovators benefit the most if they have the choice between various means of support. For instance, events can help an mLab to generate a talent pipeline, while they give newcomers a chance to find out about the mLab's offerings without the need to commit to a lengthy support program. Incubation, on the other hand, is more suitable for startup teams that

The role of innovation competitions


Innovation competitions for mobile app and ICT entrepreneurs have gained in popularity in recent years. They aim to provide opportunities especially for young innovators and technologists, for instance, offering cash, device, or incubation prizes.

However, in places where ad hoc innovation competitions proliferated, they sometimes led to only temporary or no effects on innovative and entrepreneurial activity. For instance, competition fatigue and competition hopping are two worrying phenomena that have led those technologists to self-select for participation that are not able or willing to take forward and scale their products.

Yet, with the right incentive structures in place, innovation competitions have shown to be useful to identify talent, become lightweight tools for startup acceleration, and extend tech innovation hubs' reach beyond their physical space. In the experience of mLabs, mHubs, and *infoDev*, innovation competitions ought to be integrated with more continuous incubation support. *infoDev* has attempted to capture this approach in its "From Mind to Market" approach to global innovation competitions, as well as in the implementation of the m2Work challenge and hackathon, the mAgri challenge, and the VentureOut challenge.

More information on the From Mind to Market approach and innovation competitions can be found at <http://www.infodev.org/m2Work>, <http://www.infodev.org/mAgri>, <http://ventureoutchallenge.org/>, <http://blogs.worldbank.org/psd/evolution-startup-competitions-case-pivot-east>, and <http://blogs.worldbank.org/psd/oh-no-not-another-apps-challenge>.

Box 4: The Role of Innovation Competitions



Trainees were more likely to found startups if the training strongly emphasized entrepreneurship.

have already shown some progress. Similarly, startup competitions and “lightweight” accelerator models were often seen as complementary rather than a substitute for traditional incubation services. By providing a diverse set of activities, mLabs and mHubs can cater towards more diverse beneficiary needs, but also establish more innovative and versatile partnership models. It has also become apparent that ad hoc activities such as events and competitions need to be held regularly to generate and sustain a brand and momentum within the community.

Innovation competitions lead to better results for startup creation if they are embedded in continuous support, including follow-up mentoring and contact brokering with potential partners and investors. While competitions have not proven to replace in-depth support, they have become tools for “lightweight” acceleration and extended the reach of mLabs and mHubs beyond physical spaces. mLabs and mHubs have learned that the most effort should be invested in the [“before” and “after”](#) of the actual competition event (see box 4). Especially ideation and prototyping competitions,

such as hackathons, need substantial follow-up to achieve any impact on entrepreneurship. Particular emphasis should be given to coaching and mentoring, as well as partnership and investor contact brokerage. Competitions also need to have strong differentiators depending on local needs. If designed well, competitions can be a viable means to interconnect mLabs and mHubs, and give early-stage innovators an opportunity for international exposure.

Training programs are likely to have positive effects on the local ecosystem, but they do not appear as the most efficient means for direct startup creation. All mLabs and several mHubs have implemented training programs, ranging from boot-camps and workshops over few days to in-depth training over a whole year. These programs were aimed to tackle significant skill shortages that are important ecosystem gaps. Training was generally well received by students and hundreds of apps were created in the process. However, startups rarely found trainees from mLab and mHub programs to be employable, as fledgling companies mostly look to first recruit a core team of experienced and seasoned people. Often established technology businesses actually benefitted more from skills development programs, as many trainees went on to seek employment with them. Trainees were more likely to found startups if the training strongly emphasized entrepreneurship, for example, by mandating the founding of a company or bringing an app to the market as a course requirement. Still, the few startups founded in such a manner were rarely sustainable.

Training is a strong focus for mobile technology companies providing devices and operating systems, as it increases platform-specific coding skills and the sheer number of available apps. Also local governments found training to be important, given its contribution to developing the local labor force.

mLabs and mHubs add substantial value for entrepreneurs and startups through brokering relationships with clients, funders, and partners. mLab and mHub managers believe that their partnership network should be cast as widely as possible, including linkages into non-tech sectors and international connections. Partners have either added value for entrepreneurs directly by offering innovation prizes, sponsorships, mentoring, and in-kind contributions, or they have supported startups via the mLab's or mHub's channels, helping the mobile entrepreneurship enablers with funding, branding, expertise, market information, and more. mLabs have assumed various intermediary roles; often they have functioned as the trusted and recognized point of contact for large and risk-averse organizations, thereby brokering business for incubatee startups. However, this has so far mostly happened serendipitously. mLabs and mHubs are only beginning to formulate methodologies for matchmaking of startups and partners, and they have not yet implemented specific relationship management strategies that startups could build upon. Startups and entrepreneurs often feel that there is tremendous untapped potential in mLabs' and mHubs' networks, including via *infoDev* and the World Bank.

Strategy

Prioritizing value-maximizing activities has been a major challenge for mLab and mHub managers as they have faced heavy resource and time constraints. Managers are often overwhelmed by day-to-day responsibilities and struggle to complete just the grant deliverables. It is hard to pick correctly from the seemingly endless possibilities and opportunities to operate and partner, and they are usually understaffed. Mostly, mLab managers are supposed to assume too many different roles, and rarely are they highly qualified for all of them. There is a sense that the budget that was available under previous *infoDev* grants was not sufficient to attract known "heavyweights" in the ecosystem, who would find it easier to use their own resources, experience, and networks to boost an mLab's effectiveness. One proposal is to split the current mLab manager's role in two: an external manager could take on business development, partnership building, and external representation, while an internal manager would be responsible for project management, administration, and day-to-day support of incubatees. One opportunity that managers agree they missed is networking with and learning from other mLab and mHub managers, but they have usually had more urgent priorities and see facilitation of this exchange as a task for *infoDev*. Managers also look to *infoDev* for more guidance and sharing of best practice for implementation and strategy (see [Lessons Learned and Future Directions for infoDev](#)).

It is important for mLab and mHub managers to engage with the developer and startup community, but mLabs need to

evaluate the effectiveness of community building for startup creation and mitigate the risk of distraction.

Managers found that they have to immerse themselves in the community and earn its trust and respect. Inactivity and slowness as well as too strong affiliation with government can lead to mistrust and skepticism among members of the community. mHubs' experience shows that it is important for community building to find the right combination of deep support for community champions and broad outreach to community members; this can be achieved most effectively by mixing face-to-face events with interactive online communication. In turn, mLabs need to find efficient ways to engage with existing communities if they are to maintain focus on direct startup support. mLabs found that tapping into existing communities or building niche communities provided more value to incubatees and other entrepreneur clients. Where communities were not readily available, mLabs engaged more selectively, since basic community building rarely had palpable effects on startup creation in the short run. Ideation and networking events were sometimes irrelevant or even detrimental for incubatee startups that needed to focus on product development or exposure to customers and partners that typically do not engage in community events.

An mLab's location must be readily accessible, and colocation with other support organizations can provide the most value for developers and entrepreneurs.

If a community of developers, entrepreneurs, industry professionals, and investors are to form around the mLab

or mHub, they must find activities readily accessible and affordable, including travel time and cost. Especially if demand for an mLab's services is much higher than its capacity, colocation with other support organizations (such as other technology innovation hubs, incubators, training centers, research laboratories, and universities) will improve the value proposition for entrepreneurs. An mLab will benefit from close coordination with colocated support organizations, and clear differentiators and division of roles are paramount. In turn, it is hardly possible to create a cluster of support organizations at a location where mobile entrepreneurs do not usually convene. Science parks removed from urban and student centers are rarely a preferred location for the kinds of entrepreneurs that mLabs serve. Colocation with tech community spaces (including open desk and co-creation spaces) can help mLabs and mHubs to attract interest from various stakeholder groups and enable serendipitous exchanges and partnership building. However, mLabs also need to make sure that its client entrepreneurs and startups continuously venture out to explore customer needs and build partnerships with nontechnologists.

mLabs and mHubs benefit from building partnerships with a wide variety of stakeholders that have a (partially) overlapping interest in entrepreneurship and startup support.

mLabs and mHubs followed an inclusive partnership building approach, never focusing on a single mobile platform or technology. mHubs' and mLabs' goals and incentives have been shown to overlap in many aspects with interests of private-sector tech

companies, entrepreneurship support organizations, local governments, training and education institutions, and so forth—and mLabs and mHubs can become the nexus of these varied stakeholder groups. While at times it has been challenging to balance conflicting interests, mLabs and mHubs have by and large benefitted from their neutrality, using it to position themselves as conveners that build the ecosystem as a whole, instead of dividing it up in a competitive fashion.

Events and competitions can be useful tools to build partnerships and to select incubatees. They provide partners with an opportunity to engage on a specific project, with a specific and limited framing. The risk of the approach is that partners increase their expectations towards concrete deliverables beyond branding over time. Moreover, a focus on startups and entrepreneurs can get lost if events are dominated by sponsors that have a narrower agenda. Competitions have also proven to be a useful channel for incubatee selection, as they highlight winners' and finalists' potential and provide them with exposure and resources.

mLab managers are aware that selection of incubatees and tracking them after they leave the program is crucial, but they have sometimes fallen short of doing this adequately. mLab managers are only beginning to set up explicit methods to select incubatees that can benefit the most from their services and that have high-growth potential. Innovation and startup competitions have proven useful for selecting incubatees, but it is unclear if and how this should be

turned into a strategic approach. For instance, such an approach would require an alignment of incubation cycles with startup competitions timelines, and it can be hard to achieve a smooth transition between the competition process and sustained incubation. Similarly, no mLab has sufficient tracking and reporting for startups in place for the post-incubation and acceleration period. All acknowledge that this can become an important issue (for instance, for benefitting from the startups' potential success, showcasing results, engaging alumni for coaching and mentoring), but none of the mLabs has had the resources or prioritized this task enough to fully address it.

mLabs have struggled to achieve a strong regional footprint beyond their base country and city. The setup of local operations was enough to consume most of the four mLabs' resources. Stronger regional engagement was achieved through startup competitions where submissions from the region were accepted. However, providing needed hands-on support for remote participants has been a challenge and can probably only be achieved through strong partnerships with local technology innovation hubs and incubators in other countries, or through more sophisticated virtual incubation programs.

Sustainability and Financial Planning

mLabs and mHubs have followed different strategies to work towards financial sustainability; activity-specific funding from tech partners and, for mLab Southern Africa and mLab ECA, funding from provincial and national governments have been the main sources of income. mLabs and mHubs



have not followed a single model to pursue sustainability, but rather relied on partners that, in any given local context, were willing to contribute and would not overly dilute the mLabs' goals. Importantly, mLabs and mHubs have learned that they should focus on brand building without requesting large financial contributions from partners in the first months and years, before an established brand helps to generate larger contributions and provides stronger bargaining power towards startups when negotiating the terms of future success sharing. For local governments, training can be complementary to university curricula, seeing the mLab as a quasi-polytechnic university. Occasionally, this also implies a readiness to subsidize this kind of training.

mLabs and mHubs were successful in securing financial contributions from private-sector partners primarily for events, competitions, and training, while mLab East Africa has also been successful in raising sponsorships for its core program.

Overall, mLabs and mHubs found that it was mostly possible to sustain events, competitions, and training with sponsorship from private-sector organizations. Innovation competitions can have substantial brand value for ecosystem stakeholders, especially for large tech companies. The contribution will depend on the relevance and size of the target market for the sponsor, as well as good design and reach of the competition.²³ Training is particularly relevant for large tech partners with a developer outreach mandate (device and operating system companies, chip manufacturers such as Intel and Qualcomm, and some mobile network providers). If an mLab runs the training as part of its core programming, tensions can arise concerning the right degree of a tech partner's influence on the training curriculum. Sometimes tech partners opt for a more straightforward setup and simply contract the mLab to implement an explicitly platform-specific training.

Only in few cases were mLabs able to attract core funding that would cover the cost of overhead, infrastructure, and incubation from the private sector (for mLab East Africa); major contributions instead came from government agencies (for mLab Southern Africa and mLab ECA). In absolute terms, government agencies have made the largest coinvestments in mLabs. Especially in cases where the startup space is less advanced, tech partners (such as device and operating system providers and chip companies) can be more hesitant to invest in the ecosystem and have smaller budgets for software developer outreach and ecosystem building. Tech partners usually focus on the downstream of app innovation; their key performance indicators revolve around app publications or trained developers. Only where tech partners had larger internal budgets in more mature ecosystems did they shift focus somewhat more on the upstream (such as app market traction, app startup creation). While partnership building with startups at events and competitions is a goal for some tech partners, this is mostly secondary to brand building. Other private-sector parties that would typically have an interest in startup creation (investors, serial entrepreneurs) have not yet considered substantial direct contributions to mLabs and mHubs given the client startups' insufficient investment readiness. mHubs are often able to run [Mobile Monday](#)²⁴ chapters and similar community activities continuously without core funding, as small irregular contributions from many different sponsors usually add up to sustain monthly to quarterly meetings.

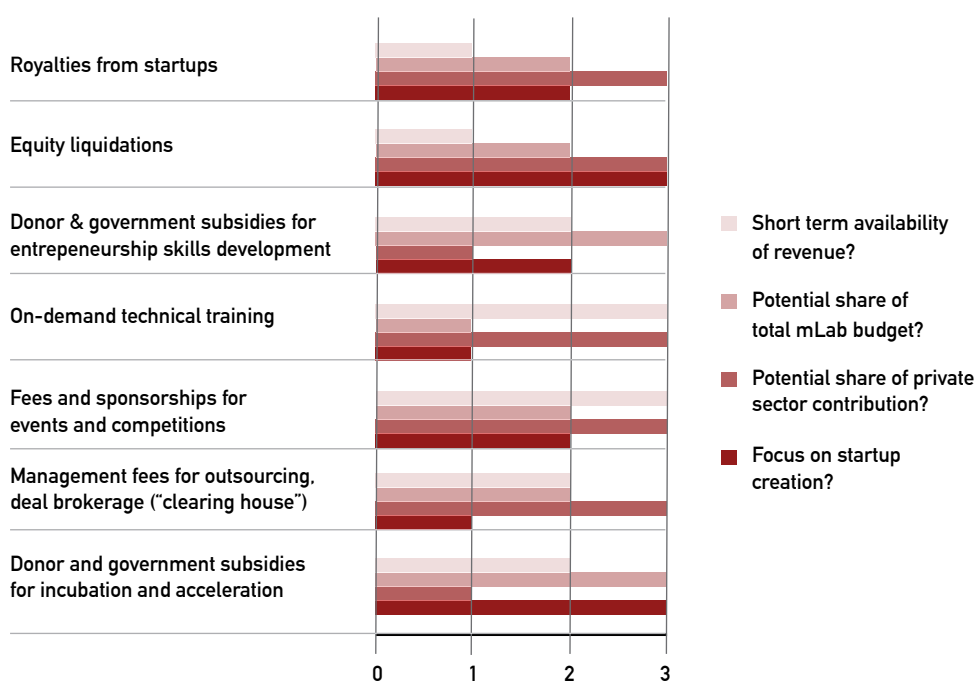
Startups and entrepreneurs are usually open to paying for services or success sharing with mLabs, but they expect a high-value service and are uncertain about the appropriate procedure for far-reaching contractual agreements. Entrepreneurs are most prepared to give back to the mLab that supports them, especially if they strongly identify with it. Worries and uncertainties concerning equity dilution and the risk of too low valuations are widespread. While some entrepreneurs strongly favor an equity mechanism—assuming that this will create an incentive for the mLab to continue to support them—others are wary and uncertain about the long-term consequences; these entrepreneurs tend to prefer rent or fee models. Some of the entrepreneurs open to giving up equity do not find mLabs' current value proposition compelling enough to give up a significant share without an additional financial investment on top of the in-kind support they receive. Startups usually demand that success-sharing agreements be negotiated case by case. In turn, mLab managers are concerned about their lack of valuation and investment skills and, for simplicity's sake, they tend to offer the same (or only a small set of) standardized contracts specifying success-sharing conditions for royalty or equity sharing models to all client startups.

At the end of the infoDev grant period in June 2013, several mHubs and most mLabs, despite progress in attracting revenue from services to private-sector partners and entrepreneurs, project financing gaps over the coming months and years. No mLab or mHub is currently able to finance its operations as a service

provider, that is, only from direct returns from customers paying for a specific service. mLabs have diversified their revenue streams significantly but the short implementation timeline did not allow them to generate enough income to fund operations independently of donors, government, and sponsors. Even including sponsorships, mLabs are not yet able to cover the costs of their activity portfolio from private-sector contributions alone (such as sponsorships, service fees, and so on). Only mLab Southern Africa (which secured additional funding from provincial and national government) and several mHubs (which run small, mainly event-based operations) are guaranteed to sustain their current level of activity. The other three mLabs are now looking for bridge funding including from public sources (donors and local governments) while slowly transitioning to revenue generation from client startups, in particular,

by requesting startups to give up equity stakes in exchange for incubation support or seed funding. It remains to be seen whether mLabs can ever be profitable should they continue to focus on turning talent into startups (see [Should mLabs Focus on Ecosystem Building or Startup Acceleration?](#) and [At Which Innovation and Startup Stage Can mLabs Add the Most Value?](#)).

Based on the experience of the past two years, infoDev estimates that, with mLabs' current focus on ecosystem building and support for idea stage enterprises, initial donor financing should extend at least over the next six to ten years. While many income sources are imaginable for mLabs, each is tied to significant tradeoffs and limitations (see figure 7). Moreover, it is hard for mLabs to monetize the service value of ecosystem building (for instance, outreach to innovators at the ideation



Note: 1: Low, 2: Medium, 3: High. An ideal revenue stream would score "3" for all four decision factors.

Figure 7:
Simplified
Framework of
Tradeoffs for an
mLab's Potential
Income Streams

stage, training, community building, and multistakeholder networking and partnership brokerage) through direct financial contributions from clients. Instead, it appears that services directed at ecosystem building will require subsidies aimed at long-term impact and systemic changes in the enabling environment for innovation, with donors and local governments as the typical stakeholder groups that can provide such funding. If mLabs are to maintain a strong focus on ecosystem building, they are likely to require a much longer timeframe to reach financial sustainability than the CSBKE program allowed for; six to ten years seem more realistic than two or three years. Extrapolating the revenue potential that has been uncovered by the four existing mLabs, ecosystem building activities could become self-sustainable without government or donor contributions over the long run, for instance, through sponsorships, community membership or training fees, contributions from community alumni, and, to a lesser extent, through returns from royalties and equity liquidations from the few exceptionally successful startups that have been incubated.

Governance, Leadership, and Consortia

Identifying the right mLab or mHub manager is critical for success. infoDev provides toolkits, materials and supervision, but it cannot and should not micromanage local implementation. Thus, mLab and mHub managers have great responsibility to reach out to local stakeholders and to communicate the value of their services. They need to believe in an inclusive approach to partnerships and

embrace the power of startup and tech communities. It is helpful if managers are entrepreneurs themselves and if they have established relationships with tech partners, investors, and other industry players. They need to inspire the trust of the ecosystem stakeholders that they serve, be passionate about building successful enterprises, understand social inclusion and development goals, and be nimble and ready to act upon fast-changing trends in mobile markets. If no single candidate can satisfy all the roles and responsibilities, the mLab manager's position can be divided into an outward-facing, representative, and networking role and an inward-facing, administrative one.

An mLab consortium should be led by a purpose-driven organization that has an inherent interest in supporting the startup ecosystem. As with all consortia, the goals and incentives of an mLab consortium's member organizations need to be aligned with the goals and incentives of the mLab itself. But in particular, mLabs need to be immersed in the tech startup culture, as they rely on openness to and engagement with innovation ecosystems and grass-roots tech and startup communities. Accordingly, lead organizations in mLab consortia need to have an inherent interest and experience in tech entrepreneurship support and community building, so that incentives are aligned and trust can be built. While, in theory, a spectrum of organizations could fulfill the consortium lead role, in most cases, only a few organizations in an innovation ecosystem will be able to strike the right balance between private-sector orientation and an ecosystem-oriented

mission and purpose: a purely profit-driven organization might be led to abandon activities with positive ecosystem impact if there is no immediate profit potential, while an organization that is detached from the private-sector and startup communities is unlikely to be a suitable choice.

Consortia that are led by government-linked entities or universities often suffer from bureaucratic requirements that can conflict with the mission and mode of operation required for an effective mLab. mLabs need to be nimble, market-oriented entities. They cannot afford to be held up by bureaucratic roadblocks if they are to support entrepreneurs effectively and maintain the trust of grassroots communities. This requirement might be at odds with lead consortium organizations that rely on bureaucracies and intricate decision-making structures, in particular government agencies, universities, and large corporations. The mLab should not depend on potentially slow decision making and political biases, and the mLab manager needs to be given the maximum possible executive independence. Government agencies should restrict their influence and focus on securing additional funding and high-level partnerships; they should not interfere with the daily operation of an mLab, as this will most likely stall progress and put the involvement of the startup community at risk.

The consortium leader needs to have sufficient institutional capacity and set clear expectations and roles for its partners. mLab consortium leaders need to be aware that substantial resources

and time are needed to prepare a high-quality proposal, manage other consortium organizations, and handle the administrative requirements of engaging with the World Bank. Especially for small grassroots organizations (for instance, NGOs and community organizers), compensation—either through a management fee or through direct (contractual) payment for service contributions—should be openly discussed and specified at the outset. Ideally, the lead consortium organization should have surplus resources that can be made available to the mLab temporarily, enabling the mLab to operate smoothly and take opportunities quickly when grant disbursements are pending. The need for institutional capacity has to be weighed against the benefits of finding a purpose-driven grassroots organization to lead the consortium; *infoDev* and donors have to carefully balance the tradeoffs and determine risk mitigation strategies.

Each consortium organization needs to ensure internal stability and long-term backing of the mLab and its vision; risks of internal challenges and bottlenecks have to be mitigated early on. Organizations from traditional business sectors or government can add value to a consortium, even if, for these actors, the startup culture and its implications for an mLab's strategic decisions are often harder to grasp. Usually, an mLab relies on strong champions inside these types of consortium partners. If a consortium member is faced with frequent or unpredictable management changes over which the mLab loses its champions, this will endanger the mLab's operations. Each consortium organization

needs to ensure that its own decision making is in sync with the consortium. For instance, hierarchies and potentially slow approval processes in government and academic institutions need to be accounted for and militated against.

Consortium member organizations are important channels for resources and partnerships for an mLab; the organizations ought to complement each other in this respect. Ideally, goals for the mLab and consortium organizations should be aligned by each consortium member contributing to a vital function of the mLab in relation to the local innovation ecosystem. For example, consortium organizations could cover topics such as funding for the mLab, startup community access, mentoring and coaching, mobile technology expertise, access to investors, training, and so forth. The lead organization in particular should be well networked and have a strong reputation. All consortium organizations should be prepared to contribute regularly and throughout the whole duration of the mLab project. Ideally, the mLab management should continuously update the consortium (for instance, through virtual means) and seek feedback about once per month. *infoDev's* belief in a grassroots-driven approach implies that it engages only as much as necessary. In day-to-day implementation, the consortium organizations ought to be proactive and not depend on "handholding." If small grassroots organizations participate, the consortium needs to account for typical challenges such as inadequate administrative capacity and resource bottlenecks. The consortium organizations should

formalize the basic rules of engagement and their commitment early on in a memorandum of understanding or contract. Any mLab consortium should agree on lean decision-making structures, as nimbleness is critical for the mLab to succeed.

If consortium organizations directly contribute to the implementation of the mLab's activities, the consortium needs to be able to manage potential conflicts of interest. It is generally acceptable if organizations join the consortium to contribute specific service components to the mLab, even if they expect financial compensation. This setup can generate strong commitment to make the activity a success. However, this constellation often reveals potential conflicts of interest: in simple terms, the organization in question has both a supervisory function as an mLab board member and also a service delivery agreement with the mLab. For instance, the mLab could be kept from canceling an activity that a consortium member implements even if the activity has become irrelevant for the mLab's own goals. The consortium has to be set up in a way so that such potential conflicts of interest are manageable and that consortium members can be excluded if a given conflict becomes overly strenuous. For instance, it is important to formalize and specify the terms for any contribution from consortium organizations upfront, including the grounds on which the contribution could end. Mutual trust, respect, and transparency among consortium organizations are crucial to maneuver any tensions and situations of conflict.

Room for Debate: Open Questions for mLabs

All existing mLabs and mHubs were pilot projects. infoDev selected a varied group of implementation partners across a diverse set of countries and cultures. Each manager was given only a basic idea of what an mHub or mLab could look like, and deliverables were kept relatively open-ended. infoDev encouraged managers to try out new approaches and push the boundaries of common incubation and acceleration methods.

This has meant that different business models were implemented. Most adaptations to the basic model were mandated by market and ecosystem needs, while others simply mirrored the visions and strategic decisions of mLab and mHub managers. Hence, direct comparison of the pilots is limited, but they generated rich findings from the myriad of small implementation experiments.

This section summarizes basic differences in mLab and mHub managers' approaches, inconclusive findings, as well as other open questions that mLabs and mHubs grapple with.

Should mLabs Focus on Ecosystem Building or Startup Acceleration?

mLabs have been ecosystem builders with elements of startup accelerators (see section [Services and Value Proposition](#) and [Sustainability and Financial Planning of mLabs and Hubs](#)). Notably, "purer" startup accelerators have taken a much narrower focus, exchanging direct investments and in-depth mentoring for equity positions in only a few startups. The primary goal



in the startup accelerator model is to increase the client startups' valuation, which then leads to higher potential profits when exiting from equity positions (see [figure 6](#) in section [Services and Value Proposition](#)). Rarely do pure accelerators have an incentive to provide training and community building beyond the point where this immediately benefits the startup's valuation and growth potential.

Importantly, the choice between an ecosystem builder and startup accelerator model has consequences for the type of impact that is achieved. An ecosystem builder model is more inclusive: it gives opportunities to learn and benefit to a greater number of individuals and can facilitate a more diverse set of partnerships and exchanges. At the same time, with more limited hands-on support for each individual client and lower eligibility criteria, highly profitable and fast-growing businesses will

have a lower chance to be generated by an ecosystem builder model. What is more, the broad and often indirect effects of an ecosystem builder model—even if ultimately substantial—will also take more time to materialize and become obvious and measurable.

It is also apparent that the integration of ecosystem builder elements into mLabs' business models has consequences for viable paths towards financial sustainability. Given mLabs' hybrid character, they have pursued various revenue streams, diversifying their income generation. However, these revenue streams can sometimes be in conflict with each other. For instance, the nimbleness, expertise, and rigor in managing risk capital necessary to run a successful startup accelerator can be at odds with due diligence and inclusiveness goals that can be required to deliver on funding for community building and skills development.

When examining the current orientation and outcomes of mLabs, it is hard to envision them as profitable incubators or accelerators that are able to cover all their expenses through returns on their startups' success—at least in the near future. In truth, the conditions in the markets in which mLabs operate currently do not seem to afford mobile entrepreneurship enablers that achieve substantial impact both as ecosystem builders and startup accelerators at the same time. For instance, overall, the majority of mLab-supported startups have shown limited investment readiness, even if there are several exceptions of successful and fast-growing startups with high valuations.

The question for current and future mLabs, then, is in which direction they should orient themselves—more towards an ecosystem builder model or more towards a startup accelerator model. From *infoDev*'s perspective, this question should be answered through an assessment of the largest potential for economic and private sector development impact (or, more specifically, for the largest overall increase in successful, sustainable entrepreneurial activity) as well as the viability of a given model in a particular market. Importantly, *infoDev* and mLabs need to consider several environmental conditions in local innovation ecosystems, namely the landscape of existing innovation support institutions (including technology innovation hubs), the most important ecosystem gaps, and potential cofunders' priorities and goals (see section [Enhanced Scoping Assessments and Ecosystem Mapping by infoDev](#)).

At Which Innovation and Startup Stage Can mLabs Add the Most Value?

