innovations

TECHNOLOGY, GOVERNANCE & GLOBALIZATION

SPECIAL EDITION



GLOBAL ENTREPRENEURSHIP CONGRESS MEDELLÍN 2016

LEAD ESSAYS

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Featuring essays and insights from members of Startup Nations and the Global Entrepreneurship Research Network



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About *Innovations*

***Innovations* is about entrepreneurial solutions to global challenges.**

The journal features cases authored by exceptional innovators; commentary and research from leading academics; and essays from globally recognized executives and political leaders. *Innovations* is jointly hosted at George Mason University's School of Public Policy, Harvard's Kennedy School of Government, and MIT's Legatum Center for Development and Entrepreneurship.

Jonathan Ortmans and Philip Auerswald

The Global Entrepreneurship Network and the Next Generation of Entrepreneurship Research

Welcome to the Global Entrepreneurship Congress. Now in its eighth year, the gathering brings together entrepreneurs, investors, researchers, policymakers and other startup support champions to explore new ways of helping founders start and scale new businesses around the world.

GEC 2016 takes place in an unexpected city where "The Business of Next" is a way of thinking that has radically changed a whole community and turned it into a burgeoning hub for startups. This week in Medellin, discussion centers on what's next in a range of areas: the latest in measuring entrepreneurial ecosystem performance; experiential education programs to create a more entrepreneurial mindset necessary to accelerate the growth of high-potential startups; the power of data to serve as both a fuel for entrepreneurs as well as shape the policies that help them flourish; new trends in increasing the availability of early stage capital; the role of entrepreneurship in post-conflict economies and more.

At the Global Entrepreneurship Network, we have deepened our work this past year around addressing what has been a paucity of global data and analysis to further our understanding of entrepreneurship. While the world has witnessed a renaissance around value creation through innovative and disruptive new business models along with an increase in interest in startups and the programs that support them, rates of new firm formation have not kept pace. This has raised the stakes in terms of demand for more data, evidence, analysis and scholarship within the field, especially within economies that offer the best promise as drivers of future global growth.

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Philip Auerswald is executive director of the Global Entrepreneurship Research Network.

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The articles in this journal are part of a broader effort among researchers, scholars and policymakers to meet this demand. They are published as part of the GEC, hosted each March by the Global Entrepreneurship Network to gather the world's top thinkers in building smarter entrepreneurial ecosystems.

In an effort to build one global entrepreneurial ecosystem, GEN has assembled leadership teams to guide national campaigns to inspire the next generation of innovators each November and to convene each nation's top entrepreneurial support entities and startup communities in 162 countries. GEN has also built robust global verticals in policy and research. For example, through its Startup Nations initiative, GEN has gathered ministers and advisers responsible for crafting policies that enhance new firm formation.

GEN has formed the Global Entrepreneurship Research Network (GERN), to address the challenge of building a knowledge base around entrepreneurial dynamics internationally.

Perhaps most importantly to global data and research analysis, GEN has formed the Global Entrepreneurship Research Network (GERN), to address the challenge of building a knowledge base around entrepreneurial dynamics internationally. Aimed at increasing collaboration at the global level among institutions developing and funding entrepreneurship research, GERN brings together those that fund, conduct and apply entrepreneurship research around the world. Its members include the World Bank, Emory University, Omidyar Network, Endeavor Insight, MaRS Data Catalyst, Nesta UK, the Aspen Network of Development Entrepreneurs and the U.S. Agency for International Development, among others.

Since its inception, GERN has forged cross-border research collaborations among its members that seek to make a significant contribution to the level of knowledge about the field of entrepreneurship. For example, the success of seed (startup) accelerators, such as Techstars, kicked off a race during the past decade to replicate the model around the world. Today, just about every major city has an accelerator that seeks to propel a cohort of entrepreneurs through training and mentorship. Yet, very little is known about the impact these organizations are having. To better understand

their impact, GERN members joined together and established the Global Accelerator Learning Initiative (GALI).

This collaboration, led by Emory University and ANDE, and funded primarily by USAID, is collecting data from accelerators around the world to answer fundamental questions such as: Do accelerators contribute to revenue growth? Do they lead to new and better investment opportunities? Do they work as well for developing-world entrepreneurs as they do for developed-world tech entrepreneurs?

A second collaboration seeks to illuminate how connected key players within entrepreneurship ecosystems are to one another. This project, led by Endeavor Insight, Nesta, MaRS and the World Bank, seeks to create the largest and most comprehensive database by aggregating data from a variety of sources. To enable researchers to study how, for example, entrepreneurial density influences new form formation and outcomes, open-access visual maps allow users to discover large-scale patterns that characterize a specific ecosystem. Further, through the use of a standard, GERN-validated methodology, the project will result in comparable sets of multi-ecosystem maps.

Many of the leaders of these efforts will present their work at this year's GEC—alongside more than 7,000 other leaders in entrepreneurship from more than 160 nations. We hope that the scholarship that follows provides much to consider and inspiration in the drive for more engagement in an essential and urgent mission to fuel a new wave of understanding about value creation. Although we know that dense, diverse, and fluid entrepreneurial communities result in the new products and services that improve the well-being of our global society, the science of understanding how this occurs is only just beginning to shed light on the inner dynamics at work. GEN seeks to make contributions to this endeavor by connecting all the key actors of our one global entrepreneurial ecosystem.

Enjoy the Global Entrepreneurship Congress and this special edition of *Innovations* journal.

Francisco Cabrera and Mariano Mayer

Winds of Change over Buenos Aires: Nurturing Entrepreneurship in a Developing Megacity

Cities across the globe are complex, interconnected webs of economic activity. They represent centers of ideas and innovation, where entrepreneurial activity can thrive when nurtured in the proper environment.

Latin America is more urbanized than any other region in the developing world.[1] As of 2014, our city of Buenos Aires was identified as one of 28 international megacities. It represents the third megacity of Latin America behind only Mexico City and Sao Paulo.[2] The population of the city, and its urban area, equates to roughly 41 percent of the 41 million people living in all of Argentina.[3]

In the past decades, the abrupt development of technology and extension of globalization have significantly impacted the social and economic development of all cities, especially Buenos Aires. The digital reality of social interactions extended its reach to a new level in which no citizen, for better or for worse, is indifferent to global fluctuations.[4] This initial picture could very well reflect the entrepreneurial challenge that government teams face when designing public policy to foster the wellbeing of its citizens.

In Buenos Aires, our efforts have often aimed at promoting collaborative value creation. The complex, interconnected social ecosystem has many layers that need to be developed in an articulated way. In the end, without a clear guiding purpose, it is impossible to determine where to start and

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what to prioritize. Given this situation, we decided to build our entrepreneurial development approach from a human-centered perspective with the aim of recognizing each person as an individual and as a citizen of Argentina.

From this standpoint, when we looked at our city, we recognized that too many citizens were struggling to survive and accomplish their dreams on a daily basis. Our people needed to regain confidence in their capabilities and develop basic skills to reach their goals. The world was and continues to develop at a pace that only increases this gap, and we needed a human-centered solution to close it. In the end, we decided to unleash the inherent potential we all have within. Even though conditions in Buenos Aires were not always optimal, we aimed to design a system that reinforced risk taking by establishing a rewarding social environment. No citizen is entirely on their own, and they shouldn't be. We wanted our city to function as a systemic force to increase value creation by facilitating positive interactions.

When we looked at our city, we recognized that too many citizens were struggling to survive and accomplish their dreams on a daily basis. Our people needed to regain confidence in their capabilities