A strategic choice that will be decisive for mLabs concerns the entrepreneur target group that promises the highest potential for both impact and future revenue streams. This is related to the question of whether mLabs should focus on ecosystem building or startup acceleration discussed previously, while homing in on the relevance of entry criteria to receive mLab support. So far, all mLabs have addressed early stage innovation, where structural support gaps exist in most developing and developed countries. But the existing mLabs have chosen to

focus on different kinds of early-stage entrepreneurs, and this has had consequences for mLabs' strategic orientation and results.

The comparison of mLab ECA and mLab East Africa helps to highlight some important differences. mLab ECA is the best example of a focus on "raw diamonds," that is, talented young developers and entrepreneurs, mostly fresh university graduates, with no prior entrepreneurial experience. mLab ECA also focused on team and motivation building in the initial stages, without putting too much pressure on participants. While this approach might have a higher marginal impact per supported entrepreneur, this will probably only become apparent over time, as these clients might well go through several failed startups before they obtain the experience and intangible skills needed to launch a sustainable, fast-growing enterprise.

mLab East Africa, on the other hand, set a higher bar for selection for its incubation program, and several of the more seasoned entrepreneurs that it hosted have found business success and international recognition soon after they joined the mLab.²⁵ Even though mLab East Africa has not benefitted directly from its incubatees' success, it was able to build its brand as an incubator of high-potential startups more quickly than mLab ECA.

Moreover, which is the right target group will also depend on the availability of startup teams as well as the readiness, gaps, and needs of the ecosystem as a whole. Naturally, mLabs will produce better results if they can build on a large talent pool and existing, well-organized communities of developers and entrepreneurs. Wherever mLabs have to spend significant time and resources for outreach, community engagement, and team building (as in the cases of mLab ECA, mLab East Asia, and mLab Southern Africa), they will generate lower results in the short term (see [Results for mLabs and mHubs](#)).

Importantly, there is some indication that an approach that maximizes the economic impact can be at odds with one that creates revenue streams for mLabs beyond donor and government subsidies. In many contexts, interviewees stressed that a lack of skills is still the biggest barrier to high-growth entrepreneurship. At the same time, mLabs that focus on skills development rather than incubation and acceleration will hardly see successful startups emerge directly from their programs, so that it is harder to illustrate the net effect on entrepreneurship of this



approach. Moreover, as mLabs pursue independence from donor contributions and expand the ways that they profit from equity sharing and royalty fees, they might be inclined to support more advanced startups, which have a lower risk of failing and higher valuation potential. This would mean that mLabs become more akin to the startup accelerator model, while they fail to tackle the most severe gaps in the startup ecosystem.

This illustrates how important better impact attribution will be for mLabs. At this point, it is unclear if mLab ECA's long term approach (low selection requirements for incubation, in-depth intervention for a few innovators including a "safe space" for learning and motivation) or mLab East Africa's breadth and acceleration approach (high selection criteria for incubation, lightweight interventions for many fledgling entrepreneurs) will generate the greater marginal effect on startup success and economic activity (such as additional revenues generated, investments raised, taxes paid, and so on)—and, of course, these are but two of many imaginable approaches. New impact assessment methods should take a longitudinal perspective and control for ecosystem conditions that are outside of a given mLab's control in order to determine its impact, and ultimately help mLabs to learn about and improve their value propositions.

Should mLabs Be Purely Market-Oriented or Accommodate Social App Enterprises?

Some mLabs have supported social enterprises,²⁶ even though this had



not been at the heart of their original mandate. Social enterprise startups were able to contribute to mLabs' brand building and recognition among, for instance, donors, international development organizations, and impact investors. For example, two of mLab East Africa's most widely noted startups are mFarm and Eneza Education, which are both profit-oriented but also role models for combining business success with positive social effects through app usage. mLab East Asia has implemented a mobile hackathon for UNICEF. Also the *infoDev*-run m2Work project was an effort to push developers and entrepreneurs to tackle a topic that was seen to have market potential, but also promised to yield app business models that would target mobile phone users at the base of the pyramid.

These projects and mLabs' affiliation with *infoDev* and the World Bank as international development organizations has, at times, led to confusion among

mLab stakeholders. They are frequently unsure about the fundamental goals that mLabs pursue. In discordance to *infoDev*'s and mLabs' core mandate of fostering high-growth entrepreneurs, some interview participants considered mLabs primarily as subsidized incubators for social enterprises.

Of course, social and private sector development goals do not have to be mutually exclusive. Some argue that pitting “social” against “business” goals is a flawed notion to begin with,²⁷ especially in low-income countries where solving any user problem will often have some positive impact on poverty alleviation. In particular, stakeholders of mLab East Africa and mLab Southern Africa expressed the view that these mLabs should motivate entrepreneurs to address social problems, for instance, by developing business models that address mobile users at the base of the pyramid. Mostly, those that favored mLabs pursuing a strategy that is at least in part guided by social development goals argued that mLabs should raise additional donor funds to be able to subsidize support channels for social enterprise startups, even if their businesses are less likely to achieve profitability and investment readiness under current market conditions.

Yet, in particular venture capitalists and angel investors seemed skeptical about any strategy that would consider social impact goals next to pure startup success. Several interviewees argued that embedding a donor-backed subsidy for social enterprises into mLabs' financial model raises the risk of diluting their market orientation and

ultimately the scalability of supported startups.²⁸ Instead, these interviewees advocated that mLabs focus entirely on startups' revenue and valuation potential as the only way to identify and nurture “gazelle startups” and “killer apps” that scale beyond national borders and lead to the maximum effect on private sector development. Arguably, this would also make equity sharing mechanisms more viable and ultimately contribute to mLabs' own financial sustainability.

This has left mLabs with a difficult tradeoff: on the one hand, funding from government, impact investors, and other donors—which can be essential to cover an mLab's core costs—is often explicitly or implicitly tied to social impact and social entrepreneurship goals; on the other hand, it appears that an unequivocal orientation at market and investor needs could help mLabs' success in bringing startups to scale and support their own financial model in the long run.

Should mLabs Emphasize Their Expertise in Mobile Technology, Entrepreneurship, or Specific Subsectors?

At their core, mLabs and mHubs are mobile technology-specific entrepreneurship enablers. The underlying idea is that mobile app and software markets work differently from traditional industry sectors and even from other tech sectors, and that this has implications for how entrepreneurs and startups should be supported.

Yet, mLabs and mHubs have experienced time and time again that what



mobile app startups need is still idiosyncratic to any individual business model—even for the mobile innovation niche, there is no one-size-fits-all support methodology. mLab-supported startups often asked for typical incubation services, such as one-on-one mentoring for core business functions or in-depth tracking of milestones and startup progress. In particular in Vietnam, but also in other countries where mLabs are active, interviewed stakeholders pointed out that the lack of entrepreneurship and business skills are a much greater constraint for startup sustainability than insufficient technical skills. This could mean that mLabs should lessen their focus on “mobile” and technical expertise, and rather perfect technology-agnostic incubation and acceleration services.

On the other hand, startup communities are often born out of tech communities, and the mobile tech communities of

developing countries are definitely distinct from other business communities. Stakeholders emphasized the need for mLabs and mHubs to educate investors and incumbent businesses about the different culture of hackers and mobile technologists, but also about differences of how mobile app startups work, for instance, with regard to innovation processes, monetization, valuation, financing, and so forth. This would also imply that mentors need “mobile”-specific expertise to better help startups. The motto “mobile is what we do” has been embraced by mLab Southern Africa: it recently embarked on a strategy to complement established tech and general business incubators with a mobile tech pillar, through, what it calls, a “vertical model” (see [case study on mLab Southern Africa](#)). Among other things, this brings the advantage that the mLab can build a reputation as a one-stop shop for all stakeholders that are interested in mobile app solutions

or want to reach app developers and mobile technologists.

Yet another position holds that, most importantly, tech startups need to be grounded in the customers' reality and improve on incumbent ways of serving customer needs, which can be aided best by engaging non-technical sector and subject-matter experts. The proponents of this opinion usually suggest that a focus on "mobile" and a close connection to tech communities is vital for mLabs, but that they should build topical sub-communities and urge startups to venture out of both the tech and entrepreneurship bubbles in which they often find themselves, in order to get closer to their customers.

Ideally, mLabs unite the best of all worlds, and cater their support to startups depending on their needs and business model gaps. However, mostly mLabs will have to make a judgment call on what is the right positioning for the market in which they operate. At least, mLab managers need to be aware of the risks and opportunities of each approach, and continuously identify which one is best able to fill (potentially shifting) support gaps in the ecosystem.

Should mLabs Build a Portfolio of Incubatees with Complementary Assets?

Interviewees also disagreed on whether mLabs should consciously build a portfolio of incubatee startups that complement each other. The debate was inspired by mLab Southern Africa, which selected incubatees in a way so that they can provide their

services to incubatee peers and the mLab itself, resulting in an mLab-internal market and learning platform. The mLab identified functions such as app development, graphic and web design, technical training, digital media and gamification, cloud services and mobile app infrastructure, as well as community outreach as areas that are relevant to many mobile tech startups. Although not all interviewed stakeholders said that peer-to-peer learning was essential for clients of mLab Southern Africa, others recounted anecdotes of fruitful collaborations. Maybe even more importantly, the mLab itself was able to utilize the incubatees' assets, either by directly contracting them for internal projects or by subcontracting them to service mLab's external partners. mLab Southern Africa is still in the experimentation phase, but so far the complementary portfolio of startups fits well into its differentiation approach based on "mobile verticals" (see case study on mLab Southern Africa).

Other interviewees were more skeptical. They highlighted that incubatees should be selected based on clear and universal requirements. According to this perspective, the mLab's success is closely coupled with the success that a startup has on its own long after it has left the mLab's support program, as it affects both the mLab's returns from equity liquidations and its brand. Constructing a portfolio of complementary incubatee startups, in the opinion of these interviewees, would necessarily dilute competitive selection and limit the selected startups' entrepreneurial freedom.



Should mLabs Make Direct Equity Investments or Broker Investor Contacts?

Interviewees also disagreed whether mLabs should make direct financial investments in startups in exchange for equity shares. Many interviewed entrepreneurs pointed out that a combination of seed investment and incubation support would be the biggest help for their business, and that this support mix would also heighten their readiness to share equity with the mLab. This is in line with *infoDev*'s experience that critical financing gaps for early-stage innovators exist in the pre-seed investment stage.²⁹

But other stakeholders requested that mLabs only guide startups to the point where they can attract investments under market conditions. mLabs should strengthen the startups' investment readiness—for instance, by focusing on monetization strategies and market traction, or by teaching pitching skills—and then broker contacts to private investors, without making a direct investment. This argument holds that mLabs, as partially donor and government subsidized actors, need

to limit themselves strictly to bridging the so-called market failure but they should not distort the venture capital and angel investor space. In particular in hyped and fast-growing ecosystems such as Nairobi, it can be hard for mLabs and other entrepreneurship support organizations to determine up to which point promising startups should receive privileged access to capital and at which point startups need to be exposed to market-based demand and monetization constraints in order to be able to mature and advance.

An additional challenge is the mLabs' currently lacking capacity to make investment decisions. Many interviewed startups requested that any equity sharing agreement be negotiated case by case, but mLab managers and staff hardly have the resources and experience to assess the fledgling startups' valuation correctly. Moreover, mLab managers' own incentives would have to be adjusted, for instance, by compensating them in cases where startups raise additional capital with their help. Hence, several stakeholders worried that, under current conditions, mLabs would make suboptimal use

of a seed fund, unless, as a minimum, an investment expert can be hired to oversee it. Several mLab managers as well as some entrepreneurs advocated an alternative setup where mLabs offer a fixed take-it-or-leave-it equity proposition to limit the required negotiation and management effort. This could also lead to a positive self-selection effect: if an mLab's blanket offer is calibrated in line with its value proposition, startups that request better conditions might already be advanced enough to pursue investments from private angel investors or other channels.

Lessons Learned and Future Directions for *infoDev*

With the CSBKE program, *infoDev* had an opportunity to push the envelope of support interventions for mobile innovation in developing countries. Now that the first mLab and mHub pilots are concluding and the network is expanding further, it will be crucial for *infoDev* to do a better job at consistently supporting local enablers and improve overarching project management and administration. This section discusses the evaluation's insights pertaining to these topics. Given its positioning as a trust-funded program within the World Bank, the following lessons also bear consequences for *infoDev*'s donors and relevant units inside the Bank.

Finding the Right Mobile Entrepreneurship Enabler Model: Enhanced Scoping Assessments and Ecosystem Mapping

Going forward, *infoDev* will aim to pick implementation contexts where mLabs and mHubs can be most

effective, and adjust and refine their business models. For this endeavor, it will be key to strike the right balance of in-depth scoping assessments and high-level business planning for mobile entrepreneurship enablers on the one hand, and avoiding superimposing a set structure onto local partners or micromanaging their operations on the other.

A natural fit for *infoDev*'s positioning is enhanced innovation ecosystem mapping. In its current approach, *infoDev* assesses the following factors in an ecosystem:

- The innovation and entrepreneurship enabler landscape (including incubators, technology innovation hubs, accelerators, government funded programs, and tech community organizations and networks);
- The availability of talent and human capital;
- The current market size and available monetization channels for mobile app startups (for instance, availability of credit cards or mobile payments, mobile advertising industry, and so on);
- The access to finance landscape;
- The state of the ICT sector;
- The overall regulatory, policy, and business environment; and
- The overall ICT infrastructure.³⁰

The assessment process involves several country visits during which stakeholder workshops and focus groups are conducted, while stakeholder involvement is increased over time to codesign the envisioned mobile entrepreneurship enabler.



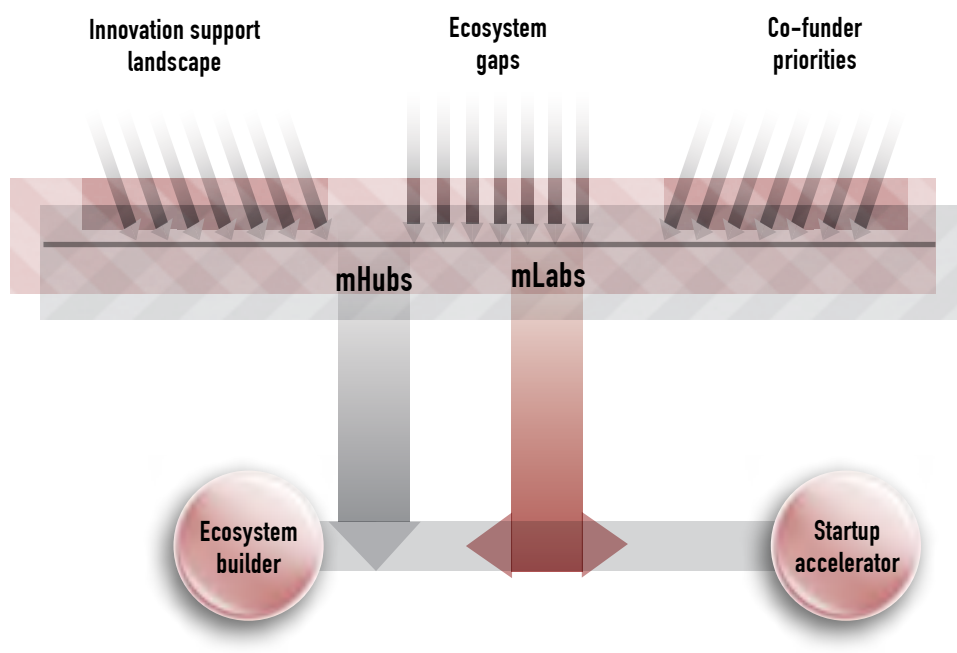


Figure 8:
Environmental
Factors and
mLabs' Strategic
Positioning
as Ecosystem
Builders or Startup
Accelerators

infoDev has begun to use this framework and transfer the knowledge from the mLab and mHub pilots under CSBKE to new programs: in 2012, *infoDev* agreed with the Canadian International Development Agency (CIDA)³¹ to roll out a Mobile Innovation component for several islands in the Caribbean over a seven-year timeline, in this case leaving more time for *infoDev*-led scoping and codesign as well as the local implementer's path to sustainability. Similarly, in several countries of West Africa including Senegal and Nigeria, *infoDev* is currently conducting scoping assessments with support from the Swedish International Development Agency (SIDA).

While this approach is likely to mitigate several of the problems that the mLab and mHub pilots have faced, *infoDev* and others are pressed to find more sophisticated methods for ecosystem mapping, including quantitative assessments and methods that take into

account the complex linkages between ecosystem stakeholders. This will be critical to identify and anticipate ecosystem gaps and stakeholder needs, as the only way to maximize the value addition of future mobile entrepreneurship enablers.

More in-depth scoping assessments and better innovation ecosystem mapping also appear as the most viable approach to answer the question of whether mLabs should focus on an ecosystem builder or startup accelerator model (see sections [Services and Value Proposition](#), [Sustainability and Financial Planning of mLabs and Hubs](#), and [Should mLabs Focus on Ecosystem Building or Startup Acceleration?](#)). Factors potentially influencing the decision can be grouped into: the landscape of existing innovation support institutions (including tech innovation hubs and labs); the most important ecosystem support gaps; and potential cofunders' priorities and goals (see figure 8). For instance, insufficient

early-stage risk capital together with availability of investable startups could mandate a startup accelerator model, while a serious skill shortage or a lack of connectedness of stakeholders as the most important ecosystem barriers would point towards an ecosystem builder model. Such an approach will help to configure mLabs' and mHubs' unique value addition, one ecosystem at a time.

Program Framework: Timeline, Grant Size, Scalability, and Design

Interviewees also had suggestions for improvements in *infoDev*'s overall program framework. The least contested finding was that mLabs need a much longer timeframe to set up an operation that is smooth and sustainable, including a honed mission and goals, a consistent operational and partnership model, results that show its full potential, and the ability to consistently cover the cost for the portfolio of activities. Within implementation periods of between one and two years, no mLab was able to arrive at such a state. Well-known success factors for incubation programs include rigorous selection and follow-on tracking of startups, which mLabs also have not been able to complete to perfection given time and resource constraints. Finally, the fact that mLabs are deeply intertwined with complex tech community dynamics and attributes of the local innovation ecosystem often led to slow progress in the initial implementation period. It was hard for some managers and consortium organizations to correctly gauge what an mLab's business model could look like and which activities should be prioritized. This was mostly

due to an initial lack of insight into the local innovation ecosystem or a limited understanding of what an ecosystem support project should usually entail.

Most mLab managers and consortium members also agreed that the size of each mLab grant was too small to make optimal use of the opportunities that mLabs were presented with. mLabs felt they did not have sufficient funding to build up internal capacity or hire external help to adequately service the many stakeholder groups, and fully engage with startups and other clients, as well as partners, funders, and other innovation ecosystem stakeholders. Especially the mLab managers' time was stretched thinly across the many responsibilities that they were given, and potentially mLabs would have been more effective if the grant size had allowed for recruiting two managers with complementary roles.

At the same time, both the short timeline and relatively small funding per mLab or mHub project were deliberate program design choices, with the goal to enable a greater number of projects that would generate more and deeper insights. In fact, *infoDev*'s experience with business incubators had shown that, at the minimum, three years are needed if a new incubator is to be set up, and at least six years are usually required for it to reach financial sustainability. The two-year implementation periods under CSBKE were seen rather as a seed-stage for the mLab or mHub before promising models would receive follow-on support for scale up, including funding, towards the end of the grant period.

It remains that there is a tension between *infoDev*'s dedication to piloting and learning (mandating short timelines and small budgets) and the need for consistency in the projects' operations and their scale up (requiring sufficient initial capacity and follow-on funding in the mid term). While mLabs in particular are currently undergoing a difficult transition after the end of the grant period, *infoDev* has identified the importance of flexible follow-on funding based on a local enabler's needs and previous success. Future mLab grants can either have an extended timeline to begin with, include (provisional) matching funds from other parties, or be designed to leave room for additional fundraising before or immediately after implementation begins. *infoDev*'s newly established multidonor trust fund could become an important institutional step towards such more flexible arrangements.

Moreover, for *infoDev* the identified challenges imply that it could cover at least the higher level business modeling and planning before a grantee begins project implementation, which can be based on more in-depth scoping assessments (see [Finding the Right Mobile Entrepreneurship Enabler Model: Enhanced Scoping Assessments and Ecosystem Mapping](#)). It appears that *infoDev*'s experience gathered from innovation ecosystem support around the globe can translate into good awareness of how ecosystem dynamics play out and how mLabs can fill important gaps. Yet, *infoDev* will maintain a participatory program development process and codesign its interventions with local stakeholders, limiting its own role to conceptualization, without imposing

a fixed long-term implementation plan on the grantee. At times, there might already be a local organization with a strong vision or even implementation plan for a mobile entrepreneurship enabler concept. The many fruitful adjustments that mLabs were able to make based on local conditions illustrate the core advantage of *infoDev*'s grassroots and demand-driven project design, that is, to leave the calibration of business models to local partners that have the trust, contact networks, and responsiveness that is required to roll out a successful ecosystem-oriented project. Similarly, *infoDev* will aim to be acutely aware of market needs, and be prepared to pull out of a country or explore entirely new interventions if given conditions can endanger the basic viability of an mLab.

Grant Administration and Procurement

Stakeholders as well as mLab and mHub managers pointed to substantial issues that, they felt, came about due to arduous grant administration and procurement rules. Practically all mHub managers were overwhelmed with reporting duties and other administrative barriers, and mLabs at least felt that these tasks were a strain on their commitment to implementation.

To be sure, grants are *infoDev*'s core business and (except for short-term service contracts) they are the unique way for *infoDev* to engage with its clients. Yet, it is understandable that the procedures that are tied to grant administration can seem disproportionate to grantees, especially in cases of small grants and when grantees have no prior

experience with grant administration. Sometimes, World Bank procurement guidelines entirely prohibited small or young organizations from tendering. On the other hand, mLabs and mHubs can often benefit more from their affiliation with *infoDev* and the World Bank than grant administration costs them. Moreover, both grantees and *infoDev* can learn from the pilot projects and streamline procedures to avoid at least some of the challenges.

For future grantees, the key lesson is that they should account for the administrative burden ahead of time. They should ensure that they earmark budgets for auditing, staff who handle procurement and financial reporting, and staff who can collect monitoring and evaluation data and compile draft reports for the mLab or mHub manager's review. Similarly, grant administration, by its nature, takes time, as it involves checks and balances and coordination effort, so, to some extent, grantees simply need to prepare for (seemingly) slow response times. In the same way, legal constraints can sometimes prohibit *infoDev* from providing grantees with time-sensitive information, especially in the early stages of drafting grant agreements. Moreover, the World Bank is currently revising its policies and procedures further and this can have implications for *infoDev*'s way of working; grantees are encouraged to clarify requirements as early as possible.

For *infoDev*, several valuable lessons emerged from the mLab and mHub pilots implemented under CSBKE. Importantly, mHubs as well as distributed global and regional activities

(such as innovation competitions) could be implemented through a "hub and spoke" system, where a larger entity absorbs the grant (or contract) and subcontracts mLabs and mHubs in small target countries or areas within a larger country. *infoDev* can also take a more active role during the grant preparation period, ensuring that budgets follow a structure that complies with World Bank financial management and procurement rules and discussing expectations for reporting results in more depth. *infoDev* can improve on the provision of good quality templates and guidelines for these steps and include examples from past *infoDev* activities that are more akin to an mLab or mHub manager's project than regular World Bank templates can be. In particular, during the first reporting rounds, *infoDev* will be prepared to provide more detailed instructions and administrative assistance to grantees. During scoping assessment and other in-country missions but also through webinars, *infoDev* can also provide small training sessions on grant administration, again employing use cases that are more similar to what the mHub or mLab project in question is expected look like. Lastly, *infoDev* can be more aware of the grantees' implementation priorities; for instance, it could send frequent and early reminders about reporting deadlines so that grantees do not risk prioritizing administrative tasks too late.

Knowledge and Analytics through Improved Monitoring and Evaluation

Given mLabs' and mHubs' function as pilot projects, *infoDev* claims a strong mandate to conduct learning-oriented monitoring and evaluation. For mLabs

and mHubs, the value that *infoDev* can add stems from its ability to pull information from individual projects, aggregate and compare it, and finally package the insights into applicable knowledge products and toolkits. While mLabs and mHubs have mostly appreciated that *infoDev* remains “hands-off” with regard to project implementation, they expressed the view that it ought to be more active and nimble in feeding findings back to the local level.

The original generic mLab business plan³² and workbook that *infoDev* provided at the beginning of the program was described by most mLab managers as a useful conceptual guide, but of little help for prioritization and day-to-day decision making. The generic business plan seemed to highlight what is possible, but not what could realistically be achieved, especially in view of a short implementation timeframe and evolving market conditions. Interviewees mentioned that governance and capacity issues often stood in the way of realizing what conceptually would have been ideal. The workbook was seen as too elaborate and specific to apply to the malleable and constantly evolving business modeling and planning that mLab managers have been conducting. Moreover, mLab managers had to adapt to emerging and unexpected priorities of clients. For instance, mentoring turned out to be more important than expected, while testing and certification was less relevant than imagined. Vital services such as direct venture funding and market intelligence were not offered because of capacity constraints (see figure 9).

<input checked="" type="checkbox"/> Services offered by one or more mLabs	<input type="checkbox"/> Services offered occasionally by one mLab	<input type="checkbox"/> Services not offered by any mLab
<input type="checkbox"/>		Venture Funding
<input checked="" type="checkbox"/>		Business Training
<input checked="" type="checkbox"/>		Mentoring
<input checked="" type="checkbox"/>		Technical Training
<input type="checkbox"/>		Testing & Certification
<input type="checkbox"/>		Due Diligence & Capital Readiness
<input checked="" type="checkbox"/>		Value Chain Partners
<input type="checkbox"/>		Market Intelligence
<input checked="" type="checkbox"/>		Physical Space
<input checked="" type="checkbox"/>		Technical Outsourcing
<input checked="" type="checkbox"/>		Professional Services
<input checked="" type="checkbox"/>		Competitions
<input checked="" type="checkbox"/>		Networking Events
<input type="checkbox"/>		Code Repository
<p>Note: A checkmark indicates that the services were offered by one or more mLabs. A red dash indicates that the service was offered only occasionally by one mLab. Venture Funding and Market Intelligence were not offered as an explicit service line by any mLab.</p>		

Figure 9:
mLab Services
as Originally
Envisaged

- Evaluation, Business Analytics, and Toolkits

Overall, *infoDev* is determined to enhance its ongoing value as an analytics and evaluation provider for mLabs and mHubs. In particular, many insights about mLabs’ and mHubs’ potential and past success lie in detailed data of the

supported startups and entrepreneurs, but mLabs and mHubs have not had the resources to collect such data continuously and rigorously. While evaluation fatigue and concerns about disclosure of financial data are common among client startups, *infoDev* could use its analytical experience and global reach to compile and evaluate relevant data in a non-intrusive and efficient way.

infoDev reacted to mLabs' and mHubs' evolving information demands by commissioning this report (focusing on "what was" rather than "what could be"), as well as upcoming toolkits on business model design and business analytics for mLabs and mHubs that are envisaged to be more customizable and applicable. Such commitment to improved analytical support for mLabs and mHubs is commendable, and wide publication of knowledge products could be of value for technology innovation hub and incubation practitioners beyond *infoDev*'s network. However, *infoDev* is aware that its own knowledge demands, the demands of donors, and the knowledge gaps for local entrepreneurship enablers do not overlap perfectly. Even more importantly, *infoDev* will aim to ensure that monitoring and evaluation techniques feed into short feedback loops that enable *infoDev* and its stakeholders to continuously build, measure, and learn.³³

- Holistic Impact Assessments

infoDev will also benefit from a stronger effort to support more rigorous and holistic impact assessments for mLabs and mHubs. As described in this report (see sections [Why Evaluate Business Models of mLabs and mHubs?](#), [Results](#)

[for mLabs and mHubs](#), [Sustainability and Financial Planning](#), and [At Which Innovation and Startup Stage Can mLabs Add the Most Value?](#)), mLabs and mHubs can have clear opinions on which ecosystem gaps are most critical, but tackling them can be at odds with the possibility of showcasing impact and the mLab's or mHub's own financial sustainability. While, conceptually, it is clear that mLabs should focus on the early stage of innovation and high-growth entrepreneurs to have the greatest effect on economic development, it is difficult to capture all positive results of such an approach, especially if startup success does not materialize in the short run and is interdependent with complex innovation ecosystem dynamics. Longitudinal studies of supported entrepreneurs and startups, ideally with counterfactuals and controlling for external ecosystem factors, are the only way to increase certainty about which interventions result in the largest impact, even if they are more expensive to carry out. With such analysis, it could be confirmed whether contributions by donors and funders of mLabs and mHubs are needed and effective, and how much time they take to materialize in palpable economic impact.

Impact assessments could also go beyond effects on startup creation and economic development. First, *infoDev* could help measure and quantify the overall effect that mLabs and mHubs have on innovation ecosystems, especially in view of recent improvements of ecosystem mapping and ecosystem quality assessment methods (see [Finding the Right Mobile](#)

Entrepreneurship Enabler Model: Enhanced Scoping Assessments and Ecosystem Mapping

Second, apps that lead to positive spillover effects for poverty alleviation add to the holistic impact that mLabs and mHubs have, but so far these effects remain unmeasured. *infoDev* could help to capture the benefits (and risks) that users experience from engaging with the app innovations that client entrepreneurs of mLabs and mHubs produce. This does not only include traditional ICT for development sectors—such as mobile agriculture, financial inclusion, health, education, or government—but also (with a broader notion of poverty alleviation in mind) entertainment apps and games, productivity and supply chain optimization apps, or social media and interpersonal communication apps. *infoDev* has recently made a first step in this direction: it commissioned an outcome assessment of mLabs’ holistic impact from the evaluation consultancy Global CAD, to be released in March 2014.³⁴ Moreover, as a follow-on study to prior research on behavior of mobile users at the base of the pyramid,³⁵ *infoDev* commissioned a database of 50 apps in several African countries that benefit those users and have created revenue.

Continuous Global Network Facilitation and Technical Assistance for mLabs and mHubs

infoDev’s Mobile Innovation Program as a whole is presented with a host of promising pathways to strengthen the global network of mLabs and mHubs. Yet, *infoDev* will need to prioritize and carefully evaluate which of its own activities aimed at convening the

network it should focus on and which ones it should drop. By and large, the interviewed stakeholders advocated that *infoDev* strengthen its own team resources and provide more assistance throughout the implementation period of an mLab or mHub project, but, of course, the largest possible share of funds should flow to local economies and implementations on the ground. The recent establishment of a multidonor trust fund for *infoDev* will be a major step towards greater flexibility and nimbleness to invest resources in a way that they maximize the positive effect on innovation ecosystems in developing countries.

- Setup of an Exchange and Collaboration Platform Between mLabs and mHubs

Since their inception, mLabs and mHubs have hardly collaborated or exchanged knowledge with each other. There was widespread agreement that this implies that mLab and mHub managers are missing out on relevant knowledge and partnership opportunities, in particular, those aimed at global market extension for client startups.

Interviewees and discussion partners from various backgrounds advocated that *infoDev* create a platform for mLabs and mHubs to interact. However, it was unclear for these stakeholders what exactly such a platform should look like and how it should be managed and financed. Some suggested a simple web-based platform with limited intervention by *infoDev*, leaving it up to mLabs and mHubs to define the rules and intensity of the engagement.

However, *infoDev* has already attempted to foster interaction between mLabs and mHubs with this kind of “hands-off” approach. It invited mLab and mHub managers to engage with each other on the public, web-based discussion board mLabs World, without further facilitation. It turned out that no active exchange occurred. The website was practically unused when it was finally disabled in 2013. *infoDev* also brought mLab and mHub managers together annually for closed-door, face-to-face peer-learning workshops during large conferences, namely *infoDev*’s Global Forum³⁶ and the Nokia-led [Open Innovation Africa Summit](#).³⁷ While these sessions were seen to be stimulating and helpful, an annual meeting rhythm was not enough to jumpstart continuous exchanges.

More recent discussions led to the idea of creating an association of mLabs and mHubs. The terms for the exchange and eventual contributions would still be left to mLabs and mHubs to decide, but *infoDev* could play an active role in the setup process. Stakeholders agreed that there would have to be core funding for several years to give the association time to clarify its role.

At this point, it is difficult to assess if the formalization of an association would be a valuable endeavor for *infoDev*. mLabs have little spare time and resources that they could invest, which implies the risk that their engagement will remain limited both as contributors and service recipients. *infoDev*, mLabs, and mHubs would also have to coordinate with and differentiate themselves from ongoing efforts to establish technology

innovation hub associations, such as AfriLabs. While an mLab and mHub association certainly seems like a worthwhile project in the long run, current priorities, resources, and capacity—both on *infoDev*’s side and on the part of mLabs and mHubs—might not favor a separate formalized institution.

- Global Activities Run by infoDev

Instead of facilitating a continuous exchange and collaboration between local enablers, *infoDev* supported mLabs (and some mHubs) through temporary global activities. The core costs were covered directly from *infoDev* funds, while the projects would leverage existing mLab and mHub operations for local implementation, outreach to developers and entrepreneurs, as well as partnership building.

So far, *infoDev* has mainly used innovation competitions. The m2Work project, with additional support from the United Kingdom’s Department for International Development (DFID), piloted *infoDev*’s From Mind to Market methodology,³⁸ which sources mobile app ideas through crowdsourcing and guides the best ones towards incubation and acceleration through mLabs. The ensuing [mAgri Challenge](#)³⁹ (supported by SIDA) and [VentureOut](#)⁴⁰ challenge followed a leaner process and focused on scalable business models and business internationalization respectively. *infoDev* also used these projects to push novel app business models in thematic areas or sectors, gauging their potential for inclusive innovation: m2Work sought app start-ups that employ mobile microworkers at the base of the pyramid; the mAgri

Challenge aimed to identify scalable businesses that have the potential to spread the positive impact of mobile agriculture apps to more farmers and agricultural workers across Sub-Saharan Africa.

Despite capacity and timing problems for some of the partnering mLabs and mHubs, by and large these innovation competitions were seen to add value for local mobile entrepreneurship enablers and their clients. It became clear that *infoDev*-run global innovation competitions can combine the best of both local and global support if they are well managed, provide mLab and mHub managers with adaptable toolkits for efficient local implementation, and address an actual need for entrepreneurs which mLabs and mHubs cannot satisfy on their own. *infoDev* can build on this experience and continue to implement selected, well-defined global activities that complement and leverage local entrepreneurship support channels.

Finally, market research based on the participation of local mLab and mHub stakeholders could become another value generator both for *infoDev* and the participating entrepreneurship enablers. In 2012, *infoDev* ran two studies on mobile usage at the base of the pyramid, in [Kenya](#)⁴¹ and [South Africa](#),⁴² as well as an [overview report](#).⁴³ For both case studies, the respective mLabs participated in the research in that they gave in-depth insights into local mobile innovation ecosystems or provided access to entrepreneurs and other stakeholders. In Kenya, additional workshops are envisaged to help mobile developers and entrepreneurs

build business models based on the findings of the study. Similarly, *infoDev* is currently conducting virtual incubation pilot projects with strong analytical components in [Vietnam](#)⁴⁴ (with the participation of Topica MSN, the mHub Vietnam) and [East Africa](#)⁴⁵ (with the participation of mLab East Africa). *infoDev* can build on such approaches and collaborate with mLabs and mHubs to release analytical products that contribute to local stakeholders' understanding of market opportunities or gaps in the ecosystem.

- Global Fundraising, Partnership Building, and Contact Brokerage

Many stakeholders demanded that *infoDev* be more active in global fundraising and partnership building for the Mobile Innovation Program, for the ultimate benefit of mLabs and mHubs. In view of the short implementation timeline under CSBKE and projected financing gaps over the coming years, most mLabs and mHubs looked to *infoDev* to provide or facilitate follow-on donor funding. Several interviewees also expected *infoDev* to raise more mutual awareness and broker relations between relevant World Bank units and mLabs, whenever this would provide branding, outreach, and funding opportunities.

Many interviewees expressed a positive view on public-private partnerships and advocated, for instance, that other global tech companies be involved in *infoDev*'s network-level planning. Corporations such as Qualcomm, Google, Intel, BlackBerry, Microsoft, and others have programs in place that support tech entrepreneurs across the

globe, and *infoDev*'s role was seen to include general outreach to these units, as well as brokerage of direct contacts for mLab and mHub managers.

So far, the CSBKE program's most important private-sector partner has been Nokia. The company's representatives contributed expertise to early conversations between the government of Finland and *infoDev*, helped design conceptual material for mLabs, and provided substantial implementation and governance support for mLabs in South Africa, Vietnam, and Kenya. Later, Nokia helped to set up privileged access to funding and support for mLab entrepreneurs from the global app startup accelerator AppCampus.⁴⁶ Yet, the partnership also brought to light challenges that were reflected in early discussions with other potential global partners: Nokia did not have the same level of interest in all mLab markets (for instance, it did not partner with mLab ECA); it preferred supporting common developer outreach channels such as technical training and prototyping competitions over incubation and direct startup creation; and it faced other internal challenges such as constrained resources for coordination across countries and budget limits.

infoDev also encountered its own internal barriers to building more and deeper global partnerships. *infoDev* found that the formalization of long-term partnerships would result in substantial transaction costs, for instance, to ensure legal viability and alignment with grant and trust fund rules. As a result, *infoDev* has so far opted to engage in several informal, lightweight, and

project-based partnerships, in particular, for innovation competitions and conferences, but has not struck another global partnership with a private-sector actor following the agreements with Nokia and [AppCampus](#). It limited itself to partnerships where no funds or long-term commitments had to be exchanged, leaving more substantial agreements up to mLabs and mHubs. It stands to reason that *infoDev* will consider a stronger emphasis on global fundraising and partnership building for the Mobile Innovation Program. AppCampus could be just the first of many extended partnership agreements. While it takes time and effort to achieve concrete contributions from partners, *infoDev*'s expertise, convening power, and impartiality could make it possible to crowd together venture and app developer-oriented units of global tech companies, impact investors and venture funds with a focus on developing countries, entrepreneurship-oriented foundations, international organizations active in mobile technology, and so forth.⁴⁷

- Responsive and Adaptive Change and Conflict Management

mLabs and mHubs have had mixed expectations regarding *infoDev*'s role as an active facilitator of local operations. For instance, mLab East Asia asked *infoDev* to engage more actively while mLab East Africa explicitly commended *infoDev* for remaining detached from local implementation. mLab ECA and mLab Southern Africa did not expect *infoDev* to get involved in matters of project implementation, but wanted it to communicate its mission more clearly to stakeholders



and clients, and to be more active in leveraging the World Bank brand and brokering partnerships.

A more consistent finding is that *infoDev* had difficulties in anticipating and resolving unexpected implementation bottlenecks and conflicts. For example, *infoDev* found that it could have applied itself more to change management when there were sudden personnel changes on the grantee's side, as in the cases of mLab South Asia, mLab East Asia, and (earlier) mLab Southern Africa. In hindsight it became clear that *infoDev* should have helped incoming mLab managers and consortium representatives to understand an mLab's mission and *infoDev*'s goals much more swiftly. For future mLab grants, *infoDev* will consider setting aside additional staffing and travel resources in order to follow up

on milestones, and intervene actively at the local level when the grantee is undergoing a change process or other governance and management conflicts.

Evaluations of the collected data combined with outcomes of *infoDev*'s ecosystem mapping and research agenda can also be packaged into formats that are useful and accessible for mLab and mHub managers. *infoDev* is currently planning to develop customizable and applicable business model design and business analytics toolkits for mLabs and mHubs. In particular, the toolkits are envisaged to give advice on which business models are most appropriate under which ecosystem conditions and within which innovation enabler landscape, as well as what roles different stakeholder groups should ideally take (including the design of public-private partnerships). These knowledge

products are expected to help mLab and mHub managers make better-informed decisions for their strategy and operational models. They are seen as starting points to empower mLabs and mHubs to improve their monitoring and assessment of results and impact, in turn helping them to learn about and showcase successes to funders and partners. Critically, such toolkits and analytical products need to be highly customizable and interactive if underutilization is to be avoided, as was the case with the generic mLab business plan (see [Evaluation, Business Analytics, and Toolkits](#)).

Areas for Future Research and Analysis

Finally, the report has brought to bear several other areas that merit more in-depth research and analysis. These topics could be developed by *infoDev* but also by other organizations working to understand and support innovation ecosystems in developing countries.

With the recent surge of technology innovation hubs across developing countries and in particular across Africa, an increasing need to understand mechanisms of collaboration, competition, and differentiation between these hubs has emerged. This is particularly relevant in vibrant ecosystems such as Nairobi, Lagos, or Cape Town, where myriad, mostly scattered support institutions are active. Interviewed stakeholders expressed a sense that these institutions ought to find better ways of coordination, since demand for support services is high but there is also a significant risk of duplication and infighting while structural and deep-running ecosystem barriers (such as basic skill shortages

or policy constraints) continue to exist. Importantly, there are indications that the tech innovation community's strong sense of identity combined with skepticism towards government and large corporations can have negative externalities, such as a lack of linkages to non-technical stakeholders or structural underestimation of advocacy and lobbying towards governments.

In line with this, improved benchmarking of technology innovation hubs and other support institutions is needed to understand how roles in innovation ecosystem support can be divided up effectively. This report has only hinted at one of many dimensions in which the strategies of innovation support institutions can differ (ecosystem builder versus startup accelerator focus), but many other distinction factors determine whether the value propositions of organizations will complement and integrate with each other (for instance, sector-specific innovation hubs for mobile health, mobile agriculture, and so on; hardware versus software innovation hubs; ICT versus other technology innovation hubs; technology versus non-technology innovation hubs; and so forth).

Another important line of inquiry concerns the feasibility of standardizing at least certain technology innovation hub functions across geographical boundaries. Evidence is mixed; while some of the entrepreneurs' demands concerning innovation ecosystem support appear to be the same across contexts, other constraints vary depending on local conditions.⁴⁸ This raises the question of whether a franchise model for technology innovation hubs,

in which hubs share a common brand and the same basic functional model across a region or globally, could make their rollout and implementation more efficient. This report informs the debate, but the evidence from mLab and mHub pilots so far remains inconclusive for which elements of tech innovation hubs' standardization is feasible and for which it is not.

More broadly, the features and evolution of app economies in developing countries still remain poorly understood. For instance, there is great interest on the potential share of the app economy within the overall economy, and how it interacts and catalyzes other areas of economic activity, in particular job creation. Such research would inform the technology innovation hub agenda insofar as it could further corroborate, or question, their relevance.

Conclusion

The report concludes that the mLab and mHub pilots have established proof for the viability of the mobile entrepreneurship enabler concept: mLabs and mHubs are capable of creating and supporting growth-oriented startups and filling gaps in innovation ecosystems of developing countries. All mLabs and mHubs faced implementation challenges and the experience has shown that the rollout of such complex, multistakeholder operations is never a given. Yet, by and large, most cases have fulfilled or exceeded expectations (see [part III](#) for details). At the same time, mLabs, mHubs, and *infoDev* have to continue to learn before they are able to maximize the potential impact of the mobile entrepreneurship enabler

concept. The report shows that, depending on the local context and strategic choices, mLabs and mHubs can implement a variety of business models, and experimentation, adaptation, and learning will have to continue.

Among the most pressing challenges for mLabs and mHubs is their uncertain financial sustainability. None of the mLab pilots has found a business model that could already cover core overhead costs as well as incubation and acceleration services independently from donors, impact investors, and governments. This experience is similar to the overall experience of business incubators in developing countries that are barely able to survive on service revenues alone. mLab East Africa's private-sector sponsorship model has so far been the most promising approach in this direction but, without additional donor funding, the mLab might soon have to eliminate any service line that does not generate a positive margin by itself. Ecosystem builder services are inherently hard to monetize through direct contributions from clients and are likely to need donor and government contributions for extended periods of time. But also the setup of profitable "pure" startup incubators and accelerators such as [Raizcorp](#)⁴⁹ or [Y-Combinator](#)⁵⁰ still seems unrealistic for the early stage innovation space of developing countries, where startup success rates, valuation potential, and profitability will always be lower than in more advanced ecosystems and for higher-up innovation stages. It will be crucial for mLabs that they continue to evaluate the potential of donor-based revenue models but also begin to experiment



with success-sharing schemes, where supported startups either pay revenue or profit-based success fees, or give up equity shares.

Other important challenges were often due to administrative barriers and short implementation timelines, and these are areas for more straightforward improvements. In particular, future mLabs and mHubs will benefit from more elaborate upfront scoping assessments and high-level project design conducted by *infoDev* over one to two years, before mLabs and mHubs start implementation themselves. They will ideally be endowed with sufficient core funding over at least six years of implementation, which should provide time to build up donor and government-independent revenues from the private sector.

infoDev is also learning about mLabs' and mHubs' expectations towards its function as a convener and network broker. Selected global innovation

competitions, more structured brokerage of partner and funder contacts, applicable analytical products and benchmarks, and active knowledge transfer in cases of local challenges are likely to create a compelling value proposition for mLabs and mHubs that are part of *infoDev*'s Mobile Innovation network.

Of course, even if resources and assistance provided by *infoDev* were abundant, mLab managers would still have to be clear about their strategy and address the many open questions of how to effectively impact innovation ecosystems, some of which this report has highlighted. *infoDev*, mLabs, and mHubs will have to continuously evolve their practices and learn from past mistakes to improve new initiatives. The next months and years will tell whether the value proposition of *infoDev*, mLabs, and mHubs are in fact compelling for their donors and partners, as well as the startups, entrepreneurs, and developers that they serve.

Endnotes

²³ As a case in point, mLab East Africa's Pivot East competition has so far attracted the most significant contributions from the private sector, fueled by the competition's high brand value and the rapidly growing East African innovation ecosystem.

²⁴ <http://www.mobilemonday.net/>.

²⁵ This also underscores that results cannot be compared directly across mLabs: in part due to selection of more seasoned entrepreneurs, mLab East Africa dwarfs mLab ECA with regard to investments raised, revenues generated, and jobs created by its startups (see the respective case studies for mLab East Africa and mLab ECA).

²⁶ In this context, social enterprises are defined as startups that are profit-oriented, but ultimately see profit as a means to the end of rolling out an app or a mobile software product that has positive social impact. Typical sectors of interest include mobile health, agriculture, education, and government.

²⁷ <http://www.itwebafrica.com/ict-and-governance/523-africa/231471-africas-tech-hubs-are-they-producing-success-stories>.

²⁸ For a recent op-ed on the negative externalities of a narrow social development perspective on innovation and technology adaptation, see <http://www.nytimes.com/2013/09/17/opinion/let-the-poor-have-fun.html>.

²⁹ Of course, the capital required varies from market to market and depends on the startups' capital intensity. In the mobile app space of developing countries, typical preseed financing gaps start as low as \$5,000 and reach up to \$50,000.

³⁰ Recently, significant advances have been made towards coherent methodologies and frameworks for the assessment of entrepreneurial ecosystems that have helped *infoDev* to fine-tune its assessments. Notably, the World Economic Forum (2013) together with Stanford University and others suggested a framework of entrepreneurial ecosystem pillars and entrepreneurs' perceptions of their relative importance. The study found that, globally, entrepreneurs perceive accessible markets, human capital and the local workforce, as well as funding and access to finance as the most important ecosystem pillars. Also GSMA's Mobile for Development unit as part of its M4D Network program will publish a mapping of Kenya's entrepreneurial ecosystem in early 2014, at <https://mobiledevelopmentintelligence.com/>. GSMA intends to carry out similar research in West Africa, South Africa, as well as South East Asia.

³¹ In 2013, CIDA was integrated with the Canadian Department for Foreign Affairs to form the new Department of Foreign Affairs, Trade and Development of Canada.

³² http://www.infodev.org/infodev-files/resource/InfodevDocuments_1087.pdf.

³³ <http://theleanstartup.com/principles>.

³⁴ The evaluation is expected to be released in March 2014, see <http://www.infodev.org/mobile>.

³⁵ Country case studies were created for Kenya (<http://www.infodev.org/articles/mobile-usage-base-pyramid-kenya>) and South Africa (<http://www.infodev.org/articles/mobile-usage-base-pyramid-south-africa>), followed by an overview report (<http://www.infodev.org/highlights/mobile-usage-base-pyramid>).

³⁶ <http://www.globalforum2013.co.za/>.

³⁷ <http://www.infodev.org/articles/open-innovation-africa-summit-2>.

³⁸ <http://www.infodev.org/m2Work>.

³⁹ <http://www.infodev.org/mAgri>.

⁴⁰ <http://ventureoutchallenge.org/>.

⁴¹ <http://www.infodev.org/articles/mobile-usage-base-pyramid-kenya>.

⁴² <http://www.infodev.org/articles/mobile-usage-base-pyramid-south-africa>.

⁴³ <http://www.infodev.org/highlights/mobile-usage-base-pyramid>.

⁴⁴ <http://www.infodev.org/articles/tor-virtual-incubation-pilot-vietnam>.

⁴⁵ <http://www.infodev.org/articles/east-african-virtual-incubation-pilot-launch-nairobi-kenya>.

⁴⁶ <http://www.appcampus.fi/>.

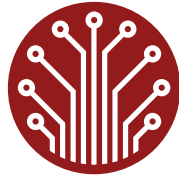
⁴⁷ A first step in this direction has been taken by GSMA's Mobile for Development unit. As part of its M4D Network program, GSMA interviewed about 300 organizations, analyzing the state and future of the entrepreneurial ecosystem in Kenya, including benchmarking of prominent tech innovation hubs. Findings were published in early 2014 at

<http://www.gsmaentrepreneurshipkenya.com/>.

⁴⁸ See, for instance, World Economic Forum [2013].

⁴⁹ <http://www.raizcorp.co.za/>.

⁵⁰ <http://ycombinator.com/>.



Part III: Case Studies of mLab and mHub Business Models

Applying the Business Model Canvas to mLabs and mHubs

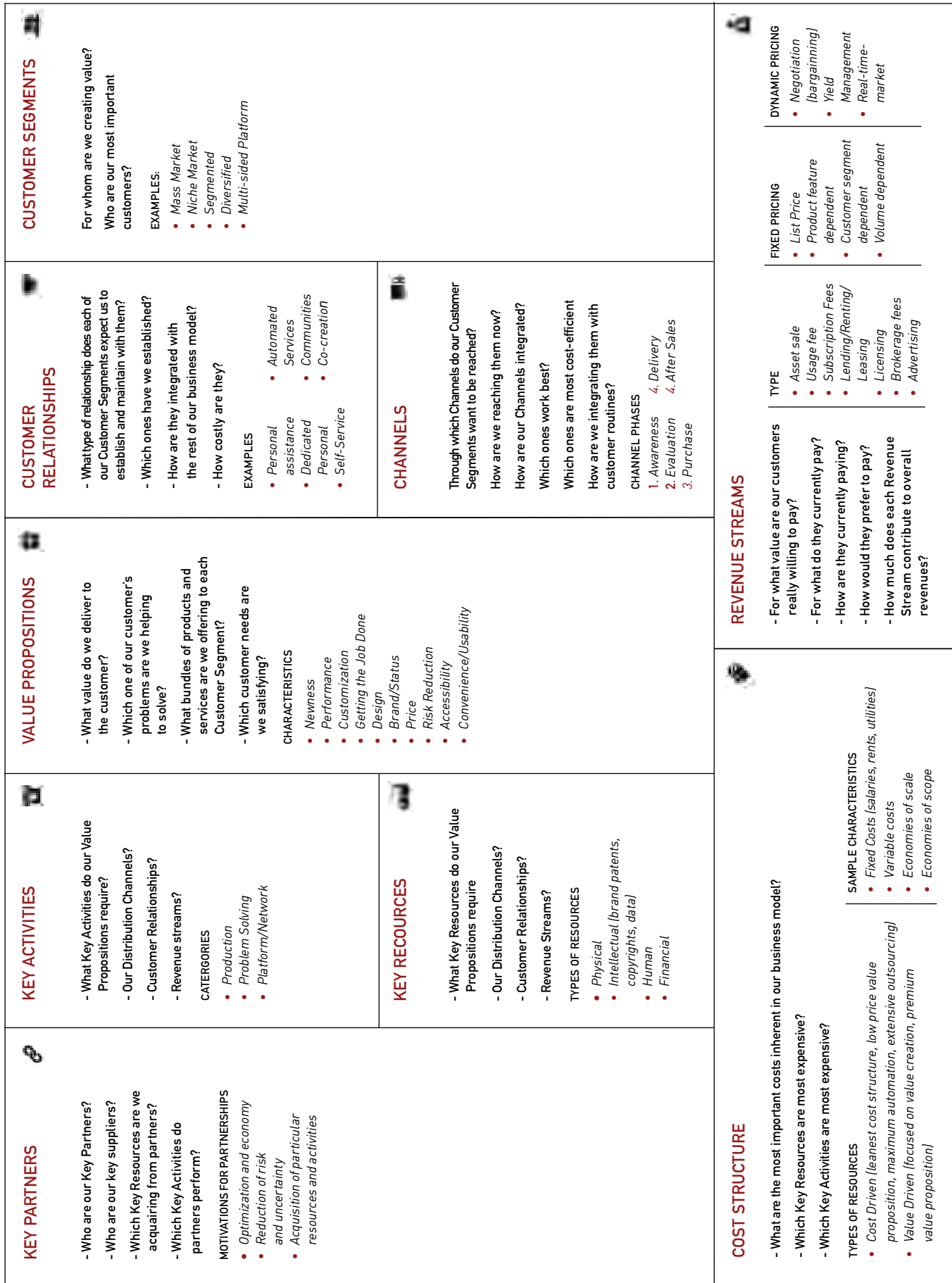
The following case studies, as the final part of the report, employ the [Business Model Canvas](#)⁵¹ (see figure 10) to analyze and illustrate four mLabs and three mHubs in depth. This chosen because of its illustrative power and its popularity among startup communities. General guidance on how to apply the Business Model Canvas can be found at various sources online⁵² or in the original book by Alexander Osterwalder.⁵³ The planned but never implemented mLab South Asia, as well as Mobile Monday Kampala (mHub Uganda) are included as essays without discussion of the Business Model Canvas framework; these cases held valuable insights but data collection that would have been necessary for more in-depth analysis was not feasible.

It should be noted that the Business Model Canvas has major limitations. In the context of mLabs and mHubs, the most important conceptual problem concerns the categorization of stakeholder segments that benefit from, but also contribute to, the value proposition; these stakeholders can be categorized as both partners and customer segments (and sometimes also as resources). The following case studies consider the developers, entrepreneurs, and startups that mLabs and mHubs serve as customer segments, and also organizations that

paid the mLab or mHub to implement a specific activity. For these clients, the mHub or mLab can be seen as a supplier or service provider. Sponsors and donors (including private-sector sponsors, contributing government agencies, and *infoDev*) were included as partners but not as customer segments, as these stakeholders do not request a specific service or deliverable in return for the funding they provide.⁵⁴

In order to generate valuable lessons that are lost in the Business Model Canvas perspective, each of the seven in-depth case studies also discuss the challenges that the mLab or mHub in question has faced. Stakeholders also requested that results should be displayed and benchmarked, even if simple quantitative measurements have limitations (see [Why Evaluate the Business Models of mLabs and mHubs?](#) and [Results for mLabs and mHubs](#)), and also thought that mLabs' and mHubs' financial sustainability and their potential to become independent of government and donor support were important areas of interest—each in-depth case study also includes sections on these topics. The results sections for the four operational mLabs also present radar charts that give an indication how the given mLab's results compare to other network members (see [Results for mLabs and mHubs](#) for further comparative analysis and [appendix C](#) for details on the calculation).

The Business Model Canvas by Alexander Osterwalder



Source: http://upload.wikimedia.org/wikipedia/commons/1/10/Business_Model_Canvas.png

Figure 10:
The Business Model Canvas by Alexander Osterwalder

The Business Model Canvas – mLab East Africa



Note: To access the full canvas for mLab East Africa, go to <https://bmfiddle.com/f/#/rw926>. Each partner or group of partners has a specific color; activities and resources that mainly rely on a particular partner group have the same color. Also each customer segment has a distinct color, and relationships, channels, and value proposition elements have the according color when they mainly relate to the customer segment in question. Activities and resources as well as cost and revenue streams that only relate to the infoDev grant have their own color.

A flexible, busy incubator for a bubbling startup ecosystem



mLab East Africa

Total <i>infoDev</i> grant funding	\$725,000
Funding for technical assistance	\$194,000 (approximate)
Base city, country	Nairobi, Kenya
<i>infoDev</i> grant start date	November 1, 2010
First activities launched	March 1, 2011
Official launch	June 16, 2011
Consortium members	iHub (lead) eMobilis (coleader) World Wide Web Foundation University of Nairobi
Key partners	Intel, Microsoft, Samsung, Nokia, Qualcomm, InMobi GrowVC, USAID
Targets as per grant agreement	<ul style="list-style-type: none"> Reaching a minimum of 100 developers through outreach and capacity building workshops (bootcamps), held in Uganda, Tanzania, and Rwanda 150 students trained in mobile app development, business and entrepreneurship Fifteen trained incubatees with products brought to market, including ten startups hosted within the mLab
Website	http://www.mlab.co.ke/
Social media and other web resources	@mLabEastAfrica, http://www.pivoteast.com/ , @PivotEast, https://facebook.com/mlabeastafrica , http://www.youtube.com/user/mlabeastafrica

Note: Funding amounts are based on actual expenses as of September 2013. Amounts are rounded to thousands.

Business Model

mLab East Africa is the longest running and probably the busiest of all mLabs. The mLab is located in the Bishop Magua Building in Nairobi, one floor below the now-famous [iHub](#).⁵⁵ The iHub community and the vibrancy of the local innovation ecosystem have attracted international attention and the mLab's services have been in high demand. Its core activities include an incubation program, the annual regional startup competition Pivot East,⁵⁶ and an intensive four-month training program.⁵⁷ Later, the mLab

also started complementary community building, such as the Wireless Wednesday series.

The incubation program benefits eight resident startups, with offices in the Bishop Magua Building, for up to two years. The interviews, in line with recent findings of [an evaluation by the University of Nairobi](#),⁵⁸ showed that the way in which the mLab adds value could differ greatly from startup to startup. Most startups mentioned one-on-one business mentoring and coaching as the most important service—in

Table 3: Basic Data for mLab East Africa

Figure 11: (opposite page) Business Model Canvas for mLab East Africa

Box 5:
iHub's
Influence,
from mLab
East Africa's
perspective

iHub's Influence, from mLab East Africa's perspective

The iHub has become one of the most widely known innovation hubs in Africa. In recent years, not only has the number of iHub community members grown far beyond 10,000, the innovation space has also attracted interest from many high-level tech executives and thought leaders from across the globe. Companies and organizations that look for channels to engage with developers and the tech community in Kenya often see the iHub as a powerful one-stop shop.

The iHub's mission is to strengthen the ICT ecosystem of Kenya and East Africa. As the consortium leader, the iHub sees mLab East Africa's niche focus on startup creation as one important component among its several other work streams. The iHub's clout has undoubtedly been instrumental in increasing the mLab's reach, securing contributions from large tech partners (for instance, Intel, Microsoft, Samsung, Nokia, and Qualcomm), and engaging a greater number and variety of stakeholders in mLab projects and activities. Occasionally, the iHub and its subsidiaries have also assisted the mLab's startups directly with contact brokerage, accounting support, or workshops on market research.

How mLab's affiliation and colocation with the iHub materialized as added value for individual startups depended on their needs and priorities. Startups such as Kopo Kopo, MedAfrica, mFarm, Eneza Education (formerly mPrep), or Zege Technologies—which rely on widespread awareness for their product, including among social development organizations and impact investors—have probably benefitted the most.

particular, the advice from Viktoria Solutions, a local consultancy that the mLab hired.⁵⁹

Another key element of the value proposition consisted of networking opportunities and exposure. At times, mLab and iHub staff would make introductions based on the startups' needs. But often it was simply brand affiliation with the mLab, the iHub, and the World Bank, in combination with the iHub's effective marketing, which enabled the startups to be heard by larger institutional partners and then pursue agreements by themselves (see box 5). Being in the midst of the iHub community also made it easier for some startups to source talent and serendipitously learn from peers.

Also the value of the infrastructure that the mLab provides (office space, connectivity, app testing facility, meeting rooms, some overhead expenses) is important to most incubatees. Annual funding or device donations from tech partners like Intel, Microsoft, Nokia, Samsung, Qualcomm (and earlier on InMobi and MIH) help cover or limit the mLab's expenses, inter alia, in exchange for prominent branding in the mLab's offices. The mLab's agreement with the iHub to share resources such as accounting has also helped several entrepreneurs to improve their core business functions. Again, the significance of the value varies between startups and entrepreneurs. For instance, app testing is crucial for trainees and entrepreneurs

By putting startups under competitive pressure while supporting them at the same time, Pivot East has proven to be a good incubatee selection channel.

with new apps, but it might only be marginally relevant for those startups that have already rolled out a well-functioning app to multiple platforms.

Pivot East, as mLab East Africa's second activity pillar, has provided value beyond seed funding of five category winner startups per year. One effect has been startup creation in high numbers: all applicant teams have to formalize their startups. Naturally, a formalized company is not necessarily a sustainable company, and so 25 finalists receive additional coaching, in particular, on pitching. Interviewees pointed out that the feedback received—even if it can feel harsh to young entrepreneurs at first—helps to improve not only the pitch deck for the event, but also to hone their proposed startup business models. More and more, applicants have realized that they need to learn and improve through iteration, which has resulted in a decreasing role for prize money as a motivation for participation over the years. By putting startups under competitive pressure while supporting them at the same time, Pivot East has also proven to be a viable incubatee selection channel.

Another critical value proposition that Pivot East offers consists of networking and partnership building, at least for the 25 finalists. Several interviewees mentioned that they found partners or increased their network. The goodwill and brand value that Pivot East was able to establish fairly quickly enabled organizers to gain large sponsorships and contributions from partners such as Intel, Samsung, Microsoft, Nokia, Qualcomm, the Ugandan Communications Commission, Outbox Hub Uganda, and others. Also mLab consortium members iHub and eMobilis have supported Pivot East, taking on marketing and event organization tasks.

The third important pillar of mLab East Africa's value proposition is skills development and startup creation through an intensive training program, mainly targeted at graduates from technical or business-oriented courses at Nairobi's universities. The training program is implemented by consortium coleader eMobilis, while some modules were delivered by Viktoria Solutions (on entrepreneurship) and the Web Foundation (on user experience and user interface design). The training initially had a strong focus on technical skills; the goal was to complement university programs with applicable, mobile software coding skills. As organizers realized that, with this setup, they could hardly spur on trainees to found startups, they recruited more students from business and non-technical backgrounds, shifted focus towards entrepreneurship training, and required trainees to engage in partnership and business building for their final course project. Later, the trainee teams' quality improved to a level where

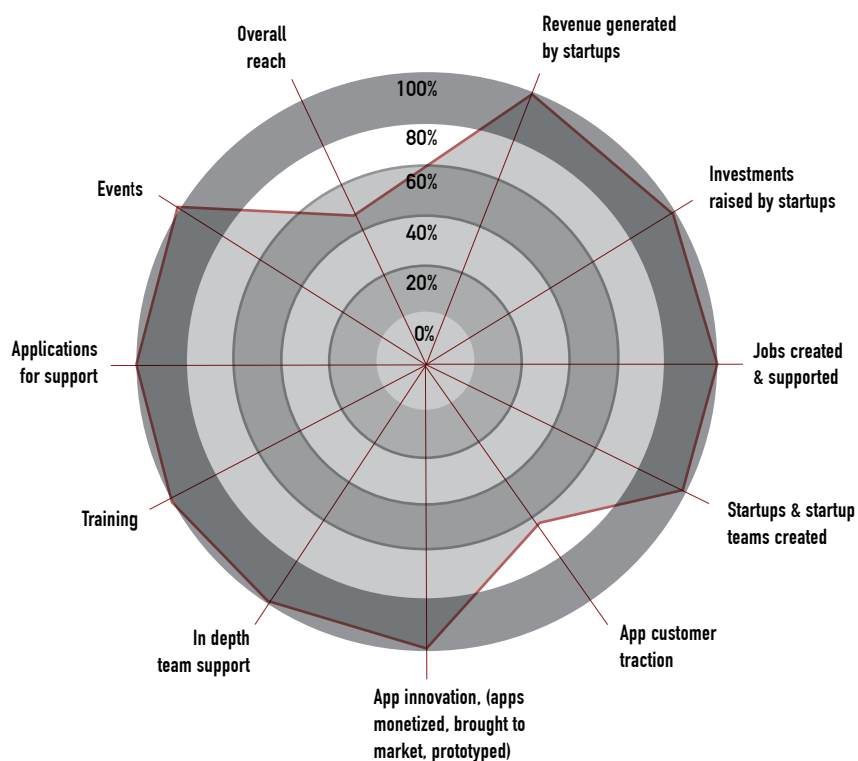


Figure 12:
Comparative
Results for mLab
East Africa

Note: The percentage values represent linear comparisons across data for all four mLabs, with the mLab scoring highest for a given indicator receiving 100%.

Indicator	Result as of June 2013
Revenues generated by startups	\$627,000
External investments raised by startups	\$1,500,000
Direct jobs created by startups	100
Startups created	50
Solid startup teams that have not registered a business	50
Consumer customer traction: Number of app downloads/users/subscribers	263,000
Organizational customer traction: Number of enterprise and public agency customers	5447
Apps brought to market	196
Number of other app prototypes	301
Number of teams applying for in-depth support	460
Number of individual applicants to services	900
Teams that received in-depth support	119
Number of people trained	462
Number of events	55
Number of developers and entrepreneurs reached	5,000

Table 4: Results
Highlights for
mLab East
Africa

Note: As reported by mLab manager. Including estimates, proxies, and underreporting due to missing data.

some of them qualified as Pivot East finalists. Throughout, tech partners including Samsung, Microsoft, Qualcomm, and others contributed to the training, or ran their own platform-specific training in collaboration and coordination with the mLab.

The fourth and final activity pillar emerged when the mLab found that the iHub tech community was lacking sub-communities for specific subject areas and sectors that include potential startup customers and non-tech organizations. It set up the Wireless Wednesday event series for mobile agriculture (sponsored by USAID), for mobile health (sponsored by Samsung), mobile finance (in partnership with CGAP), tech education, and other topics. The mLab also co-organized Mobile Mondays and other community-building events as it saw fit.

Results

Within a little over two years of operation, mLab East Africa has graduated ten resident startups, hosted three editions of Pivot East as a major startup competition for the region, trained five waves of trainees, launched several small series of Wireless Wednesday community events, and run many other ad hoc initiatives such as workshops, hackathons, and gatherings. As with other mLabs, mLab East Africa's results need to be seen against the backdrop of the local innovation ecosystem; Nairobi has a buzzing scene but there is still only a small number of mobile app startups that have received venture capital.⁶⁰

In total, the mLab's incubatees have made about \$627,000 in revenue, raised \$1.5 million in investments,

and employed about 100 people. The amounts of money that has been invested in startups is not evenly distributed; startups such as Kopo Kopo raised hundreds of thousands of dollars, while some of the teams collected seed money sums as low as a few thousand dollars, often in the form of grants. For instance, four teams received impact funding of about \$20,000 following the Wireless Wednesday series on mobile agriculture that the mLab hosted in partnership with USAID. The mLab helped broker partnerships with Samsung for mFarm and Zege Technologies and with Nokia for Whive. The tremendous demand for the mLab's services is illustrated by the high number of applications for support: 460 teams applied for in-depth support (most for Pivot East) and about 900 individuals applied for participation in training, workshops, and events.

Challenges

Many of mLab East Africa's challenges stem from insufficient capacity and resources to guarantee depth of service delivery and follow-through on the many opportunities available in the vibrant Kenyan mobile innovation ecosystem. In particular, the mLab manager was expected to assume an overly broad array of roles and responsibilities, ranging across fundraising, strategy, operations, mentoring, contact brokerage, and relationship management. Several interviewees involved in the mLab's management and governance thought that the size of the grant should allow for hiring two managers, with one representing the mLab externally (building partnerships, fundraising) and one administering the mLab's affairs.

Noted startups and app products supported by mLab East Africa

Box 6:
Noted start-
ups and
app products
supported by
mLab East
Africa



Note: Websites at <http://www.kopokopo.com>; <http://mfarm.co.ke>; <http://enezaeducation.com>; <http://zegetech.com/portal/>. A more comprehensive list of supported startups can be found in the appendix. Detailed case studies of these and other startups will be featured in an upcoming infoDev publication, commissioned to the private sector development evaluation and research agency CAD (<http://cad.globalcad.org/en/que-es-cad/>).

These interviewees thought that this setup would also help to address criticism from outsiders that the mLab's current leadership was falling short on fundraising and external representation and that it did not sufficiently instill a business mindset for startups: in the past, a lack of resources had kept the mLab management from tight monitoring and critical assessments of some of the startups' business models and monetization strategies.

In line with this, interview participants highlighted that the mLab's most important shortcoming in service delivery was insufficient mentoring and coaching. The mLab found it cost-prohibitive to consistently engage qualified mentors that could enhance the value of incubation for startups. Workshops that aimed at coaching several startups at the same time were considered useful only in exceptional cases. The lack of mentors was also seen as one reason for the mLab's lagging footprint beyond

Kenya, although efforts to strengthen the mLab's regional virtual incubation program for Pivot East finalists (see [Sustainability and Next Steps](#)) could change this diagnosis.

Less intense support and misaligned incentives at times resulted in low commitment and identification among the mLab's clients. For example, incubatee startups were often not eager to participate in group workshops and peer-learning sessions. From their perspective, sparse one-on-one support limits the mLab's value proposition. Accordingly, some interviewed startups felt that the gain that they receive from the mLab's incubation services would not justify success-sharing beyond the current rent payments. Of course, this assessment is made at a time where the startups have already received support for free, which, as other interviewees pointed out, might have led to a sense of entitlement and lowered appreciation for the intangible assets

that the startups built through the Pivot East competition and other services received. Also trainees lamented that participants should be selected more purposefully for them to be able to build viable startup teams, and also the lack of one-on-one follow-up after graduation from the training was seen as limiting—although these interviewees also acknowledged that improvements would require a costly additional effort on the mLab's part. The mLab saw trainees drop out of the free classes during the first training waves in 2011 and 2012, leading it to introduce a fee that would be partly reimbursed only upon submission of final course projects.

In turn, the mLab and some of the entrepreneurs believe that seed investments would be a good complement to the mLab's current services, and that this would also increase the willingness to share equity or pay royalties. Yet, such investments should be coupled with ongoing support, for instance, through regular monitoring and step-wise funding based on milestones. The Pivot East editions of 2011 and 2012 had shown that any direct financial rewards should always have strings attached and be complemented by mentoring, even if it implies more necessary follow-up for the mLab: without follow-up, several Pivot awardees had spent the prize money on things other than their business.

More broadly, interviewees suggested that the mLab improve the targeting and rigor of network building for clients. Interviewees pointed out that the mLab could set up structured collaborations with organizations that have mobile market intelligence, or other innovation hubs in Nairobi. In particular, startups

with niche business models were not able to benefit much from serendipitous networking enabled through the iHub as much as might have been expected. They rather experienced distraction by an influx of visitors who would seldom offer concrete business opportunities for them. Interviewed iHub outsiders and some evidence from the University of Nairobi's evaluation of the mLab pointed to the more general observation that several mLab teams and startups are disengaged from market needs, as they overly focus on their technology (and not their business model), become hyped too quickly, or fail to venture out of the iHub "bubble" to experience and understand their customers' problems. Owing to a lack of capacity, the mLab was also not able to tap into *infoDev's* network and work closely with other mLabs and mHubs.

Similarly, the mLab felt that it lacked the resources to maintain and improve its value proposition for paying tech partners (such as annual mLab and Pivot East sponsors) over time. The mLab experienced that, once the branding effect of a partnership announcement had been achieved, some sponsors would ask for more concrete deliverables and at least a certain degree of brand exclusivity, or they would lower their contribution for ensuing sponsorships. Sponsors' stretched resources aggravated the situation: developer outreach units are not often endowed with many personnel or significant budgets.

Moreover, for most tech sponsors, developer outreach consists of marketing and technical training rather than startup incubation, and it was sometimes unclear to them how the mLab can add

Table 5:
Budget and
Financial
Projections
for mLab
East Africa

	2013	2014	2015
Expenses			
Events and ecosystem building	132,500	139,125	146,081
Seed funding (investments)	47,500	125,000	125,000
Lease, personnel, training, coaching and advisory, other	299,000	293,200	310,020
<u>Total expenses</u>	<u>479,000</u>	<u>557,325</u>	<u>581,101</u>
Income			
<i>Services and sponsorships</i>			
Annual partnerships	60,000	66,000	72,600
Incubation revenues	34,000	24,000	28,800
Events, ecosystem building, training, other	210,000	221,500	233,675
<i>Grants</i>			
<i>infoDev</i>	100,000	—	—
<u>Total income</u>	<u>404,000</u>	<u>346,500</u>	<u>370,075</u>
Financing gap	(75,000)	(210,825)	(211,026)
Total financing gap until 2015			(496,851)

Note: All amounts in US\$. Budget items are kept at a high level to avoid disclosure of sensitive information. Projections are based on rough estimates, as mLabs are currently in a transition phase at the end of grant funding from *infoDev*.

value beyond what the iHub can provide. In turn, other interviewees claimed that the training program should be better integrated with the mLab's overall goals, the incubation program, and Pivot East; the startups that trainees founded were often not sustainable, only few trainee teams qualified as Pivot East finalists, and incubatee startups only rarely sourced talent from among trainees. Interviewees pointed out that the training program might well have a substantial positive impact for the ecosystem and startups in the long run, but the lack of immediate results and the fact that training is hardly generating revenue made it difficult to justify maintaining this activity.

Another challenge consisted of subtle difficulties with the mLab's consortium structure. At different points in time, consortium members effectively became service providers for the mLab, while they still assumed their

supervision function as consortium organizations. This led to conflicts of interest, for instance, when project contracts were tendered. The consortium was mostly able to mitigate any severe conflicts by maintaining relationships of mutual trust and support among its members, but interviewees expressed the view that this was only possible because the consortium organizations and the mLab itself were at least in part driven by an ecosystem-oriented mission, and not profit. Some consortium members mentioned the lack of direct compensation for their contributions—especially in the mLab's setup phase—as another challenge.

Finally, some client entrepreneurs and tech partners pointed out that *infoDev*'s role was not clear to them, and that they would like to know more about other mLabs and mHubs. These stakeholders also looked to *infoDev* to build partnerships with global organizations

and bring mLab entrepreneurs together for peer-learning and international exposure (for instance, through boot-camps with participation from across the network). On the other hand, both the consortium leader and the mLab management pointed out that *infoDev*'s hands-off approach towards local operations and time pressure initially enabled a quick and effective rollout of activities; avoiding government or donor intervention was an explicit focus in their grassroots-driven approach. Like other mLabs, mLab East Africa felt that reporting to *infoDev* and adherence to World Bank grant and procurement rules was arduous, both for the mLab and for entrepreneurs.

Sustainability and Next Steps

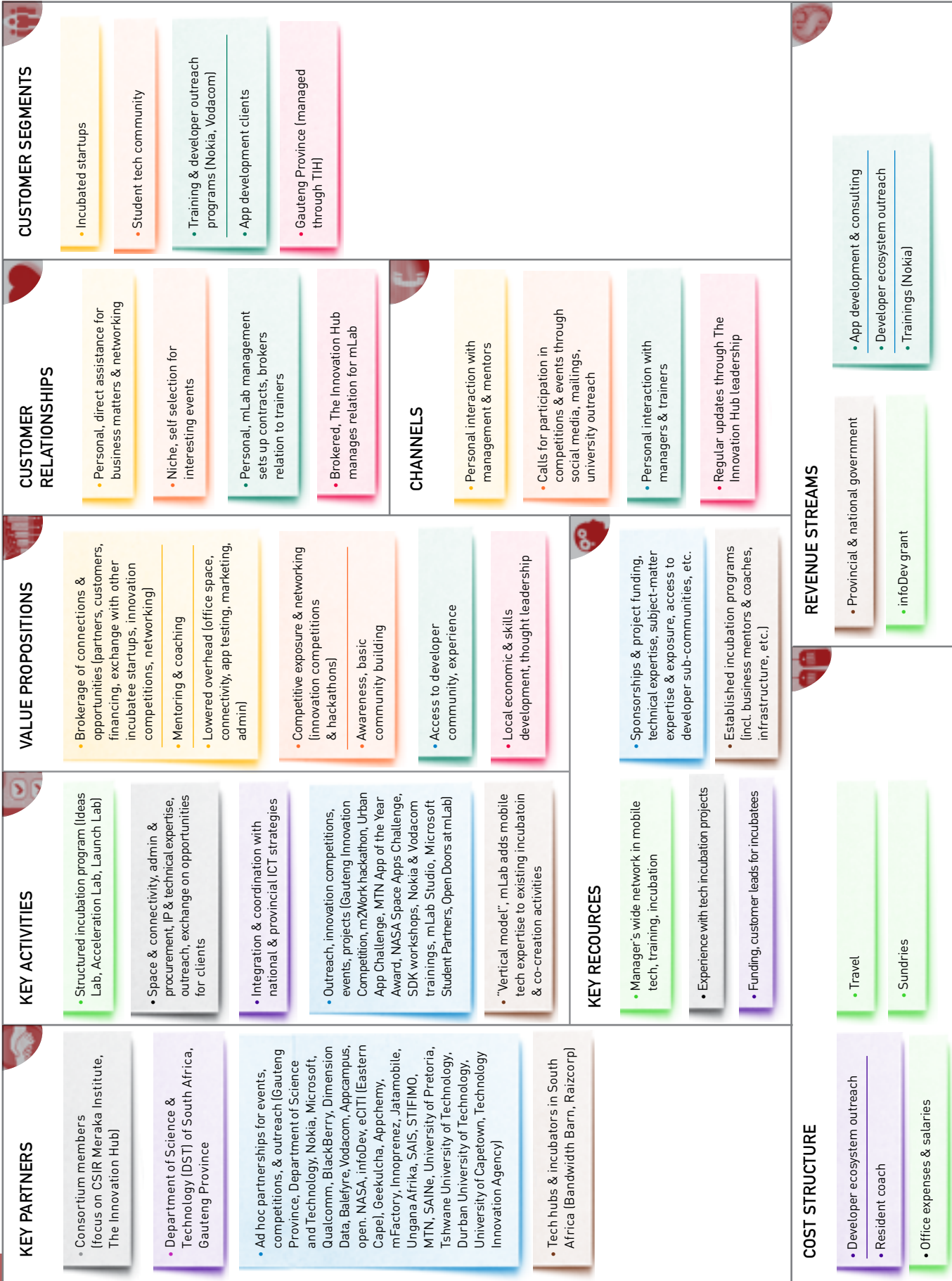
mLab East Africa has opted for a private sector-oriented approach based on technology partnerships and sponsorship, without seeking government funding. In particular, the mLab was able to attract large contributions for Pivot East, from annual memberships of tech partners, as well as joint execution of developer training. The mLab was able to significantly diversify its revenue streams; for 2013, the mLab projected it would generate roughly three-quarters of its revenue from sources other than the *infoDev* grant. However, the mLab's training program is an example of an activity that is widely seen as crucial to infuse further applied entrepreneurship and technical skills into the ecosystem, but which is unlikely to generate profit. Moreover, some sponsors have become more demanding over time and often do not support mLab's overhead and incubation costs, so that strong reliance on sponsorship could be a precarious

strategy over the long run. As a result, the mLab is still looking to make up for projected funding gaps over the next few years (see Table 5).

An equity investment program for the incubated startups that is currently in the design phase is likely to contribute income, albeit equity liquidations are expected to generate returns only after several years. This goes hand in hand with a redefinition of the mLab's core value proposition: it aims to move away from a focus on physical space and colocation with the iHub as core assets towards emphasizing intangibles that are generated through mentoring and network brokering. This reorientation is also a reaction to incubatees' opinion that the value that the mLab currently adds to their business would not justify an equity dilution and that the existing rent model is more appropriate.

The virtual incubation program that the mLab is currently piloting in collaboration with AfriLabs⁶¹ is envisaged to bolster the mLab's strategic shift, and it should also contribute towards the mLab's goal to become a mobile incubator for the whole East African region. In the same context, the mLab is looking to synchronize the annual cycle of incubatee graduation and selection with the Pivot East conference, so that at least most of the available virtual incubation slots can be filled with Pivot East finalists. Another change will be further adaptation of the training program into a module-based mini-acceleration program, in order to both satisfy calls for more entrepreneurship focus and to align the training program better with other activity pillars.

The Business Model Canvas – mLab Southern Africa



Note: To access the full canvas for mLab Southern Africa, go to <https://bmfiddle.com/f/#/Hd8G9>. Each partner or group of partners has a specific color; activities and resources that mainly rely on a particular partner group have the same color. Also each customer segment has a distinct color, and relationships, channels, and value proposition elements have the according color when they mainly relate to the customer segment in question. Activities and resources as well as cost and revenue streams that only relate to the infoDev grant have their own color.

A networked incubator, guiding mobile app startups from idea to launch at multiple locations



mLab Southern Africa

Total <i>infoDev</i> grant funding	\$380,000
Funding for technical assistance	\$194,000 (approximate)
Base city, country	Pretoria, South Africa
<i>infoDev</i> grant start date	July 31, 2011
First activities launched	August 29, 2011
Official launch	September 15, 2011
Consortium members	CSIR Meraka Institute The Innovation Hub Ungana Afrika The Innovation Lab (lapsed)
Key partners	Gauteng Province, Department of Science and Technology of South Africa, Nokia, Microsoft, Qualcomm, BlackBerry, Dimension Data, Vodacom, Appcampus, CITI (Bandwidth Barn)
Targets as per grant agreement	<ul style="list-style-type: none"> • 50 students trained in mobile app development • Eight to ten incubatees with products brought to market • Five startups hosted within the mLab
Website	www.mlab.co.za
Social media and other web resources	@mLabSA, http://www.youtube.com/user/mLabSAStudio

Note: Funding amounts are based on actual expenses as of September 2013. Amounts have been rounded to thousands.

Business Model

mLab Southern Africa has become a focused, highly networked, and well-funded incubator and accelerator for mobile app companies. The mLab, even more than its peers, functions as a platform that interconnects client groups in a multisided market. In other words, most of the mLab's customers are also partners that it works with to service other customer segments. The core value proposition is targeted at the incubated startups; the startups' growth in turn feeds into the value propositions for other client groups. For instance, developer outreach programs of large tech companies like Vodacom or Nokia contract the mLab

to deliver training programs, for which the mLab recruits highly skilled entrepreneurs from incubated startups as trainers to ultimately service student technologists.

Accordingly, most interviewed startups pointed out that brokerage of contacts and opportunities is the core value that the mLab Southern Africa generates for them. For example, the mLab has connected client entrepreneurs to external coaches and expertise (for instance, through tech partners such as Nokia) as well as financing and exposure opportunities (for instance, through [The Innovation Hub's](#)⁶² [Gauteng Innovation Competition](#)⁶³). The

Table 6:
Basic Data for
mLab Southern
Africa.

Figure 13:
(opposite page)
Business
Model Canvas
for mLab
Southern Africa



mLab also introduced organizational customers in search of a mobile solution to the right incubatee, and startups confirmed that the mLab's brand recognition helps them with customer acquisition—so much so that some organizational clients (in particular, large firms and the public sector) prefer engaging directly with the mLab, which facilitates the project for the startups in exchange for a management fee. The entrepreneurs see this help as a viable interim solution until they establish their reputation independently. The current mLab manager's personal network, established over years of work in the mobile app sector, was also described as a critical asset, and stakeholders appreciate his readiness to leverage his past contacts and make introductions as appropriate.

Beyond opening doors for startups, the mLab also contributes mentoring and coaching during a focused,

staged incubation program: in the two month-long Ideas Lab, entrepreneurs brainstorm business models or join hackathons, seeking feedback from coaches and other startups in an open-ended process. Selected entrepreneurs then spend about four months in the Acceleration Lab, during which the focus shifts to product development while distractions are reduced and exchanges with outside partners are kept to the most critical ones. Lastly, startups go to the Launch Lab phase, where they bring their product to the market and reach out to external accelerators, partners, and investors. Throughout the process, a resident coach gives technical and business development advice on a daily basis. The focus is on project design, monetization strategies, and a startup's financial sustainability. The mLab manager has monthly sessions with the startups, discussing milestones and higher-level strategic decisions.

This helps startups to create a sense of accountability while the manager remains aware of the startups' progress and needs.

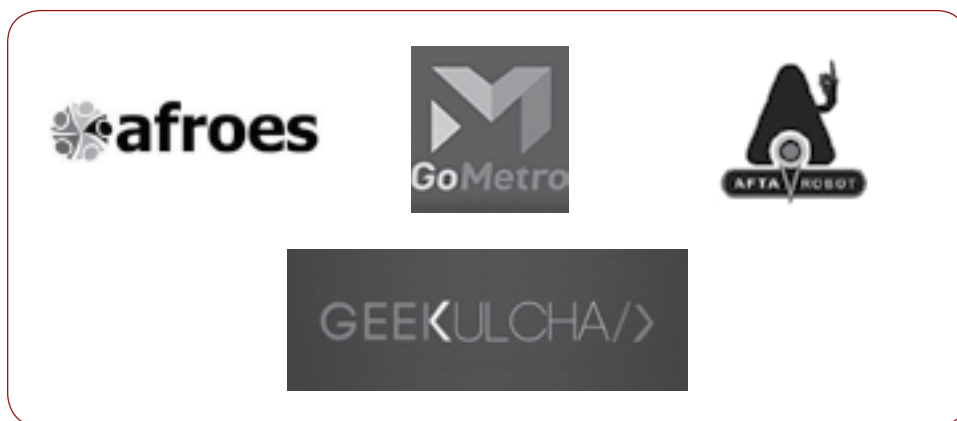
Furthermore, the mLab provides startups with core support features of an incubator, such as office space, lower overhead cost and back office support, connectivity, and app testing devices. The mLab's location within The Innovation Hub science park has mostly been a challenge (see section [Challenges](#)) but it has been advantageous for those startups seeking to work with government agencies or mLab consortium member organizations.

The Innovation Hub and the [CSIR Meraka Institute](#)⁶⁴ as the lead consortium members have also played a critical role in managing the mLab's relationships with its two major funders aside from *infoDev*. CSIR assisted the mLab with securing and administrating the contribution from South Africa's Department of Science and Technology

(DST).⁶⁵ DST's financial support was seen as matching funding for *infoDev*'s grant. Hence the ministry is hands-off in terms of regular exchanges with the mLab: it explicitly does not seek to interfere with operations or set specific outcome targets.⁶⁶ The Innovation Hub as a subsidiary of the Gauteng Growth and Development Agency helped the mLab (and indirectly some of its startups) to maneuver the procurement channels of the provincial government as a client. The financial support that the mLab receives from the Gauteng Province is more akin to a contractual agreement, with The Innovation Hub as an intermediary: the mLab received specific deliverables with a focus on skill and enterprise development. Through the partnership, the province aims to solidify its positioning as a national leader in private-sector support for technology innovation and ICT-enabled public service delivery.

As a unique case in *infoDev*'s mobile innovation network, mLab Southern Africa has also made an effort to

Noted startups and app products supported by mLab Southern Africa



Box 7: Noted startups and app products supported by mLab Southern Africa

Note: Websites at <http://www.gometro.co.za/>; <http://www.afroes.com/>; <http://www.aftarobot.com/>; <http://geekulcha.com/>. A more comprehensive list of supported startups and teams can be found in the appendix. Detailed case studies of these and other startups will be featured in an upcoming *infoDev* publication, carried out by the private sector development evaluation and research agency CAD (<http://cad.globalcad.org/en/que-es-cad/>).

Table 7:
Results
Highlights for
mLab ECA

Indicator	Result as of June 2013
Revenues generated by startups	\$345,000
External investments raised by startups	\$652,205
Direct jobs created by startups	51
Startups created	12
Solid startup teams that have not registered a business	21
Consumer customer traction: Number of app downloads/users/subscribers	598,000
Organizational customer traction: Number of enterprise and public agency customers	30
Apps brought to market	115
Number of other app prototypes	10
Number of teams applying for in-depth support	78
Number of individual applicants to services	223
Teams that received in-depth support	21
Number of people trained	223
Number of events	9
Number of developers and entrepreneurs reached	1,578

Note: The percentage values represent linear comparisons across data for all four mLabs, with the mLab scoring highest for a given indicator receiving 100%.

leverage the startups' resources and strengths for each other. The mLab selected a mix of service-based startups (active in coding, design, training, digital media and gamification, and so on) and product-based startups (implementing a one-of-a-kind idea and business model). Startups contract Appchemy or Innoprenez for app development when they are short-staffed, draw on Jatamobile for design help, or collaborate with Geekulcha if they need to reach out to South Africa's developer community. Even the more advanced startups (such as Afroes or GoMetro), which are largely active outside of Pretoria, consult with peers at the mLab, for instance, to access design expertise or seek coding feedback. The

mLab also draws on the services of some of the incubated startups directly, for example, for design tasks, the [mLab Studio app](#),⁶⁷ or outreach to the tech community.

Like other mLabs and mHubs, mLab Southern Africa has built a wide partnership network through ad hoc initiatives. Large tech companies (Nokia, Microsoft, Blackberry, Qualcomm, MTN), universities, the mLab's incubatees (Geekulcha, Appchemy), and many other organizations active in innovation and economic development (The Innovation Hub, [AppCampus](#), [open.NASA](#), [Ungana Afrika](#),⁶⁸ [SAIS](#),⁶⁹ [STIFIMO](#),⁷⁰ [TIA](#),⁷¹ [SAINe](#)⁷²) have partnered with the mLab—often informally

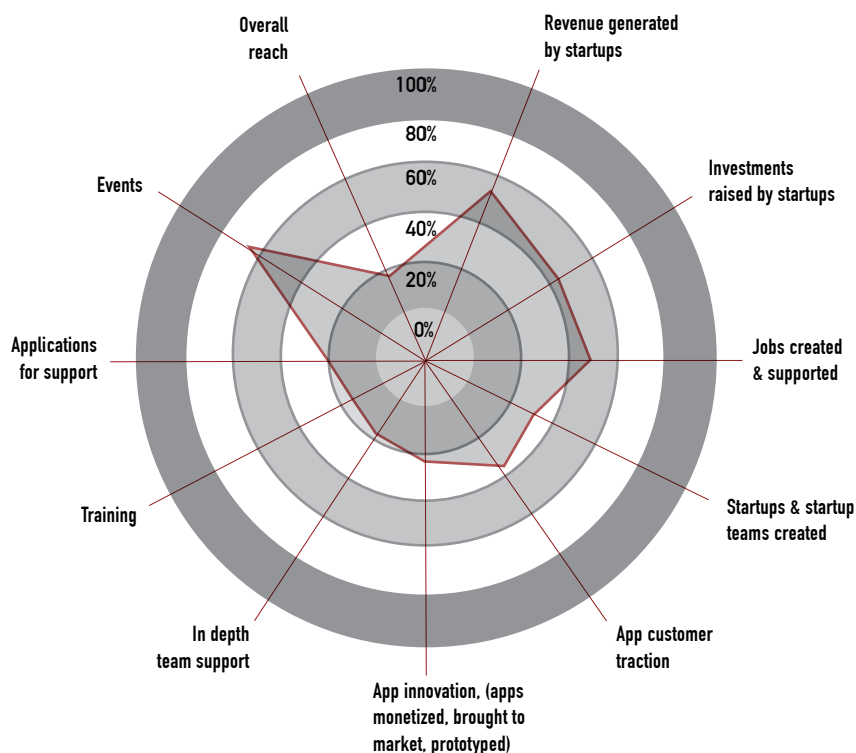


Figure 14:
Comparative
Results for
mLab Southern
Africa

Note: The percentage values represent linear comparisons across data for all four mLabs, with the mLab scoring highest for a given indicator receiving 100%.

and without contributing financially—to run dozens of outreach campaigns, networking events, hackathons, workshops, trainings, and so forth.

Results

mLab Southern Africa has recently shown good results and great potential to serve developers, innovators, startups, and the South African mobile innovation ecosystem as a whole. The results (see table 7) reflect that the mLab has supported only a few startups, but it seems to have supported them well.

It should also be noted that these indicators hide the substantial ecosystem impact that the mLab is having. The “vertical model” (see [Sustainability and Next Steps](#)) of setting up a lean mobile tech program for ICT incubators across South Africa (and later the region) is an ambitious but promising approach to

help startups and early-stage innovators to engage in knowledge exchange and opportunities for market extension. Box 7: Noted startups and app products supported by mLab Southern Africa

Challenges

The mLab has made remarkable progress in recent months, but it still faces several challenges. The most frequently mentioned one is location. The mLab is hosted inside The Innovation Hub Science Park. While proximity to offices of CSIR, The Innovation Hub, DST, and few tech businesses in the park has been advantageous for some startups (see section on [Business Model](#)), the location is far from areas where student tech communities and ICT startup clusters have formed, so that “organic,” regular, and serendipitous interaction with these stakeholder groups is difficult. Public transport

is patchy and highly inconvenient, and interviewees reported that many mLab members spend several hours commuting. Entrepreneurs suggested that shuttle buses from central locations and university campuses, onsite accommodation, or a satellite office in Hatfield (Pretoria) could ameliorate the situation. In its current location, the mLab cannot function as an open space for cocreation and informal networking, which is a prevalent model among technology innovation hubs.

The second challenge is the provision of hands-on and in-depth mentoring and coaching. The mLab tends to serve young entrepreneurs with little experience, and often much support is required to turn skills and talent into sustainable startups. Interviewed stakeholders identified the need for a more stringent selection process to exclude those that are not committed to their startup project. They also advocated that the mLab provide daily, in-depth coaching by well-matched mentors (including on business modeling, go-to-market strategies, project management, and intellectual property), regular mock pitching to the immediate mLab community, elaborate milestone setting and success tracking, as well as follow-on support even beyond the incubation period.⁷³ Several interviewees pointed to Raizcorp's thorough incubation support, although it was unclear if the startups were aware of the modalities and compensation that Raizcorp requires in exchange for its services. Yet, others held that the mLab should continue to start supporting entrepreneurs when they have just a business

idea and raw talent, even if this implies a lower success rate and lower probability that client entrepreneurs can afford to pay for the support.

Third, like other mLabs, mLab Southern Africa also struggled to get off the ground and establish smooth operations within a short implementation timeframe and given administrative challenges and limited core funding. The original leader for the mLab project abruptly left to pursue another career opportunity. According to interviewees, the first appointed mLab manager then overly emphasized revenue generation for the mLab and sought direct financial contributions from partners, which they were not prepared to make, given the mLab's initially lacking proof of concept and low brand value. Importantly, the lack of realistic targets meant that it was harder for the involved parties to make the case that the current model was not working; the manager was, at first, able to point to completion of all goals specified in the original agreement. The second and current manager was appointed in mid-2012. He swiftly ran an outreach and sponsorship campaign, and implemented a host of ad hoc activities, asking partners only for brand affiliation and in-kind contributions. Still, the mLab continued to be overwhelmed with setup activities (such as staff recruitment and compliance with administration and reporting requirements), so that little time remained to consult incubatees. Only in 2013 was the mLab able to focus on a more thorough rollout of its incubation strategy.

The final challenge concerns the role of *infoDev* and the World Bank for the



mLab. Interviewees lamented a lack of clarity on the mission and goals of *infoDev* and the World Bank. It was proposed that *infoDev* use its understanding of the needs and challenges of the mLab and its clients to broker contacts and share lessons across the mLab and mHub network. One suggestion was to send quarterly updates and requests for feedback to all stakeholders, including to grassroots organizations and donor representatives at local Finnish embassies. What is more, *infoDev* was expected to build more linkages to other World Bank units and activities in South Africa.

Sustainability and Next Steps

With its Pretoria site running at full capacity, the mLab is in the process of building out a “vertical model” to complement existing entrepreneurship support across South Africa and

beyond with a mobile technology-specific program. In mid-2013, it agreed with [Bandwidth Barn](#)⁷⁴ to establish an mLab site that would be colocated with the Cape Town incubator. For an interim period, the mLab leader will commute between the two sites and manage both of them. This setup gives the [Bandwidth Barn](#) an additional resource for a sector that is in high demand while it bolsters the mLab’s presence in a highly frequented ICT incubator and enables access to the Cape Town tech community. Next, the mLab intends to spread its reach to other cities in South Africa through similar partnerships with the Durban University of Technology and the government of the Eastern Cape Province. It is also in discussion with several [Raizcorp](#)⁷⁵ incubators. Most interviewees agreed that locations outside of the Pretoria-Johannesburg area and Cape

Table 8: Budget and Financial Projections for mLab Southern Africa

	2013	2014	2015	2016
Expenses				
Office expenses and salaries	218,644	241,602	266,970	295,001
Travel	14,118	15,600	17,238	19,048
Sundries	4,235	4,680	5,171	5,714
<u>Total expenses</u>	<u>236,997</u>	<u>261,882</u>	<u>289,379</u>	<u>319,764</u>
Income				
<i>Services and sponsorships</i>				
Developer ecosystem outreach ^b	4,706	4,706	2,941	1,176
Training	1,176	2,353	2,353	2,353
App development work	4,706	5,882	9,412	11,765
Consulting	588	588	1,176	2,353
Royalties/equity	—	1,176	23,529	—
<i>Grants</i>				
infoDev grant	47,600	—	—	—
Provincial/National government (partially pending approval) ^{a,b}	270,588	536,471	600,000	741,176
<u>Total income</u>	<u>329,365</u>	<u>551,176</u>	<u>639,412</u>	<u>758,824</u>
Financing gap/surplus	92,368	289,295	350,033	439,060
Total financing surplus until 2016				1,170,755

Note: All amounts in US\$. Budget items are kept at a high level to avoid disclosure of sensitive information. Projections are based on rough estimates, as mLabs are currently in a transition phase at the end of grant funding from infoDev.

a. Subject to approval from funders.

b. Includes marginal revenue, that is, some expenses relating to the revenue item are not mentioned under expenses.

Town hold tremendous untapped talent and opportunity, and that mLab should pursue a “hub and spoke” approach with a mix of physical satellite offices, events and competitions, as well as virtual activities.

To enhance the unique value that it can add, the mLab is in the process of building access to unique resources for startups. For example, it is discussing with Balefyre how its proprietary integration platform enabling USSD service access through smartphones⁷⁶ can be made available to developers, potentially opening opportunities to pursue business models that target users of feature and “dumb” phones

at the base of the pyramid (BOP). A more explicit BOP strategy could also be augmented by partners like Nokia and Ungana Afrika, and it would fit into DST’s mandate and national plan. Similarly, together with Dimension Data, mLab seeks to give developers privileged or subsidized access to cloud computing packages.⁷⁷ Also the CSIR Meraka Institute’s intellectual property and expertise could be leveraged more than in the past, in particular, through its [Mobi4D platform](#).⁷⁸ As a final value differentiator, the mLab intends to build on success stories such as GoMetro—for which mLab’s ties to the public sector opened doors that are usually closed for a small startup—and

turn them into an explicit strategy: mLab could become a matchmaker for public agencies that seek complex, scalable app solutions and startups that implement them.

mLab Southern Africa has also secured multiyear contributions from both provincial and national government agencies, making it the most secure mLab in terms of sustainability and potential longevity, with a projected surplus for each year from 2013 to 2016. However, currently funded activities will largely be limited to Gauteng and some virtual support outside the province. Successful contracts with new provincial governments will have similar limitations. Additional donor funding could help the mLab to achieve a more flexible and truly regional reach, for instance, by establishing satellite sites as part of the “vertical model,” or by running regional innovation events and competitions.

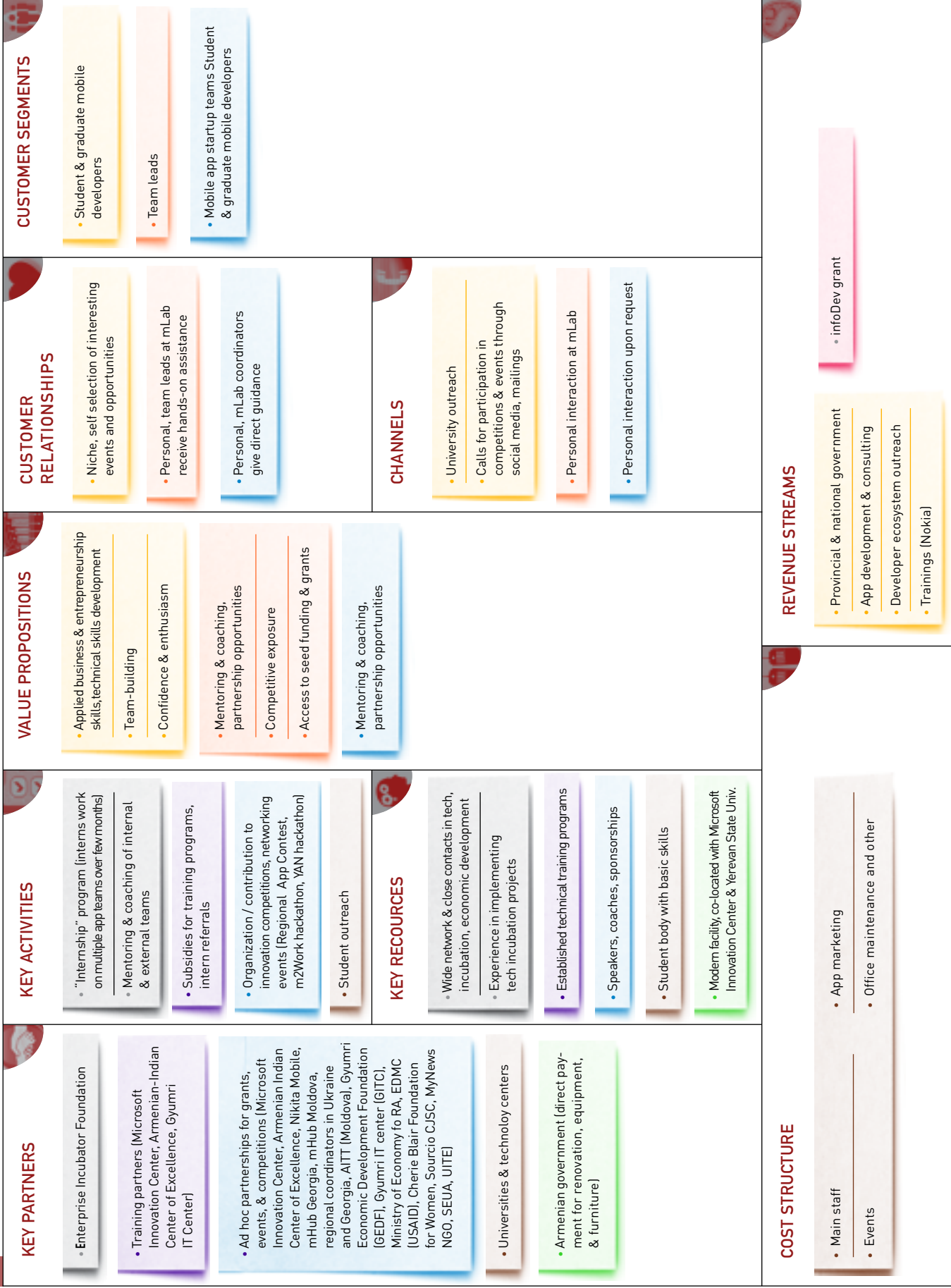
The mLab is also seeking to further diversify its revenue streams. Over the coming years, management fees for facilitation of app development orders—especially from enterprise customers—are expected to grow substantially. Additional flows of income will likely be generated from commissioned training and occasional consulting appointments.

The mLab only began to experiment with equity schemes in 2013, which could lead to returns from liquidations in the coming years. Several interviewed startups were open to giving up small equity shares (between 5 and 10 percent) in exchange for the service value that they receive from the mLab.



However, startups like Geekulcha and Innoprenez prefer to “give back” to the mLab through in-kind contributions such as community outreach and training. This suggests that the mLab might have to offer differentiated success-sharing options based on the value that it receives back from startups during the incubation period.

The Business Model Canvas – mLab ECA



Note: To access the full canvas for mLab ECA, go to <https://bmfiddle.com/f/#/H49t2>. Each partner or group of partners has a specific color; activities and resources that mainly rely on a particular partner group have the same color. Also each customer segment has a distinct color, and relationships, channels, and value proposition elements have the according color when they mainly relate to the customer segment in question. Activities and resources as well as cost and revenue streams that only relate to the infoDev grant have their own color.

Building teams, products, and businesses, for the long-term support of a fledgling startup ecosystem



mLab ECA

Total <i>infoDev</i> grant funding	\$585,000
Funding for technical assistance	\$426,000
Base city, country	Yerevan, Armenia
<i>infoDev</i> grant start date	May 2, 2011
First activities launched	July 11, 2011
Official launch	September 12, 2011
Launch in expanded facilities	June 13, 2013
Host organization	Enterprise Incubator Foundation
Key partners	Ministry of Economy of Armenia, Microsoft Innovation Center Armenia, Armenian-Indian Center for Excellence in ICT, Gyumri IT Center, Nikita Mobile, regional partners (mHubs in Moldova and Georgia, partners in Ukraine, and Georgia), AITT (Moldova), Gyumri Economic Development Foundation, EDMC (USAID)
Targets as per grant agreement	<ul style="list-style-type: none"> • Organization of several developer events, competitions, and challenges, including a regional challenge in collaboration with mHubs of the ECA region and other partners covering 11 countries • 200 students trained in mobile app development, business & entrepreneurship training • 15 incubatees with products brought to market • At least 10 startups hosted within the mLab
Website	www.mlabeca.com
Social media and other web resources	@mLabECA, https://www.facebook.com/mLabECA , http://www.youtube.com/channel/UCyY1MstyR7Cz7h4SJwsNuFg

Note: Funding amounts are based on actual expenses as of September 2013. Amounts are rounded to thousands.

Business Model

mLab ECA, ⁷⁹ in its first year and a half of operations, has focused on talent development and team building. mLab ECA has taken a long-term approach: the program does not envisage simply creating as many startups as possible, as quickly as possible, but rather aims to produce talented serial entrepreneurs committed to building an Armenian startup ecosystem from the ground up. This is reflected in the mLab's value proposition. Young graduates with no previous entrepreneurship experience

join an internship program, during which they are encouraged to try out mobile entrepreneurship while honing their skills and interests and forming lasting connections with peers. The mLab provides applied product development skills for all interns and direct mentorship for team leaders. It also accepts existing, fledgling startups for acceleration. The Armenian developers and entrepreneurs interviewed were probably the most motivated and enthusiastic of all, reflecting mLab ECA's efforts to spur confidence and a sense

Table 9:
Basic Data
for mLab for
mLab ECA.

Figure 15:
(opposite page)
Business
Model Canvas
for mLab ECA

of commitment in their clients. Through innovation competitions, the mLab exposes them to competitive pressure and pushes them to sharpen their app products. The mLab also helps teams to secure grants and small seed investments, for instance, from EDMC⁸⁰ or CRDF Global.⁸¹ A secondary customer segment is made up of existing startups that approach mLab to receive advice and connections.

The mLab's long-term vision is also in line with the mission of the Enterprise Incubator Foundation (EIF), the organization that set up the mLab and that is still its main partner. EIF opens doors for the mLab and its clients to its vast network of actors in technology incubation and economic development. The mLab's goals—in particular with regard to skills development—are also complementary to the Armenian government's efforts to position the country as a stronghold for technology innovation in the region. The government sees the mLab as a capacity-building hub for the country and the region, and has supported it by financing the renovation and equipment of a new facility.⁸² The facility is colocated with the [Microsoft Innovation Center](#) and the Armenian National Engineering Laboratory on the campus of the State Engineering University of Armenia. In turn, interviewed government officials assured that government would refrain from actively engaging in the mLab's operations.

Training programs were funded by mLab and conducted in collaboration with the Microsoft Innovation Center,⁸³ the [Armenian-Indian Center](#)

[of Excellence in ICT](#)⁸⁴ (AICT), and the [Gyumri Information Technology Center](#).⁸⁵

Innovation competitions included the m2Work and YAN hackathons. Most recently, the mLab ran a Regional Mobile App Contest, partnering with innovation hubs, incubators, and tech community organizations in eight countries to multiply outreach. Awards went to one winner from each country and one overall winner.

Results

mLab ECA has made headway in catalyzing the Armenian tech startup ecosystem, but it is not yet a powerhouse of startup creation and economic impact. So far, it can point to the creation of five startups and ten advanced startup teams. The relatively limited results are due to the mLab's long-term approach and relatively short implementation period. Unsurprisingly, this also led to modest numbers for job creation, revenue generation, and raised investments by startups and startup teams (see table 10).

On the upside, apps produced by developers in the mLab's internship program have been wildly successful in regional and global app stores, with a total number of downloads of about 1.7 million. Together with more impressive results for output and immediate outcome indicators (for instance, 242 trained individuals and 131 app prototypes developed), mLab ECA seems to tap into and nurture tremendous potential, in particular with regard to Armenian mobile app developers' technical sophistication and design skills. Also the local government's now solid buy-in can be seen as a positive result; the

mLab appears to have delivered at least a proof-of-concept that can be the basis for further investments.

Slowly but surely, the mLab's entrepreneurs are improving their standing and are beginning to turn their ideas into "serious" companies. For instance, one of the entrepreneurs came fifth out of 40 in a [Dragon's Den at infoDev's Global Forum](#),⁸⁶ an international pitching competition. Other entrepreneurs have achieved recognition and exposure through [Microsoft's Imagine Cup](#),⁸⁷ UITE's Digitec Business Forum⁸⁸ (one of Armenia's main conferences for the digital economy), or [Armenia's startup cup](#).⁸⁹



Indicator	Result as of June 2013
Revenues generated by startups	\$55,100
External investments raised by startups	\$128,700
Direct jobs created by startups	37
Startups created	5
Solid startup teams that have not registered a business	10
Consumer customer traction: Number of app downloads/users/subscribers	1,700,000
Organizational customer traction: Number of enterprise and public agency customers	209
Apps brought to market	117
Number of other app prototypes	131
Number of teams applying for in-depth support	216
Number of individual applicants to services	242
Teams that received in-depth support	57
Number of people trained	242
Number of events	27
Number of developers and entrepreneurs reached	1,000
Number of developers and entrepreneurs reached	400

Note: As reported by mLab manager. Including estimates, proxies, and underreporting due to missing data

Table 10:
Results
Highlights for
mLab ECA

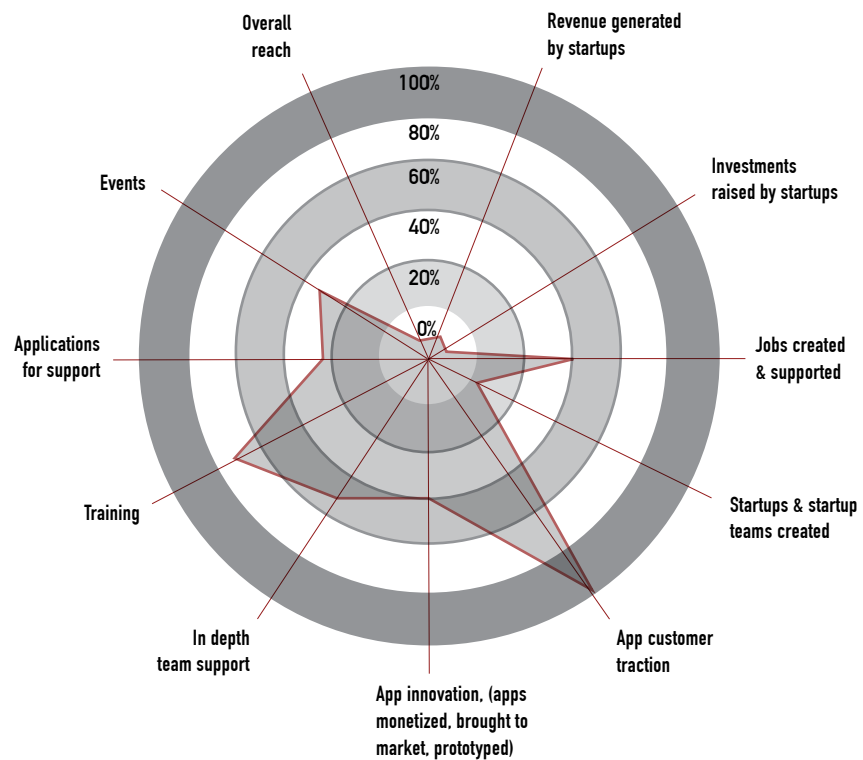


Figure 16:
Comparative
Results for
mLab ECA

Note: The percentage values represent linear comparisons across data for all four mLabs, with the mLab scoring highest for a given indicator receiving 100%.

Noted app products supported by mLab ECA

Box 8:
Noted app
products
supported by
mLab ECA



Note: Websites at <http://www.globalforum2013.co.za/downloads/presentation/Day%202/Dragons'%20Den%20-%20Day%202/MicroForester%20Presentation.ppt> (ppt presentation); <http://www.edmc.am/clean-h2o-project-wins-the-armenian-round-of-imagine-cup-2012/>; http://www.mlabeca.com/eng/mobile_applications/windows-phone/the-gar-dener-2/; http://www.mlabeca.com/eng/mobile_applications/ios/paint-in/. A more comprehensive list of supported startups and teams can be found in the appendix. Detailed case studies of these and other startups will be featured in an upcoming infoDev publication, commissioned to the private sector development evaluation and research agency CAD (<http://cad.globalcad.org/en/que-es-cad/>).

Challenges

The major challenge that mLab faced was an insufficient seed budget to build up sufficient infrastructure and scale. The grant size of \$585,000 was seen as insufficient to establish the mLab as an entity that could tackle the more fundamental gaps in the ecosystem and fulfill the broad and long-term vision that it felt was the most purposeful. Interviewees pointed out that mLab ECA could have benefitted from more hands-on and swift help from *infoDev*, especially in the setup phase. Although government is supportive of the mLab, it was hard to raise substantial coinvestments, since the proof-of-concept stage could not be reached quickly enough, and government funding above \$500,000 is usually subject to approvals at the ministerial level or the prime minister's office, where officials have become more aware of the mLab only recently.

Similarly, the mLab realized that the implementation timeline of less than two years of operation was too short to create a portfolio of startups that would include high-impact app startups and those with more complicated business models. Despite considerable growth over the past few years, Armenia still cannot boast a vibrant tech community. Pockets of activity at universities and in the blogosphere are disintegrated, and few events are taking place that would give tech entrepreneurs a chance to network and learn. Moreover, the creation of strong, specialized subcommunities that could bring to bear more sophisticated apps and business models had

been tough before the launch of a new facility where the mLab is now able to hold events and workshops.

For mLab ECA, more than for other mLabs, it would have added value to collaborate with other mLabs, giving Armenian entrepreneurs exposure to larger markets and helping them to internationalize their businesses. Yet, mLabs had little time beyond their immediate local deliverables, so that some of mLab ECA's efforts to reach out did not result in concrete joint projects.

The mLab also had to deal with other challenging external factors. In particular, several interviewees pointed out that entrepreneurs face taxation and other legal barriers when they want to formally register a startup. Much of the talent base relocates abroad; many interviewees lamented "brain drain" as an important problem. Interestingly, the relatively advanced state of the traditional software and IT industry can also be a problem for business creation, as talented developers often find regular employment that is more lucrative than working at a startup. As a result, the mLab has found that it has to target young innovators, who have not yet established themselves, and that it has to address more fundamental issues, such as the lack of entrepreneurial culture and skills, before founding a startup will become a path that many clients are comfortable to pursue.

Sustainability and Next Steps

mLab ECA's management has found that the Armenian and regional markets hold limited potential for incubators focused on mobile app startups to

Table 11:
Budget and
Financial
Projections for
mLab ECA

	2013	2014	2015	2016
Expenses				
Main staff	49,263	110,634	112,338	114,211
Office maintenance and other	16,000	32,150	32,150	32,150
App marketing	1,500	12,000	12,000	12,000
<u>Total expenses</u>	<u>66,763</u>	<u>154,784</u>	<u>156,488</u>	<u>158,361</u>
Income				
Apps and products	7,100	15,000	23,000	37,375
Project grants	9,000	20,000	22,000	26,400
Educational component	9,073	36,000	39,600	47,520
Events	10,000	10,000	11,000	13,200
Startups (membership fees, success sharing)	4,390	10,000	11,000	13,200
<u>Total income</u>	<u>39,563</u>	<u>91,000</u>	<u>106,600</u>	<u>137,695</u>
Financing gap	(27,200)	(63,784)	(49,888)	(20,666)
Total financing gap until 2016				(161,538)

Note: All amounts in US\$. Budget items are kept at a high level to avoid disclosure of sensitive information. Projections are based on rough estimates, as mLabs are currently in a transition phase at the end of grant funding from *infoDev*.

a. Excludes basic facilities and physical infrastructure, which was provided in-kind.

be profitable. In particular, the “early stage” teams that the mLab nurtures are neither in the position to pay for services, nor to quickly increase their valuation to a level where the mLab could make substantial returns on (planned) equity investments. The management estimates that, under current conditions, pathways towards profitability would require a drastic and unwanted mission change away from a broad ecosystem-oriented approach towards, for instance, evolving the mLab into a product development agency for “killer apps,” which is highly selective and only focuses on a few highly promising or already proven apps.

Consequently, while mLab ECA was able to take the first steps towards diversifying revenue streams, it still depends on donor funding and subsidies.

At this point, the mLab is leveraging funds and resources from its parent organization, EIF, and it benefits from the government’s support for the new facility. The mLab keeps the revenue that is generated through apps created during internship projects, but this revenue stream is, to date, far from covering the mLab’s costs. Overall mLab revenues other than grants cover about half of its expenses.

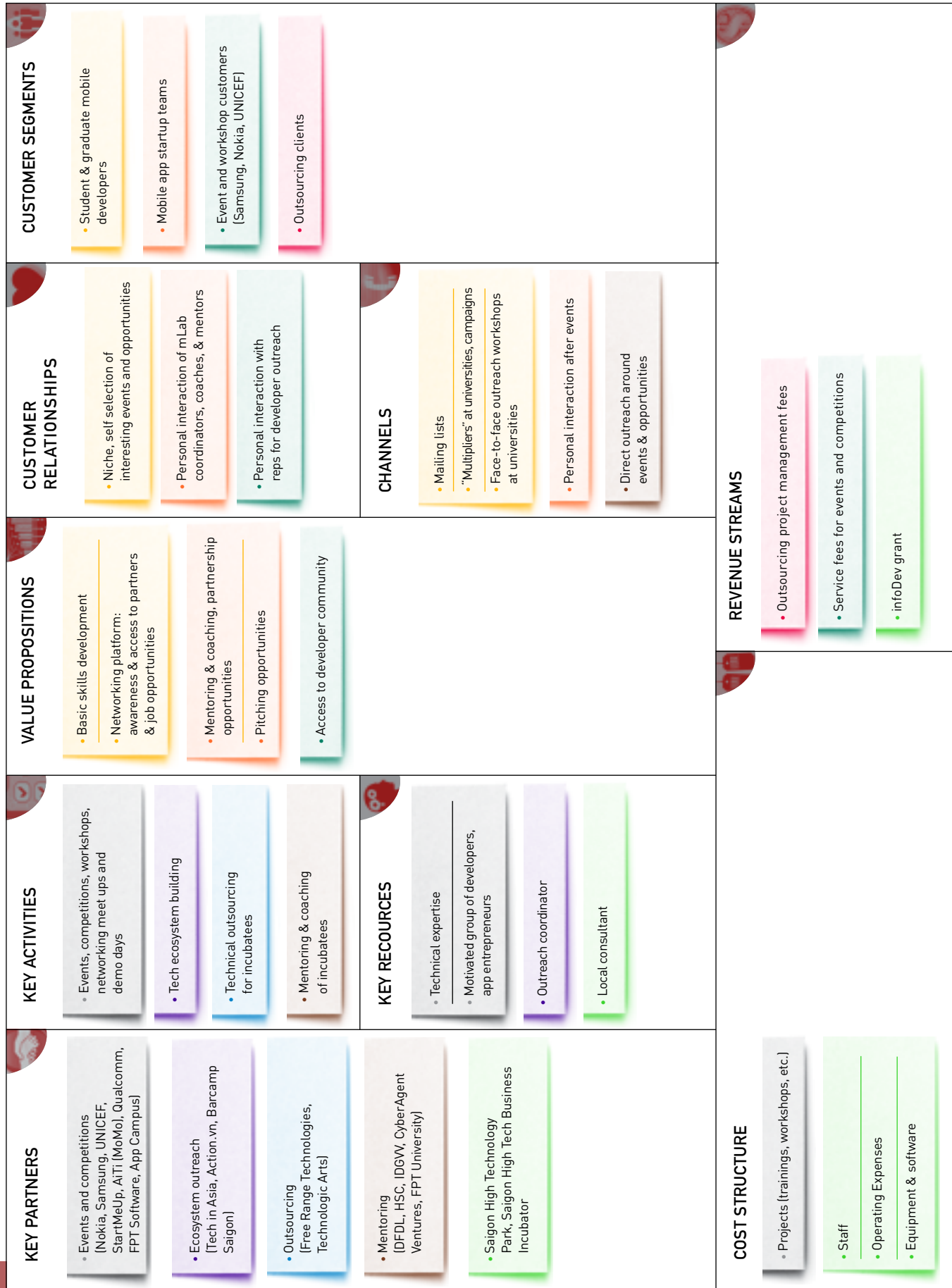
In the future, the mLab intends to seek additional resources and funds from local government and donors. In addition, the mLab wants to function as a kind of clearing house for app development, claiming fees in exchange for brokerage of grants and seed investments for entrepreneurs: often, investors and grant programs call for mobile tech innovations but mobile developer teams

by themselves do not have the institutional capacity to be investable or they are not eligible to apply for support. In such cases, the mLab could manage the financial relationship, helping teams administratively while keeping a success fee. The mLab also wants to monetize its training programs, potentially by introducing a layered pricing scheme that distinguishes between corporate training and training for individual students. Moreover, the mLab looks to leverage its access to the developer community, its brand, and organizational capacity to attract sponsorship for events as another profit potential. Finally, the mLab has taken equity positions in three startups and intends to grow this approach, opening up the potential of income from equity liquidations in the more distant future.

mLab ECA is keen to further extend its reach beyond Yerevan, at the rural, regional, and global level. Locally, the mLab has established a representation in Gyumri and is planning to partner with a technology center in Kapan in southeast Armenia. Regionally, the mLab is pushing for a more formalized collaboration of innovation hubs and incubators, for example, in the form of an association or a “hub and spoke” approach led by EIF and the mLab. Globally, the mLab mainly intends to build out partnerships with other mLabs and benefit from Armenia’s Representation Office in Silicon Valley. The mLab could also benefit from EIF’s efforts to set up an IBM Research Center in the same building and the launch of a venture capital fund for Armenia.²⁰



The Business Model Canvas – mLab East Asia



Note: To access the full canvas for mLab East Asia, go to <https://bmfiddle.com/f/#/Mhz22>. Each partner or group of partners has a specific color; activities and resources that mainly rely on a particular partner group have the same color. Also each customer segment has a distinct color, and relationships, channels, and value proposition elements have the according color when they mainly relate to the customer segment in question. Activities and resources as well as cost and revenue streams that only relate to the infoDev grant have their own color.

*Events, competitions, and lightweight acceleration
for greater reach*



mLab East Asia

Total <i>infoDev</i> grant funding	\$230,000
Funding for technical assistance	\$480,000
Base city, country	Ho Chi Minh City, Vietnam
<i>infoDev</i> grant start date	December 19, 2011
First activities launched	September 14, 2012
Official launch	September 17, 2012
Consortium members	Saigon High Technology Park (SHTP) and Saigon High Tech Business Incubator (SHBI) (lead), Vietnam National University, FPT University, Elcom
Key partners	Nokia, Blackberry, Samsung, UNICEF, AITI, StartMeUp, Vietnam Youth Entrepreneurs, Barcamp Saigon, Saigon Hub
Targets as per grant agreement	<ul style="list-style-type: none"> • Development of short training courses with at least 50 students trained in mobile app development • Development of vocational training program with at least 20 students enrolled to the program • Ten incubatees selected and placed within the mLab to benefit from the incubation program services • Generation of between 8-10 mobile applications by 2013
Website	http://www.mlab.vn
Social media and other web resources	@mLabEastAsia, https://www.facebook.com/mlab.eastasia , http://www.youtube.com/user/mLabEastAsia , http://mic.mlab.vn/en/

Note: Funding amounts are based on actual expenses as of September 2013. Amounts are rounded to thousands.

Business Model

After its launch in September 2012, mLab East Asia focused on events and competitions to reach app developers and early-stage entrepreneurs. The core of its value proposition was to provide developer teams with skills development as well as opportunities to showcase app projects and develop new ideas for vibrant mobile content markets in Vietnam and East Asia. In 2013, the mLab started to shift from

ideation and prototyping challenges to competitions focused on startup creation, which were embedded in a multistage “lightweight” acceleration scheme for ten startup teams.

Originally, the mLab focused mainly on students. It reached out to about ten universities in the wider Ho Chi Minh City catchment area. It employed traditional and multimedia outreach campaigns combining an online presence,

Table 12:
Basic data
for mLab
East Asia

Figure 17:
(opposite page)
Business
Model Canvas
for mLab East Asia

social media, tech blogs, conventional media advertisements, and printed brochures to advertise events and innovation contests to technology students and engineers. The m2Work hackathon and the Vietnamese leg of the regional Blackberry Jam Hack were highlights of 2012. The mLab also ran an Android workshop as well as Windows and Asha phone workshops, together with Nokia.

The mLab's activities slowed down in late 2012 when the original mLab manager resigned. In response, the Saigon High Technology Park (SHTP), as the consortium leader, assigned the director of its existing incubator, the Saigon High Tech Business Incubator (SHBI), as interim mLab manager. Later, *infoDev* hired a local consultant as a support resource.

From March 2013 onwards, the mLab launched several projects in quick succession. At the core was the mLab's [Mobile Innovation Challenge](#),²¹ which awarded a total of \$14,400 to five winners chosen from a pool of fifteen finalist teams. 106 teams had applied. The challenge followed a format comparable to a smaller version of mLab East Africa's Pivot East, offering workshops for Finalists to prepare them for a pitching contest. The mLab launched the Smart TV App Challenge in collaboration with Samsung, which culminated in an award ceremony at the end of October 2013. It went on to host a hackathon for UNICEF coupled with a four-month program to prepare finalists for a pitching contest with \$15,000 in prize money. Hundreds of trainees joined additional workshops on Samsung and Windows technology.

The most promising teams and entrepreneurs from these events were screened and invited to join the mLab incubation program. In June 2013, nine teams signed incubator agreements and agreed to offer mLab 10% equity in their startups in exchange for mentorship, training, networking opportunities, business support, and seed capital ranging from \$2,000 to \$5,000. The leader of each team joined a week-long bootcamp with pitch training, organized by the local partner Viet Youth Entrepreneurs in collaboration with Stanford University and Guy Kawasaki.

Results

mLab East Asia has certainly not achieved everything that would have been possible in the quickly growing mobile innovation ecosystems of Ho Chi Minh City and Vietnam. Yet, mLab has recently made progress. Most significantly, it was able to identify a portfolio of talented startup teams—two of the mLab's teams went on to become the winner and runner up in DEMO ASEAN 2013. The mLab also added new revenue streams as it established its brand. Recent developments have also shown that a variety of partner organizations are willing to support the mLab. It is widely seen as a promising and desired program to alleviate the current lack of structured, continuous startup support. Yet, in June 2013—ten months after its launch—the mLab was still very much in the early rollout phase. A lot of momentum was created, but only the coming months and years will show if the mLab and its consortium are able to formalize partnerships or secure additional donor funding in order to sustain and institutionalize operations.

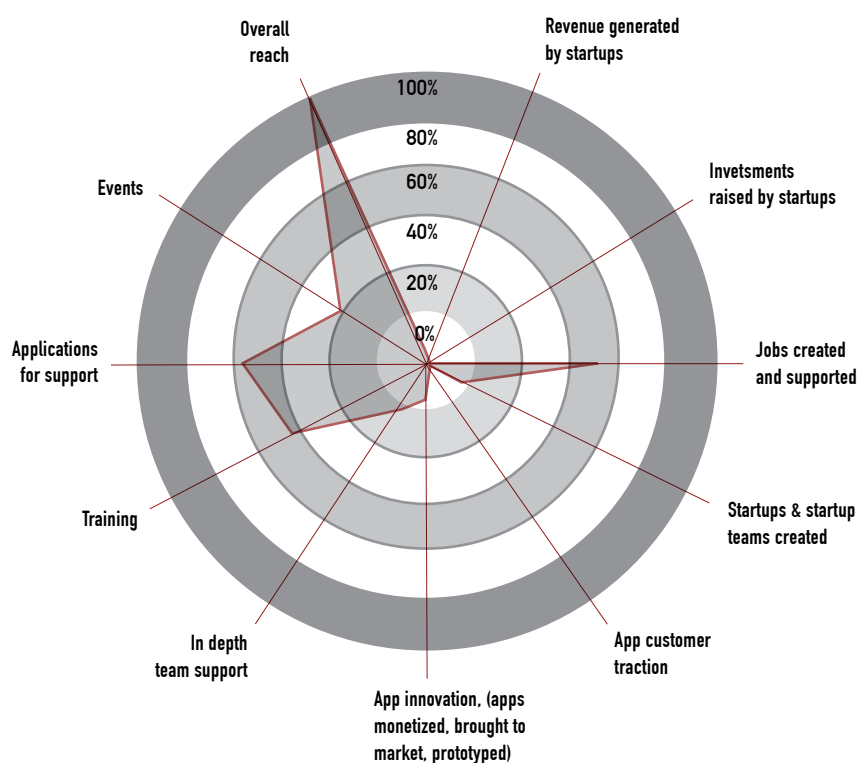


Figure 18:
Comparative
Results for
mLab East Asia

Note: The percentage values represent linear comparisons across data for all four mLabs, with the mLab scoring highest for a given indicator receiving 100%.

Indicator	Result as of June 2013
Revenues generated by startups	\$12,600
External investments raised by startups	\$64,000
Direct jobs created by startups	54
Startups created	2
Solid startup teams that have not registered a business	11
Apps brought to market	17
Number of app prototypes	183
Number of teams applying for in-depth support through mLab	245
Number of individual applicants to services	697
Teams that received in-depth support	19
Number of people trained	852
Number of physical, face-to-face events organized	20
Number of developers and entrepreneurs reached	10,000

Table 13:
Results
Highlights
for mLab
East Asia

Note: As reported by mLab manager. Including estimates, proxies, and underreporting due to missing data

Owing to the early focus on ideation and skills development for students, governance issues, and several periods of inactivity, only the last quarter of operations in mid-2013 hinted at the mLab's strong potential. The modest results ought to be seen in the context of a short, challenge-ridden implementation timeline (table 13). A handful of startups were registered and the first external investments were raised. Notably, the demand and potential for the mLab's services is vast, as is reflected in the number of informal partnerships, the number of applications for support, and the mLab's overall reach.

Challenges

mLab East Asia faced several implementation challenges. First, the mLab's location in the SHTP science park in Ho Chi Minh City's District 9 was not a viable gathering place for developers and entrepreneurs. The space is a thirty to sixty minutes' drive from the city center depending on traffic (outside of rush hours); public transport is available but not convenient for most clients. Clients expressed that they have no incentive to use mLab's physical space or testing lab on an ongoing basis, and preferred a coworking space in a more central, downtown area. Instead, they were satisfied to continue working from home, school, or the numerous cafés that offer free wireless broadband. As a result, the mLab space in the high-tech park has consistently been underutilized and proven difficult to populate.

Second, operations were slowed down at several points in time. Owing to bureaucratic hurdles in the interplay between the World Bank and the consortium, the

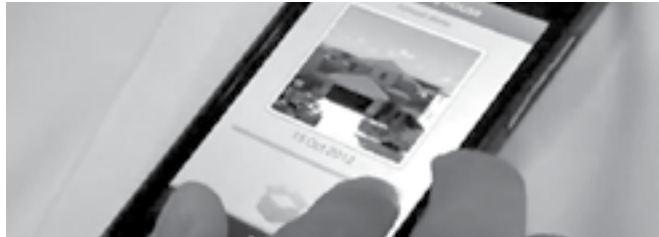
mLab already had a late start—the original schedule had foreseen activities to start at the beginning of 2012 and not in September. Soon after the launch, differences in perspective between the original mLab management and the consortium led to—finally unassailable—concerns over the completion of deliverables for *infoDev* and consortium representatives. From end-2012 to mid-2013, SHTP and SHBI took on the interim management, but were not able to commit the time and resources necessary to reinvigorate the project.

In early 2012, the recruitment of a local *infoDev* consultant helped to jumpstart an array of activities, but following the end of the *infoDev* grant in June 2013, the mLab entered another difficult transition period. The interim mLab manager left SHBI, leaving a vacuum of institutional knowledge of how to effectively engage in existing and new activities. SHBI has not yet been able to put a consistent management structure in place, and a concept to secure cocreation space downtown was not followed through. *infoDev* is actively working with SHTP and SHBI, as well as representatives from the World Bank country office to resolve these issues.

Sustainability and Next Steps

Most recently, the mLab has shown potential to generate revenue and substantive in-kind support from the private sector, securing outside support that ensured continuous activity until the end of 2013. Contributions came in the form of coordination of outreach campaigns and competitions, training and mentorship of startups in the incubation program, as well as organization of investor networking events

Noted startups and app products supported by mLab East Asia



Box 9:
Noted
startups and
app products
supported by
mLab East
Asia

Note: Websites at <http://mic.mlab.vn/en/uncategorized/english-ismartbike/>; <http://www.lifebox.vn/>; <http://watermelon-studio.com/>. A more comprehensive list of supported startups and teams can be found in the appendix. Detailed case studies of these and other startups will be featured in an upcoming infoDev publication, commissioned to the private sector development evaluation and research agency CAD (<http://cad.globalcad.org/en/que-es-cad/>).



and informal meet-ups. A number of workshops and networking events were planned, culminating in a demo day networking event where incubatees could meet

investors from the region. The mLab also launched the mDevNetwork to respond to the demand for technical outsourcing and to provide incubatees with an opportunity to earn their own seed capital.

From April to October 2013, mLab East Asia was able to secure consulting income from the private sector (Samsung Smart App TV campaign) and sponsorship for incubation and



training (Nokia and UNICEF Mobile Hackathon). It expects to generate further revenue from commission fees for technical outsourcing projects, annual partnerships with other private-sector organizations, consulting projects, and funding from development agency donors and local government agencies.

Table 14:
Budget and
Financial
Projections
for mLab
East Asia

	2013	2014	2015	2016
Expenses				
Consultancy services (staff)	18,254	27,381	41,072	61,607
Projects	83,063	108,063	133,063	158,063
Equipment and software	62,642	17,642	27,642	37,642
Operating expenses	66,261	89,452	107,343	123,444
<u>Total expenses</u>	<u>230,220</u>	<u>242,538</u>	<u>309,119</u>	<u>380,756</u>
Income				
Sponsorship	8,553	75,000	90,000	100,000
Consulting	15,353	46,059	76,765	107,471
Training	4,971	6,711	9,060	6,711
Outsourcing	10,000	25,000	50,000	75,000
infoDev grant	153,000			
<u>Total income</u>	<u>191,877</u>	<u>152,770</u>	<u>225,825</u>	<u>289,182</u>
Financing Gap	(38,343)	(89,768)	(83,294)	(91,574)
Total financing gap until 2016				(302,979)

Note: All amounts in US\$. Budget items are kept at a high level to avoid disclosure of sensitive information. Projections are based on rough estimates, as mLabs are currently in a transition phase at the end of grant funding from infoDev.

mLab South Asia

A failed project, but many lessons learned

A planned fifth mLab in the South Asia region was never implemented. The following section will not analyze this mLab's proposed business model, but briefly review the background and then go on to derive lessons for the setup of future mLabs and other innovation hubs.

Background

At the end of 2010, a panel of *infoDev* and World Bank staff (in coordination with Nokia representatives) selected the proposal submitted to an open call by a consortium in Pakistan led by the Pakistan Software Export Board (PSEB). The bid was selected specifically because of the complementary strengths of the institutions participating in the consortium. PSEB already had good relations to private-sector actors such as Nokia.

What followed was a history of governance and leadership issues and ensuing delays. Changes at PSEB twice came at most inopportune times: shortly after the first tranche of the grant had been disbursed in February 2012 and shortly after a revised implementation plan had been decided on in August 2012. Naturally, different leaderships had different priorities as to the best way forward for the mLab. The most important challenge was the exit of the PSEB's executive director originally responsible for the mLab, who had led the winning

proposal and frequently interacted with *infoDev*.

This abrupt shift called the substance of all original agreements, including the winning proposal, into question, and it required substantial time and effort to establish a new relationship and common implementation agenda. The new leadership then pointed to previous procedural errors. Clarifying how to resolve the errors that had been made took a long time, and in fact some of them are not resolved at the time of this writing. In sum, this meant that deadlines were not met and substantial transaction cost were incurred—both on *infoDev*'s and PSEB's part.

In June 2013, the mLab grant expired. From *infoDev*'s view, any future activity should avoid the mistakes made and follow the lessons outlined in this report, in particular, a more hands-on market scoping assessment and more detailed design of the project by *infoDev*.

Lessons

When an mLab is implemented by a government-affiliated agency in collaboration with *infoDev*, a longer timeline is needed.

The timeline for mLab South Asia of about two years for the entire grant administration and implementation would have been hard to meet under most circumstances given the organizations involved. After all, grantee deliverables were to be completed by June 30, 2013, less than 17 months after the first tranche had been disbursed to PSEB. If the grant preparations had been done according to the official procedures,

the failure of the project might have been possible to avert, but even then, implementation would have likely been slower than for other mLabs. The tight schedule would probably have sufficed only in the scenario of an entirely smooth rollout.

It would probably be an overgeneralization to conclude that mLabs cannot be implemented by government-affiliated agencies.²² Relying on small grassroots organizations can bring its own set of challenges (such as inadequate administrative capacity), and government backing can help to ensure financial sustainability and high-level partnership brokering, as long as it does not get directly involved in the mLab's operations (see the mLab Southern Africa case for example). But a project design and implementation timeline of three years does seem unrealistic for such a proposition.

An mLab's consortium lead organization should be internally stable, nimble, and driven to support the innovation ecosystem by its mission and fundamental goals.

As with all consortia, the member organizations' goals and incentives need to be aligned with the mLab's. But in particular, mLabs need to be immersed in the tech startup culture, as they rely on openness to and engagement with innovation ecosystems and grassroots tech and startup communities. They also need to be swift and up-to-date to gain the respect and trust of these communities. Accordingly, lead organizations in mLab consortia need to have an inherent interest and experience in tech entrepreneurship support

What was missing in the case of mLab South Asia was continuity of vision and commitments. Moreover, it was difficult for *infoDev* to understand to what extent the government entities behind PSEB wanted to have a more direct influence on the mLab's decision making. At the least, this meant another worry for *infoDev*, as any government influence on an mLab's operations would usually be a concern, given the necessary market and private-sector orientation.

Importantly, leadership changes also implied smaller and bigger vision and strategy changes. The original director of mLab South Asia had been the driving force behind the consortium's successful application and, to *infoDev*, he seemed the right individual, displaying pragmatism, an understanding of entrepreneurship ecosystem dynamics, and private-sector experience. But when he became unavailable, each new director needed to start from scratch to learn how an mLab could work within the strategic priorities set for PSEB as an organization.

infoDev did assess the risk of potentially slow processes and decision making within the consortium. However, given PSEB's and other consortium members' professional demeanor and convincing assurances, this risk was not seen as a fault line. This implies that *infoDev* should not only take a deeper look into the composition of a consortium but also the internal dynamics of a consortium leader—including any potential decision-making constraints and interlaced hierarchies. From the reviewed project documentation, it is clear that *infoDev* did ensure that the



best bid received the grant. However, *infoDev* could have conducted a deeper scoping assessment and possibly the preparation of a high-level concept for mLab South Asia. With better knowledge about the market requirements and consortium organizations, *infoDev* might have made a better risk assessment.

infoDev needs to have resources available to conduct responsive and adaptive change and conflict management when a grantee faces challenges.

In the case of mLab South Asia, *infoDev* had difficulties in anticipating and resolving unexpected implementation bottlenecks and conflicts. In particular, *infoDev* found that it could have applied

itself more to change management when PSEB's original mLab director resigned abruptly. In hindsight it became clear that *infoDev* should have helped the incoming consortium representatives to understand the basic concept behind mLabs, and to identify a viable model for PSEB and the other consortium organizations. Yet, *infoDev*'s team also expressed that it was overstretched with other ongoing responsibilities and that sudden peaks in the need for intervention were hard to accommodate. For future mLab grants, *infoDev* will consider setting aside staffing and travel resources that can be used when there are signs that a grantee faces structural and administrative challenges.

The Business Model Canvas – Mobile Nepal (mHub Nepal)



Note: To access the full canvas for Mobile Nepal, go to <https://bmiddle.com/f/#/nYNv2>. Each partner or group of partners has a specific color; activities and resources that mainly rely on a particular partner group have the same color. Also each customer segment has a distinct color,

and relationships, channels, and value proposition elements have the according color when they mainly relate to the customer segment in question. Activities and resources as well as cost and revenue streams that only relate to the infoDev grant have their own color.

*Nepal's aspiring mobile tech community,
built from the ground up*



Mobile Nepal (mHub Nepal)

Total infoDev grant funding	\$61,000
infoDev contract-based funding	\$30,000
Funding for technical assistance	\$6,000
Base city, country	Kathmandu, Nepal
infoDev grant start date	July 1, 2011
First activities launched	July 1, 2011
Official launch	December 12, 2011
Host organization	Young Innovations Pvt. Ltd.
Key partners	Nepalese Young Entrepreneurs Forum, Nepal Open Source Klub, F1Soft, Tribhuvan University Institute of Engineering, CSIT Association of Nepal, International Center for Integrated Mountain Development
Targets as per grant agreement	<ul style="list-style-type: none"> • Hosting social events, typically on a monthly basis, to promote collaboration and innovation in the mobile sphere • Organizing Pivot Nepal competition, including for fifteen selected applicants: mentoring; refinement of idea and development of prototypes; pitching mentorship
Website	http://mobilenepal.net/
Social media and other web resources	@MobileNepal, https://www.facebook.com/pages/Mobile-Social-Networking-Nepal/169545916438167 http://www.youtube.com/user/mobilenepal , http://pivot.mobilenepal.net/ , http://www.younginnovations.com.np/

Note: Funding amounts are based on actual expenses as of September 2013. Amounts are rounded to thousands.

Business Model

Mobile Social Networking Nepal—or simply Mobile Nepal—prides itself in having established the first tech community on mobile apps in Nepal. In a little over two years, it has become the go-to place for “everything mobile” in the country.

For app developers and early-stage entrepreneurs, Mobile Nepal represents the platform where they convene to receive networking

opportunities, training, and—maybe most importantly—motivation and confidence. [Young Innovations](#),²³ the organization behind Mobile Nepal, has become a trusted and known entity in the innovation ecosystem. The organizers of Mobile Nepal targeted a handful of community champions, a step critical to the community’s fast growth and stability. The champions quickly started to independently drive activities such as workshops on specific technical topics, keeping

Table 15:
Basic Data for
Mobile Nepal
(mHub Nepal)

Figure 19:
(opposite page)
Business
Model Canvas
for Mobile Nepal
(mHub Nepal)



participation alive in the virtual space on mobilenepal.net. In addition, the project leaders reached out to several universities in the Kathmandu area to make students aware of opportunities in mobile app entrepreneurship. About 25 to 50 community members now form the core, but the total reach has risen quickly to almost 1,000 developers and entrepreneurs. In mid-2013, the Mobile Monday Kathmandu chapter was born as the latest achievement of the community.

Three highlights stood out. Following the start of community building shortly after the grant disbursement in mid-2011, Mobile Nepal hosted the [Mobile Ecosystem Forum](#),⁹⁴ where Mobile Nepal brought together a wide array of high-level representatives from all relevant stakeholder groups in Nepal's fledgling mobile innovation ecosystem. In 2012, Mobile Nepal not only hosted its own leg of the [m2Work](#) hackathon,⁹⁵ but also facilitated the event globally⁹⁶ in collaboration with the four operational mLabs. More recently, in April and May 2013, the [Pivot Nepal](#)⁹⁷ competition was the group's attempt at a "mini-acceleration" program for startup teams, based on the methodology of Pivot East, mLab East Africa's mobile app startup competition. Young Innovations partnered with the [Nepalese Young Entrepreneurs Forum](#), which opened

doors to successful entrepreneurs and high-level business circles. Pivot Nepal also gave occasion for the organizers to build informal connections to a wider group of stakeholders, including mentors, coaches, and judges.

These activity highlights have not only solidified Young Innovations' brand and credibility, but also its capacity to work with donor organizations. This capacity has been instrumental in building ties beyond the tech community to stakeholders from government, banks, business associations, and international development professionals. Young Innovation was able to participate in [Open Data Nepal](#)⁹⁹ and [Development Check](#),¹⁰⁰ and it also ran the Violence Against Women hackathon¹⁰¹ together with a branch of the World Bank's social development unit and the local IFC office. These projects open opportunities for app developers to gain experience and income, which are critical in view of still limited market opportunities.

Results

In sum, Mobile Nepal has sowed the seeds of a fledgling mobile innovation ecosystem by growing a core community. At the same time, it has to be noted that the low readiness of the mobile innovation ecosystem did not allow for substantial startup creation and sustained entrepreneurial activity.

Indicator	Result as of June 2013
Direct jobs created by startups	13
Startups created	1
Solid startup teams that have not registered a business	4
Consumer customer traction: Number of app downloads/users/subscribers	600
Organizational customer traction: Number of organizational customers of apps	5
Apps commercialized - brought to market	2
Number of app prototypes	50
Number of teams applying for in-depth support	119
Number of individual applicants to services	471
Teams that received one-on-one support	18
Number of people trained	150
Number of events organized	38
Number of developers and entrepreneurs reached	900

Table 16:
Results
Highlights for
Mobile Nepal
(mHub Nepal)

Note: As reported by mLab manager. Including estimates, proxies, and underreporting due to missing data

In view of the small budget and immature ecosystem, the total results of Mobile Nepal are impressive (table 16). As of March 2013, about 25 core community members drove activities, with 50 participating regularly. The community organized many events, workshops, and some training. The eventual impact of Pivot Nepal still remains to be seen, but the first indication is that it has been a most significant step towards the creation of sustainable businesses. Three registered companies received support during Pivot Nepal; one startup was created as a result of the competition; and four more teams are close to formalizing their business. Two of the finalists also applied to *infoDev's* mAgri Challenge, intending to expand some of their business into Africa. Pivot Nepal received widespread media attention, possibly bringing in more partners in for Mobile Nepal's effort in the future.

Challenges

Despite the great strides that Mobile Nepal has made in building the

mobile innovation ecosystem, it has also faced major challenges. The most important one is actually born out of the quick growth of the community: the developers and entrepreneurs are hungry for more and Mobile Nepal feels that it has been increasingly difficult to meet their expectations. At times, community members expressed disappointment over the hype and optimism generated at events with momentum quickly slowing down afterwards, as Mobile Nepal lacked the "bandwidth" to conduct substantial follow-ups with teams. The organizers found it hard to prioritize correctly which of the many support demands to focus on, given limited funds available and only slowly emerging support from other ecosystem stakeholders in the immature Nepalese market. As a result, Mobile Nepal was not able to give its community a clear perspective and had to dampen the hopes and ambitions of some of its community members.

This challenge is tied to market barriers for app startups in Nepal. Monetization is extremely difficult, given consumers' low purchasing power (and thus low potential advertising revenue) and the lack of payment channels such as credit cards or a mobile payment infrastructure. Accordingly, both large tech companies and investors do not find the Nepalese mobile app market to be very attractive. Operators and the few active device and operating system providers do not invest in developer outreach and ecosystem support programs. A local angel investor community is only just beginning to form, with [Biruwa Ventures](#)¹⁰² and the [Fortune Cookie](#)¹⁰³ initiative as the most notable glimmers of hope. These conditions have made it hard for Mobile Nepal to attract concrete contributions and funding from the private sector.

Another challenge was Young Innovations' administrative capacity in managing a World Bank grant. Due diligence processes and reporting requirements have been burdensome for the small startup, even after the first disbursements had been made. This has improved over time, but the lack of institutional capacity at times caused delays and additional unexpected effort for Young Innovations.

Finally, *infoDev* did not have the resources to build ties for Mobile Nepal to local World Bank and IFC offices as much as was hoped for; Young Innovations pointed out that access to these networks provides tremendous value in a market like Nepal. It was only towards the later stages of the mHub grant that Young Innovations was able to use the brand value and credibility

that *infoDev*-funded activities provided to approach these units.

Sustainability and Next Steps

Mobile Nepal has successfully established an active, self-sustaining community. Community champions and new members run small sessions on their own time and coaches and mentors are willing to provide support occasionally and informally. At the same time, the community has increased its expectations and readiness for more. There is now great demand for "hands-on" startup support. Mobile Nepal has had to turn down many requests for the type of support that mLabs provide; the m2Work hackathon and Pivot Nepal have only stirred more excitement and need for follow-up.

In response, Mobile Nepal wants to continue community building, run Pivot Nepal annually, and enhance this with training and acceleration programs. Income sources would be diversified through local fundraising (mainly sponsorship), contract-based developer outreach and ecosystem-building activities (for instance, hackathons and innovation competitions), direct contributions from community members (donations, membership fees), and fees from training.

The organizers estimate that the local ecosystem will still only provide limited financial support, as tech partners do not tend to see Nepal as a focus market and most startups are still far from investable. As a result, Mobile Nepal forecasts it will only be able to cover a quarter to a third of its expenses through income other than additional grants.

Noted startups and app products supported by Mobile Nepal (mHub Nepal)



Box 10:
Noted
startups and
app products
supported by
Mobile Nepal
(mHub Nepal)

Note: Websites at <https://esewa.com.np/home>; <https://play.google.com/store/apps/details?id=com.nepways.nlocate&hl=en>. A more comprehensive list of supported startups and teams can be found in the appendix. Detailed case studies of these and other startups will be featured in an upcoming infoDev publication, commissioned to the private sector development evaluation and research agency CAD (<http://cad.globalcad.org/en/que-es-cad/>).

	2013	2014	2015	2016
Expenses				
Overhead	9,802	24,000	24,000	24,000
Training	876	4,000	4,000	4,000
Face-to-face events and outreach	3,204	15,000	15,000	15,000
Research	1,071	—	—	—
Idea and startup competitions	6,286	25,000	25,000	25,000
Pivot Nepal	25,000	—	—	—
Acceleration (4+ entrepreneurs)	—	20,000	25,000	25,000
App testing facility	—	20,000	5,000	5,000
Audit	706	—	—	—
Total expenses	230,220	242,538	309,119	380,756
Income				
<i>Service revenue and private sponsorships</i>				
Contributions from Young Innovations and tech community	—	4,800	4,800	4,800
Training	—	1,000	2,000	2,000
Acceleration fees	—	—	5,000	5,000
Additional fundraising (sponsorships, etc.)	—	16,000	21,000	21,000
<i>Grants</i>				
infoDev ^a	40,682	—	—	—
Total income	40,682	21,800	32,800	32,800
Financing gap	(6,263)	(86,200)	(65,200)	(65,200)
Total financing gap until 2016				(222,863)

Table 17:
Budget and
Financial
Projections
for Mobile
Nepal (mHub
Nepal)

Note: All amounts in US\$. Budget items are kept at a high level to avoid disclosure of sensitive information. Projections are based on rough estimates, as mLabs are currently in a transition phase at the end of grant funding from infoDev.

a. Includes contract-based funding.

The Business Model Canvas – TOPICA Mobile Social Networking (mHub Vietnam)



Note: To access the full canvas for TOPICA MSN, go to <https://bmfiddle.com/f/#/PY9B8>. Each partner or group of partners has a specific color; activities and resources that mainly rely on a particular partner group have the same color. Also each customer segment has a distinct color, and relationships, channels, and value proposition elements have the according color when they mainly relate to the customer segment in question. Activities and resources as well as cost and revenue streams that only relate to the infoDev grant have their own color.

Topica MSN

Total <i>infoDev</i> grant funding	\$35,000
Base city, country	Hanoi, Vietnam
<i>infoDev</i> grant start date	March 1, 2011
First activities launched	March 3, 2011
Host organization	TOPICA Education Group
Key partners	IDG Capital, Aiti Aptech, Action.vn, Socbay, CyberAgent
Targets as per grant agreement	<ul style="list-style-type: none"> Hosting social events, typically on a monthly basis, to promote collaboration and innovation in the mobile sphere
Website	www.facebook.com/groups/launchpad

Note: Funding amounts are based on actual expenses as of September 2013. Amounts are rounded to thousands.

Table 18:
Basic Data
for TOPICA
MSN (mHub
Vietnam)

Business Model

TOPICA Mobile Social Networking (MSN) has taken mobile innovation community building to scale. Through a series of events in Hanoi, Ho Chi Minh City, and several provincial capitals, combined with two vibrant online communities (MoMo Vietnam and [LaunchPad](#)¹⁰⁴), TOPICA MSN has convened a national community with thousands of members.

Monthly events with 100 to 600 participants gave grassroots innovators the opportunity to meet successful tech entrepreneurs, established business people, and technical specialists. TOPICA MSN categorized the community in participant tiers and ran three series of events: “Mobile & Beer” can be described as a typical Mobile Monday event and is the most informal and inexpensive event form. The TOPICA team described Mobile & Beer as the most effective and efficient form of face-to-face community building. “Mobile Weekend Camps” were organized as one-day bootcamps for up

to 500 people, including ideation workshops and startup showcases. Finally, “Lunch with a Tycoon” events gave 20 to 60 selected participants exclusive networking access to one or two CEOs or high-level executives from successful companies. The organizers mentioned that these events were popular, but also costly to organize. Some of the most promising entrepreneurs also participated in [TOPICA’s Founders Institute](#),¹⁰⁵ providing at least a few with more in-depth support.

Complementing its face-to-face activities, TOPICA MSN cofounded the online communities MoMo Vietnam and LaunchPad (or simply “Launch”). They have become the virtual go-to places for everyone interested in the Vietnamese mobile app and startup founder spheres. LaunchPad reaches beyond “mobile” and is used by many early-stage entrepreneurs to pitch ideas, search for cofounders, and contact role models and mentors—not least because of active facilitation by

Figure 20:
(opposite page)
The Business
Model Canvas –
TOPICA Mobile
Social Networking
(mHub Vietnam)

Table 19:
Results
highlights
for TOPICA
MSN (mHub
Vietnam)

Indicator	Result as of June 2013
Consumer customer traction: Number of app downloads /users/subscribers	100,000
Organizational customer traction: Number of organizational customers of apps	15
Apps brought to market	60
Number of individual applicants to services	2600
Teams that received in-depth support	10
Number of people trained	100
Number of events (additional virtual events)	46 (4)
Number of developers and entrepreneurs reached	9,000

Note: As reported by TOPICA MSN team. Including estimates, proxies, and underreporting due to missing data. TOPICA complemented Mobile Monday events with other activities such as its Founders Institute program or its “cofounder dating” sessions. It is hard to discern the results of TOPICA MSN from the overall numbers that TOPICA has observed.

[IDG Ventures](#),¹⁰⁶ an ICT-focused early-stage investment fund. The LaunchPad platform has also become a space for community leaders to seek feedback and opinions from the community, and to share market information and trends. Both communities have taken on the function of informal job boards.

Lastly, TOPICA MSN introduced an online course with guidance how to start a company in Vietnam. TOPICA MSN developed the curriculum based on a survey with about 1,000 business professionals. Later, the course reached about 20,000 students across the country after it was handed to the Vietnamese Young Entrepreneurs Foundation for rollout.

Results

TOPICA MSN has succeeded in building two large mobile innovation online communities that span the country, and also engaged developers and entrepreneurs offline through a great number of events. Interviewees said that small pockets of developer communities had existed before the TOPICA MSN project, but that there was no national community and never any momentum to run

networking sessions that would appeal to larger groups of people. So, TOPICA MSN has contributed to the setup of a national innovation and startup community where there was none before.

Positive network effects due to the size of the community and exponential growth of startups that came out of the activities led to impressive results for an mHub (table 19). An estimated 500 jobs at startups were created; this includes both jobs added at startups that had existed before and jobs at about 20 newly founded startups.

As another positive result, TOPICA MSN increasingly attracted stakeholders from groups beyond the core developer and entrepreneur community. For instance, in March 2012, Vietnam’s prime minister and other government officials participated in an event in Hanoi. New government initiatives, for instance, by the National Agency of Technology, Entrepreneurship and Commercialization (NATEC) aim to learn from and possibly collaborate with TOPICA. TOPICA has also learned from the MSN project to rollout and scale an *infoDev*-supported Virtual Incubation program¹⁰⁷ for provincial capitals.

Challenges

TOPICA's MSN project encountered a range of challenges. First and foremost, the organizers pointed out arduous reporting and grant administration requirements. Even though TOPICA had worked with the World Bank before, the small MSN team was overwhelmed with the steps mandated by World Bank grant procedures. The team felt that the small grant did not merit such intricate administration, and that *infoDev* could have been more "hands-on" to limit the effort required by TOPICA for grant management.

Also related to the small grant size is the missed opportunity of thorough monitoring and evaluation. The TOPICA MSN team would have liked to conduct a more sophisticated analysis of the widespread impact that the grant has had, but felt this was impossible with the resources provided. It became clear that a community and ecosystem focused initiative such as TOPICA MSN likely has far-flung positive impact, but that elaborate assessment methods would be cost-prohibitive. Again, the team pointed out that *infoDev* could take on monitoring and evaluation tasks and suggested that better and more efficient methodologies to assess indirect positive effects of community building initiatives be developed.

As far as TOPICA MSN's operations are concerned, the team found that incumbent technology companies were sometimes unwilling to contribute to the startup community, as they felt they would nurture threats to their own business. As a result, at times, it was hard to crowd together "big guys" and "small guys."

The interviewed entrepreneurs and event participants mentioned that the setup of Mobile & Beer events had become overused and that they often

turned into mere "talk shows." They acknowledged that it was hard to cater for both participants that had been active for months and years and those that had just joined the community. The clients suggested that events be more varied, specific, hands-on, participatory, and involve fewer participants—a request that TOPICA MSN is aware of and aims to address (see Sustainability and Next Steps). Other suggestions for improvements included the establishment of a facilitated open code repository for MoMo and LaunchPad members, and a stronger engagement of FPT University that was deemed to add technical skill and many talented coders to the community.

Sustainability and Next Steps

The grant for TOPICA MSN ended in August 2012. Since then, the number of subscribers for the two online communities has grown further, with LaunchPad now counting about 10,000 members. Mobile & Beer events could be continued with sponsorship, in-kind contributions by organizers, and small financial contributions from TOPICA and other core partners. However, the missing core budget previously available from the grant meant that organization and fundraising have to be done "on the side," increasing the lead time to about three months, so that events can only be run at quarterly intervals.

Next, TOPICA wants to expand the MSN project across the region, partnering with existing Mobile Monday chapters and tech incubators. The TOPICA MSN team also wants to respond to requests from the community to use more hands-on, interactive, and focused event setups. In particular, the organizers want to facilitate subcommunities, for instance, on the topic of mobile games.

"I can't
imagine
a day
without
Launch."

*A blogger
from Hanoi*

The Business Model Canvas – Akirachix (mHub Kenya)



Note: To access the full canvas for Akirachix, go to <https://bmfiddle.com/f/#/N3G53>. Each partner or group of partners has a specific color; activities and resources that mainly rely on a particular partner group have the same color. Also each customer segment has a distinct color, and relationships, channels, and value proposition elements have the according color when they mainly relate to the customer segment in question. Activities and resources as well as cost and revenue streams that only relate to the InfoDev grant have their own color.

Women-targeted, grassroots tech community building and training



Akirachix

Total <i>infoDev</i> grant funding	\$53,000
Funding for technical assistance	\$41,000 (approximate)
Base city, country	Nairobi, Kenya
<i>infoDev</i> grant start date	May 1, 2011
First activities launched	September 10, 2011
Host organization	Akirachix
Key partners	iHub Nairobi, mLab East Africa, Google Kenya, Samsung Kenya, Swedish International Development Agency, University of Nairobi, Jomo Kenyatta University of Agriculture and Technology, Egerton University, African Nazarene University, Maseno University, Masinde Muliro University of Science and Technology
Targets as per grant agreement	<ul style="list-style-type: none"> Hosting social events, typically on a monthly basis, to promote collaboration and innovation in the mobile sphere
Website	akirachix.com/
Social media and other web resources	@Akirachix, https://www.facebook.com/pages/AkiraChix/173842546011090 , http://akirachix.com/Blog/

Note: Funding amounts are based on actual expenses as of September 2013. Amounts are rounded to thousands.

Table 20:
Basic Data
for Akirachix
(mHub Kenya)

Business Model

Akirachix has become a leading community and capacity builder for female tech entrepreneurs in Kenya.¹⁰⁸ The focus is less on startup creation and more on basic skills development, empowerment, and community building. To this end, Akirachix ran the Mobile Garage program, high school outreach, training, and various ad hoc events and activities.¹⁰⁹

Akirachix's main customer segments comprise young, talented women that have an interest but no prior knowledge or experience in ICT. The Mobile Garage program reaches out to students at universities across Kenya

through bootcamps, hackathons, and app showcases. Over a few days, participants receive brief training on tech topics, are introduced to mentors and Akirachix community leaders, and sometimes participate in small competitions. The high school outreach program aims to open up a perspective in the tech industry for graduates that are unsure about their future. Also the training program targets high school graduates, teaching them computer literacy, graphic design, programming, and soft skills over the course of one year. Finally, additional events and community building through online and offline outreach and communication are helping to build a larger tech

Figure 21:
(opposite page)
The Business
Model Canvas –
Akirachix (mHub
Kenya)

entrepreneurship community for women in Kenya, beyond any specific project.

The added value is three-fold. First, girls' and young women's skills are enhanced, starting from a basic level. Bootcamps spark interest and give a glimpse of potential professional pathways. Akirachix has designed an interdisciplinary training curriculum and has secured equipment and space. These programs aim at higher employability based on technical skills, as well as improved entrepreneurship and business skills. Second, intangibles such as confidence and aspiration are just as important. Role models and mentors play a crucial role in highlighting a path to professional success for client girls and women. App showcases address the slightly more advanced innovators and instill a culture of competition and performance for university students (in addition to a platform for exposure and networking). Third, Akirachix makes a conscious effort to reach groups that otherwise would not receive such value: not only does the programming aim to bridge the gender gap in ICT, it also targets universities in cities outside of Nairobi (such as Kisumu, Kakamega, and Mombasa) and schools in impoverished areas of Nairobi.

All projects are embedded in the larger effort to establish the women tech community as a strong subcommunity in the Kenyan tech entrepreneurship ecosystem. Akirachix employs an "organic" community building strategy, based on dedicated community champions and word of mouth (both online and offline), fueled by occasional media mentions. Beyond the Akirachix core

team of five women entrepreneurs and community leaders, tens of volunteers contribute to organizing events, blogging, graphic design, outreach, and so forth. Larger networking events, such as the [Girls in ICT Day](#),¹¹⁰ help to reach a broader group of stakeholders and engage new volunteers.

Mentors and volunteers contribute simply for personal satisfaction, without material compensation. Teachers receive some pay, but this is done more for reasons of accountability and commitment than to compensate them for the substantial time and effort that they invest. Akirachix has good staff relations and mission fit with the iHub, which takes in a special partnership role: Akirachix makes extensive use of the iHub space for events and team meetings, recruits trainers and mentors from the iHub community, and is featured frequently in iHub media and outreach. Google RISE became a major sponsor¹¹¹ in 2012, and several organizations (such as SODNET, Computer Aid, Seneca Group) helped with in-kind contributions and free space.

Results

Akirachix has established a powerful and credible brand in African women tech entrepreneurship and built a strong and motivated community. Even though it was hard for the grassroots organization to manage the *in-foDev* grant, the learning process also helped it mature as an organization and to establish administrative structures and capacity. This, in turn, was instrumental for securing follow-on funding from SIDA.¹¹²

Indicator	Result as of June 2013
Women that found employment in tech as a result of support	23
Number of app prototypes	58
Number of individual applicants to services	491
Number of teams that received in-depth support	21
Women-led teams that received in-depth support	12
Number of people trained	396
Number of people trained intensively (one-year course)	36
Number of events organized	12
Number of developers and entrepreneurs reached (estimated share of women)	1,992 (70%)

Table 21:
Results for
Akirachix
(mHub Kenya)

Note: As reported by Akirachix manager. Including estimates, proxies, and underreporting due to missing data.

Brand and community related outcomes are hard to pinpoint, but several indicators provide a glimpse. Almost 400 participants received brief training at three-day bootcamps across Kenya. Thirty-six girls graduated from the in-depth, one-year training program, which led to 23 of them successfully applying for jobs. Akirachix has more than 200 community members and estimates that it has reached nearly 1,400 women developers and entrepreneurs in total. Anecdotal evidence shows that local subcommunities are beginning to form: for instance, students founded a tech meetup series in Kisumu. The Akirachix story also made it into U.S. media through a feature on NPR¹¹³ and honorable mentions in many press articles such as an op-ed by Finnish Minister Heidi Hautala.¹¹⁴

Challenges

The major challenges that Akirachix faced were related to the limited administrative resources of a grassroots organization. The team found that

the small size of the grant bore no relation to the bureaucratic burden that came with it and, unexpectedly, supposed project implementers had to take on roles as grant administrators. Akirachix conceded that it had underestimated the requirements and necessary resources, but it felt that *infoDev* could have alleviated the burden by recruiting a local consultant who could have supported auditing as well as monitoring and evaluation. Similarly, the positive ripple effects of Akirachix's projects are probably many, but they are often indirect and may only become apparent later. Although Akirachix would have liked to conduct more analysis through follow-ups with clients on its own, resources were simply insufficient to do this. The team suggested that *infoDev* explore contractual agreements instead of grants for grassroots organizations, as this could give greater freedom to specify customized deliverables and reporting duties, and set a clearer framework for implementation.



From implementation experience, Akirachix found that, despite general excitement and passion for its projects, achieving meaningful and lasting impact was often challenging. Girls and young women with no prior work or ICT experience needed continuous mentoring and commitment from teachers. Often, social issues, gender stereotyping, and life choices got in the way of clients' pursuit of a career in tech. Mentors and teachers also realized that, while it is important to be supportive, there also needs to be milestones and consequences if clients and students do not keep promises.

In particular, Akirachix learned that participation fees have ambiguous effects: if the goal was to achieve the broadest possible engagement and reach, charging participants would be counterproductive, and instead Akirachix asked for in-kind contributions and volunteering in return. Interviewees pointed out that Akirachix ought to formalize this process and recruit volunteer "ambassadors." In turn, some interviewees expressed that, at least for the training,

participants should be required to pay a token amount to ensure greater commitment. Akirachix also introduced a small salary for teachers. This was not intended to fully compensate teachers, but rather to tackle the occasionally lacking reliability of volunteer teachers that had occurred at the beginning of the program. Several interviewees emphasized that Akirachix should expand its current training and grow revenues from sponsorship.

However, Akirachix also found that the search for sponsorship can have its downside. The team thought that some of the prospective sponsors for bootcamps within the Mobile Garage program would push their own agenda or look for concrete returns, while failing to endorse the grassroots principles that Akirachix embraces. Some interviewees suggested that attracting sponsorship might be difficult for Akirachix because it would mean a subtle loss of focus and shift away from the core mission of bringing more women into tech entrepreneurship. These stakeholders pointed to the

example of open competitive events such as App Showcases, which feature only a few female participants, if any.

Several interviewees also pointed out that Akirachix could still improve its organizational rigor, for example, by formalizing mentorship recruitment and partnership building, or by being more assertive and confident regarding the level of decision makers that Akirachix reaches out to. Other ideas for improvement include the establishment of Akirachix chapters at universities across the country, or an internship program that would take clients out of the now-comfortable iHub world into the professional environment of tech startups and corporations.

Akirachix also found it hard to partner directly with mLab East Africa, which had been an original goal for colocating an mHub and an mLab. From Akirachix' perspective, the mLab did not seem to have the capacity or determination to establish a privileged role for Akirachix. The focus on women tech community building appeared secondary to the mLab's areas of focus.

Sustainability and Next Steps

Building on its success and popularity, Akirachix aims to continue and further expand its current activities. Akirachix sees the greatest need for skills development, empowerment, and opening up other opportunities for women and girls with little or no entrepreneurial and professional experience. This also means that Akirachix will further de-emphasize *infoDev*'s and mLabs' core goals that focus more on direct startup creation and the creation of

“Akirachix’s main customer segments consist of young, talented women that have an interest but no prior knowledge or experience in ICT.

revenues, investments, and jobs. In line with this strategy, the organization is in the process of receiving a grant from SIDA¹¹⁵ that emphasizes the enhancement of access to and use of ICT for women and girls. As a long-term vision, Akirachix would like to formalize a women innovation hub with its own physical space to ensure greater continuity.

Over the next four years, Akirachix aims to diversify its revenue streams and generate income from consulting services and training participation fees, sponsorship (for example, from Samsung Kenya to sponsor part of the annual Mobile Garage Exhibition), grants from government and donors. It also wants to extend its partnerships, for instance, with NaiLab to deliver activities jointly. Akirachix forecasts growth of about 30 to 35% per year. Its major expenses are for salaries, transport, and equipment. It estimates that it will require about \$15,000 per year in additional funding to sustain activities in the next few years.

Mobile Monday Kampala (mHub Uganda)

*At the heart of Uganda's mobile
innovation ecosystem*

Total <i>infoDev</i> grant funding	\$35,000
Funding for technical assistance	\$41,000 (approximate)
Base city, country	Kampala, Uganda
<i>infoDev</i> grant start date	February 25, 2011
Host organization	Mobile Monday Kampala
Key partners	Hive Colab, Grameen Foundation AppLab, @The HUB Kampala, Mara LaunchPad, FinAfrica, Outbox Hub, SMS Media, Orange Uganda, Smile Communications, Yo, Send Airtime, Google Uganda, UGO, Text To Change, D-Mark Mobile, Mountbatten, Owino Solutions, True African
Website	http://www.momokla.ug/
Social media and other web resources	@MoMoKampala, https://www.facebook.com/pages/ Mobile-Monday-Kampala/145954058768730 , http://www.mobilemonday.net/category/kampala

Table 22: Basic
Data for Mobile
Monday (MoMo)
Kampala (mHub
Uganda)

Note: Funding amounts are based on actual expenses as of September 2013. Amounts are rounded to thousands.

Background and Achievements

The MoMo Kampala chapter was founded in January 2010. The project leader started it as a side project without dedicating substantial time and effort to it. This changed when the mHub grant was awarded by *infoDev* in 2011. While the project leader would still only receive a small salary, financial compensation freed him up to work more consistently and continuously on the project and build the local MoMo brand.

Over the two years of grant duration, MoMo Kampala grew substantially. One event was hosted every five to six weeks, with participation ranging from about 100 to more than 200 people. From February 2012 to August 2013, MoMo hosted or was affiliated with a total of 38 events. Individuals and teams of developers and entrepreneurs get introduced to investors, tech partners,

mentors, and other stakeholders. Discussions revolve around the needs of the tech community and educating clients on startup methodologies and trends in the mobile space. In this way, the MoMo events also became gatherings for subcommunities in mobile health, mobile agriculture, ICT for development and other topics. In total, MoMo Kampala estimates that it has reached about 2,000 developers and entrepreneurs.

A Truly Grassroots-Driven, Collaborative Approach

The MoMo Kampala leader has deliberately maintained a grassroots-oriented approach. The MoMo chapter considers developers and entrepreneurs as the lifeblood of the ecosystem as a whole. MoMo Kampala has never sought to occupy a set physical space but rather utilizes a series of events at

varying locations in order to span multiple stakeholder communities. These gatherings almost always emerge spontaneously out of informal discussions and previous events, and are organized within time frames of about four weeks or less. It is important for all organizers to “keep an ear to the ground” and pick up new trends and interesting topics as they emerge. The MoMo leader swiftly establishes an organizing team for each event, drawing team members from his personal network of local industry and community leaders, depending on the given trend or theme that the event will address. Whenever other team leaders are willing and able to take the lead on the event organization (for instance, if they have access to the resources of one of Kampala’s innovation hubs), the MoMo lead will limit himself to a supporting and brokerage role.

MoMo Kampala has become the nexus for several other emerging activities in the mobile innovation ecosystem, in particular several innovation hubs in Kampala. The MoMo chapter grew “organically” and partnered with different hubs and other organizations in the ecosystem wherever it felt that the collaboration would benefit the ecosystem and address an existing need. The [Hive Colab](#)¹¹⁶ innovation hub takes on a special role, for one, because the MoMo Kampala leader is also on its board of directors, but also because it is an open developer and entrepreneur cocreation space, partly modeled on Nairobi’s iHub. Many MoMo events were hosted in the Hive Colab location, contributing to the buzz in the space and leveraging its community of resident developers and entrepreneurs as a participant

base. MoMo has also partnered with other local innovation hubs such as the [Grameen Foundation AppLab](#),¹¹⁷ [@The HUB Kampala](#),¹¹⁸ the [Mara LaunchPad](#),¹¹⁹ [FinAfrica](#),¹²⁰ and most recently the [Outbox Hub](#).¹²¹ Under the [Business Innovation Consortium Uganda \(BICU\)](#),¹²² the MoMo Kampala lead has made an effort to create a vehicle for more systematic and continuous collaboration and exchange between the innovation hubs, but the new informal organization has yet to find a clear mandate and governance model.

MoMo Kampala has deliberately refused to structure and formalize its operations more, or to make long-term commitments. The flexible, nonhierarchical, and informal modus operandi is, it believes, instrumental to address the needs of the developer community and the ecosystem as a whole. The MoMo chapter has also made it a goal to directly point out shortcomings in the ecosystem and to challenge incumbents and large organizations that find it hard to embrace and support a community-oriented approach. This does not mean that MoMo Kampala aims to exclude participation and contribution from large organizations, just that this needs to happen on its own terms. High-level executives from tech companies, policy makers, and other role models and decision makers have been welcome guests and speakers for MoMo events, and they often function as informal mentors for MoMo’s clients.

Fundraising and Sustainability

In line with its flexible, grassroots-oriented approach, MoMo Kampala operates on a shoestring budget and does

“[MoMo Kampala] is eminently replicable. It is just about looking around and seeing what needs to be done for the ecosystem. Then go ahead and do it, and you will get the encouragement to continue.”

Quote from interview
with Daniel Stern, leader
of MoMo Kampala

not necessarily aim to expand into a much larger project. Sponsorship comes in small amounts of about \$400 per sponsoring organization every six months. Such small sponsorships and in-kind support came from SMS Media, Smile Communications, Yo, Send Airtime, UGO, Text To Change, D-Mark Mobile, Mountbatten, Owino Solutions, and True African. Slightly larger contributions of more than \$1,000 came from Google Uganda, with a similar contribution expected from Orange Uganda. The MoMo chapter leader describes the *infoDev* grant as seed funding that empowered him to build up the brand and support the ecosystem independently. Through many small sponsorships, MoMo Kampala has become sustainable, in the sense that events are still being hosted at about the same

capacity now that *infoDev* support has ended. It is a deliberate strategy for MoMo Kampala to accumulate small amounts of sponsorship funds, so as to not create a dependence on a single or few partners, and to maintain MoMo's inclusive, participatory approach.

Accordingly, MoMo Kampala believes that it can be an illustration for the power of the MoMo approach that is based on a grassroots and community ideal. The leader encourages others to see MoMo Kampala as replicable, and he has started to engage with stakeholders in Rwanda and Namibia on how to expand their local ecosystems through a community-based approach.

Challenges

MoMo Kampala's work has not been without challenges. In particular, the strong emphasis on grassroots engagement and impartiality has made it harder to attract large sponsorship; often, for corporations, specifying a long-term agenda and concrete deliverables was a prerequisite. MoMo Kampala is also hard-pressed to find ways of assessing its positive impact and document its relevance and value addition more concretely. The effects of MoMo Kampala's community building are notoriously difficult to track, as they are indirect and only materialize through other ecosystem stakeholders later making concrete decisions to partner, invest, support, and so forth.

At the same time, MoMo Kampala has realized that more continuity in developer and entrepreneur support is needed than the ecosystem is currently offering. MoMo Kampala acknowledges that

startup support still has wide gaps, and that the available talent cannot fully unfold its potential with the help of MoMo and fledgling innovation hubs alone. At the same time, MoMo Kampala has neither the means nor the mission to provide the support mechanisms that are urgently needed, such as access to finance, incubation and acceleration, structured mentorship brokering, policy reforms. It does expect, however, to facilitate a more structured collaboration between Uganda's innovation hubs, which could lead to more efficient use of existing resources and to attracting new ones.



Endnotes

⁵¹ <http://www.businessmodelgeneration.com/canvas>.

⁵² See, for instance, <http://businessmodelhub.com/page/business-model-canvas> or <http://www.youtube.com/watch?v=QoAOzMTLP5s>.

⁵³ <http://www.businessmodelgeneration.com/book>.

⁵⁴ A helpful discussion on the difficulties of categorizing stakeholders as partners or customer segments can be found at <http://businessmodelhub.com/forum/topics/confusion-in-business-model-canvas-customers-or-partners>. Moreover, a more analytically sound method to include donors and impact investors as distinct types of customer segments is the double-sided Business Model Canvas for NGOs (see http://www.innovativenonprofit.com/2012/08/the-nonprofit-business-model-canvas-2/#UmG_Hvn3Hn8). This report did not use this method to maintain simplicity.

⁵⁵ <http://www.ihub.co.ke/>.

⁵⁶ The competition's first edition in 2011 was dubbed "Pivot 25" but, for the sake of simplicity, this report will refer to all three editions in the series as "Pivot East."

⁵⁷ The first waves of trainees were trained for six months before the schedule was tightened and aligned to university calendars.

⁵⁸ <http://www.ihub.co.ke/blog/2013/06/mlab-east-africa-outcomes-two-years-later/>.

⁵⁹ The coaches had at least monthly meetings with startups to discuss their business and fundraising strategy and how startups could conduct and measure market experiments most effectively. A few incubatees continued to contract Viktoria Solutions at their own expense once mLab's subsidy ended. Additionally, the startups also received in-kind mentoring services from other mentors that were brokered by the mLab.

⁶⁰ See, for instance, <http://techcrunch.com/2013/09/25/african-accelerators-change-tack-as-savannah-valley-emerges-from-the-wilderness/>.

⁶¹ Starting in October 2013, the mLab is running a virtual incubation program for startups spread across the region, recruited from among the 25 finalists of Pivot East 2013. The project is funded through a \$30,000 contribution from AfriLabs, as a tranche from an infoDev grant. <http://www.infodev.org/articles/east-african-virtual-incubation-pilot-launch-nairobi-kenya>.

⁶² <http://www.theinnovationhub.com/>.

⁶³ <http://gic.theinnovationhub.com/>.

⁶⁴ <http://www.csir.co.za/meraka/>.

⁶⁵ Nokia also played an important role in the setup phase of the mLab, including brokering linkages to DST.

⁶⁶ This implies that DST is not represented as a customer segment in the mLab's business model canvas. For a more detailed explanation, see the section on Applying the Business Model Canvas to mLabs and mHubs.

⁶⁷ <http://www.windowsphone.com/en-us/store/app/mlab-studio/962078da-52a2-4598-9704-5b25ef6485cd>.

⁶⁸ <http://www.ungana-afrika.org/>.

⁶⁹ <http://www.saisprogramme.com/>.

⁷⁰ http://www.mct.gov.mz/portal/page?_pageid=615,2812864&_dad=portal&_schema=PORTAL.

⁷¹ <http://www.tia.org.za/>.

⁷² <http://www.saine.co.za/>.

⁷³ <http://www.raizcorp.com/entrepreneurs/partner-elite/partner-elite-ramp/>.

⁷⁴ <http://www.bandwidthbarn.org/>.

⁷⁵ <http://www.raizcorp.co.za/>.

⁷⁶ <http://www.balefyre.co.za/products-ussdx.html>.

⁷⁷ <http://nacloud.dimensiondata.com/Cloud-Services/Overview%20>.

⁷⁸ <http://www.techtransfer.csir.co.za/2012/09/mobi4d-mobile-service-delivery-platform/>.

⁷⁹ mLab ECA serves entrepreneurs in Eastern Europe, South Caucasus, and Central Asia.

⁸⁰ Enterprise Development and Market Competitiveness (EDMC) is a USAID initiative to spur local economic growth: <http://www.edmc.am/>.

⁸¹ In particular, CRDF ran a "From Mind to Market" grant competition in 2012 within its Science & Technology Entrepreneurship Program (STEP): <http://www.mlabea.com/eng/news-announcements/quot-from-idea-to-market-quot-grant-competition-the-deadline-of-submission-of-application-forms-is-prolonged/>.

⁸² <http://www.gov.am/en/news/item/6755/>.

83 <http://www.micarmenia.am/en>.

84 <http://www.arindia.am/>.

85 <http://gitc.am/gitc/>.

86 <http://infodev.org/press-releases/media-release-5th-global-forum-innovation-and-technology-entrepreneur-ship-awards-five>.

87 <http://www.mlabeca.com/eng/news-announcements/mlab-team-won-the-first-place-at-imagine-cup-armenia-2012/>.

88 http://digitec.am/files/competition_ml/agenda_digitec_business_forum.pdf.

89 <http://armenia.startupcup.com/>.

90 <http://www.t2vc.com/armenia/>.

91 <http://www.techinasia.com/5-top-winners-mlab-east-asias-mobile-innovation-challenge/>.

92 Although prominent voices in the discussion on startup and innovation ecosystems warn of heavy-handed government intervention. See, for instance, Lerner, 2012; or a recent discussion at <http://www.technologyreview.com/news/516501/in-innovation-quest-regions-seek-critical-mass/>.

93 <http://www.younginnovations.com.np/>.

94 <http://www.mobilenepal.net/events/forum-mobile-ecosystem-nepal-exploring-opportunities-and-challenges>.

95 <http://m2workhackathon.org/>.

96 http://m2workhackathon.org/sites/default/files/downloads/Report_m2Work_Hackathon.pdf

97 <http://pivot.mobilenepal.net>.

98 <http://www.nyef.org.np/>.

99 <http://opennepal.net/>.

100 <http://www.developmentcheck.org>.

101 <http://www.hackathon2013.vawhack.org/>.

102 <http://www.biruwa.net/>.

103 http://nepalitimes.com/news.php?id=13087#_UkVDRoauwYs.

104 <https://www.facebook.com/groups/launchpad>.

105 <http://e27.co/2013/06/19/supporting-vietnams-tech-startup-growth-from-the-ground-up/>.

106 <http://idgvv.com.vn/en/>.

107 <http://www.globalforum2013.co.za/downloads/presentation/Day%202/Stream%20C%20-%20Incubation%20LabSession%203/Dang%20My%20Chau%20Presentation.pptx>

108 Akirachix recently posted a summary of their projects, available at <http://akirachix.com/Blog/our-3-year-journey-part-12/>

109 The mHub grant funds that Akirachix received from *infoDev* served mainly to fund the Mobile Garage project, hire an administrator, and purchase computer equipment for training. Other Akirachix activities were strengthened indirectly.

110 <http://akirachix.com/Blog/akirachix-to-host-girls-in-ict-day-on-27th-april-2013/>.

111 <http://akirachix.com/Blog/akirachix-wins-google-rise-award/>.

112 <http://www.sida.se/English/current-topics-archive/2013/One-woman--one-mobile-phone/>.

113 <http://www.npr.org/blogs/alltechconsidered/2012/12/24/167961947/kenyan-women-create-their-own-geek-culture>.

114 <http://www.project-syndicate.org/commentary/women-on-the-verge-of-an-economic-breakthrough>.

115 <http://www.sida.se/English/current-topics-archive/2013/One-woman--one-mobile-phone/>.

116 <http://hivecolab.org/>.

117 <http://www.grameenfoundation.aplab.org/team/uganda.html>.

118 <http://thehubkampala.com/>.

119 <https://www.facebook.com/MaraLaunchpad>.

120 <http://finafrica.org/>.

121 <http://www.outbox.co.ug/>.

122 <http://ict4entrepreneurship.com/2012/07/26/meet-the-business-innovation-consortium-uganda-bicu/>.

123 <http://www.universalia.com/en/services/monitoring-evaluation>.

Appendixes

Appendix A. Aggregate mLab and mHub Results

Indicator	Result as of June 2013
Revenues generated by startups	\$1,119,285
External investments raised by startups	\$2,605,905
Number of startups/entrepreneurs that secured external investments	39
Direct jobs created by startups	283
Other jobs created or brokered	662
Number of jobs created for women	162
Other jobs created or brokered for women	129
Startups created	97
Apps monetized	218
B2C customer traction: Number of app downloads/users/subscribers	2,661,600
B2B/P customer traction – Number of enterprise/public agency customers, or customers that contract development of the app	5,706
Number of notable social development apps broad to market (targeting pro-poor, base of the pyramid, mHealth, mAgriculture, rural populations, etc.)	102
Solid startup teams	101
Apps brought to market	516
Number of app prototypes	782
Number of teams applying for in-depth support through mLab/mHub	1,180
Number of individual applicants	5,624
Teams that received in-depth, one-on-one support (mentoring, coaching, etc.)	292
Women-led teams that received in-depth, one-on-one support (mentoring, coaching, etc.)	38
Number of startups/entrepreneurs that secured investments from mHub/mLab	51
Number of people trained (any training, including daylong workshops)	2,535
Number of people trained intensively	315
Number of physical, face-to-face events organized	376
Number of virtual events	25
Number of developers and entrepreneurs reached	31,981
Number of women developers and entrepreneurs reached	4,967

Table A.1:
Complete
mLab and
mHub Results
data

Note: As reported by mLab and mHub managers and local consultant for mLab East Asia. Including estimates, proxies, and underreporting due to missing data. Including results for mHubs in Azerbaijan, Georgia, Moldova, and Tanzania, which were not covered as case studies.

Appendix B. List of mLab and mHub Affiliated Startups and Startup Teams

mLab/mHub	Startup/team name	App name
mLab East Africa	Zege Technologies	mPayer
	Pluspeople Kenya LTD	Uhasibu
	Space Kenya Networks Ltd	Whive
	MTL Systems Limited	
	MFarm Limited	MFarm
	Eneza Education	Eneza Education
	Shimba Technologies	MedAfrica
	Kopo Kopo	Kopo Kopo
mLab Southern Africa	AfroesHaki,	Moraba
	Sowertech	AftaRobot/Tour2.0
	Jatamobile	African Mobile Awards/Tuneme
	Innoprenez	CareerWiki
	CytoTouch	Cyto
	Digisense	Bchat
	PassReview	PassReview
	BookBay	Bookbay
	Geekulcha	
	AppChemy	GoMetro (app development), TravelWiki, Takealot, others
	Mfactory	GoMetro (app development), PassReview, Student 101, eReader, others
	Quirio	Quirio
	Student 101	Student 101 (app development)
	Realapp	Realapp
	GoMetro	GoMetro/GoGauteng
	Limitless Mobile	Multiple
	bSmart	bSmart
	Music of Africa	Zizo/MOA
mLab ECA	NaKo Games	Princess Cakes, Fashion Girl, Hello Kitty, The Gardener
	MySales	Paint In, MySales
	MicroForester	MicroForester
	SmartStream	SmartStream
	Acting Software	Stories HUB
	Team led by Narek	Clean H2O, Paint the Music, App review,
	Hayrapetyan	4Seasons shaker, Anime logo quiz
	Anorayr	Yerevan ATM
	mTech	SOS, WinPhone Games, other enterprise apps
	iMixer	iMixPlayer
	moGoni	PoliceCameras
	Gyumri teams	microPictureTranslator

Appendixes

Appendix B. List of mLab and mHub Affiliated Startups and Startup Teams (continued)

mLab/mHub	Startup/team name	App name
mLab East Asia	Lifebox	Lifebox Daily
	New Way	Street Foods Guide
	Red Team	Fashion House
	Seahorse	KID'S GARDEN
	iSmartbike	iSmartbike
	Watermelon	Bach Dang Battlefields
	Thasa	Anti-Counterfeiting App
	Tapi	Tapi
	Linpax	Linpax
	Gao Group	Stick Ninja
	MUT-UTT	MGTS Taxi
mHub Nepal	nLocaten	Locate
	eSewa	eSewa
	Birthday Forest	Birthday Forest
	Mystic Vision	M-Varnamala
	StoresMunk	StoresMunk
	Mobile Survey	Mobile Survey
	BlametheStars.com	BlametheStars.com
mHub Vietnam	Wala	Wala
	Appota	Appota
	Tapmee	Tapmee
	Delta Viet	
	Tiki.vn	Tiki
	Yton	
	Blue Up	
	Money Lover	Money Lover
	Kleii	Kleii
mHub Kenya	MFarm Limited	MFarm
	254 Events	254 Events
	Mbegu Halisi	Mbegu Halisi
	Helpful verses	Helpful verses
	JMavuno	JMavuno
	Bonyeza,	Bonyeza,
	Kemobi	Kemobi

Table B.1:
List of mLab
and mHub
Affiliated
Startups

Note: As reported by mLab and mHub managers. Startups/teams included might have ceased operation. Type and intensity of support that startups/teams benefited from varies. Not all startups/teams have been created as a result of mLab or mHub activity.

Appendix C. Collection and Analysis of Results (Radar Charts)

All data were collected through self-reporting and interviews with mLab and mHub managers (and in mLab East Asia's case, the local *infoDev* consultant). All data need to be seen in the context of attributes of local ecosystems and the challenges and opportunities that any given mLab or mHub faced (see section [Why Evaluate Business Models of mLabs and mHubs?](#)). Several—if not most—of the measured indicators are difficult to standardize and track reliably. This report makes the case that mLabs and mHubs are embedded in complex startup and innovation ecosystems, and that their holistic impact is notoriously difficult to quantify. Attribution of impact is a key problem in startup ecosystems where actors are intertwined in various and complex ways and effects often take time to become apparent. Hence, the results should only be seen as indicative, until feasible, more sophisticated evaluation and impact assessment methods become available for ecosystem-oriented interventions such as innovation hubs.

The percentage values in the radar charts in the section on [Results for mLabs and mHubs](#), as well as in the [case studies](#) represent values standardized across data for the four mLabs, with the mLab that had the highest result receiving 100%. Several indicators are composed of weighted subindicators. The weights were determined based on the relative relevance of the subindicators towards the goal of sustainable startup creation (see table C.1).

Indicator	Subindicator (weight)	Definition
Revenue generated by startups		Includes funds received by supported startups from their customers in exchange for the service or product that they are offering. This does not include grants and in-kind contributions to startups.
Investments raised by startups		Includes equity investments, convertible debt and similar instruments, grants, and other financial contributions raised by the startups. This does not include investments made by the mHub/mLab itself.
Jobs created and supported		Includes jobs that were created by the startups or solid startup teams which were supported. Includes founders.
Startups and startup teams created	Startups (2/3)	Only includes formally registered, incorporated companies.
	Solid startup teams (1/3)	Refers to teams that have formed, are in the process of setting up a startup, and that are likely to incorporate in the near future.
App customer traction	Consumers (2/3)	Pertains to “business to consumer” apps. Downloads/subscribers/user numbers etc. are used.
	Organizations (1/3)	Pertains to enterprise apps, apps that target public agencies as customers, or other app business models that rely on few large customers.
App innovation (apps monetized, brought to market, prototyped)	Apps monetized (1/2)	Includes apps that have generated some money (sold for a fee to a consumer, made advertising revenue, sold to an enterprise/public customer).
	Apps brought to market (1/3)	Includes apps made available to the customer through some marketing channel (e.g., in an app store, for download, or available as an enterprise solution, etc.), irrespective of revenue generated.
	App prototypes (1/6)	Includes any functional prototype, including from hackathons, bootcamps, trainings, etc.

Table C.1:
Composition
and
Definitions of
Indicators

Indicator	Subindicator (weight)	Definition
In-depth team support		Refers to the number of teams that received in-depth, one-on-one support from the mLab/mHub (mentoring, coaching, etc.)
Training	Trained in-depth (2/3)	Refers to training of individuals, including over short periods of time (e.g., one-day workshops).
	Trained, any other (1/3)	Includes sign-ups for training or other services for individuals (e.g., trainings, workshops, bootcamps, etc.). Is used as a proxy for individual demand for mLab/mHub services.
Applications for support	Individual applicants (1/3)	Includes teams that applied for one-on-one, in-depth support (e.g., mentoring, coaching, etc.). Is used as a proxy for team demand for mLab/mHub
	Team applications (2/3)	Includes teams that applied for one-on-one, in-depth support (e.g., mentoring, coaching, etc.). Is used as a proxy for team demand for mLab/mHub services
Events		Includes all events (e.g., hackathons, bootcamps, seminars, workshops, Startup Weekends, Mobile Monday, etc.) that the mHub or mLab organized.
Overall reach		Broad measure of awareness and reach. Includes any developer, entrepreneur, or other client that has been in contact with the mHub or mLab or shown interest in any way (e.g., sign-up for social media or mailing lists).

Appendix D. Data Collection and Interviews

The study draws from 148 semi-structured face-to-face interviews and 13 focus groups with 240 stakeholders of seven mLabs and mHubs in five countries (Armenia, Kenya, Nepal, South Africa, and Vietnam). Interviewees were asked about their perceptions on elements of the Business Model Canvas applied to the mHub or mLab in question. Interviewed stakeholder groups included developers, entrepreneurs, and startups; mLab and mHub managers; partners and sponsors; policy makers; and other members of local ecosystems. Interview participants form a convenient sample; they were chosen based on the perceived relevance for the evaluation's goals and in coordination with mLab and mHub managers. Biases in the participants' answers cannot be ruled out, as the interviewer was clearly identified to them as an *infoDev* and World Bank consultant.

Secondary sources included a comprehensive database of program and project documentation, including reporting material and project scorecards. The study was also *informed* by the findings of an independent evaluation of the CSBKE program conducted by the consulting agency Universalis.¹²³

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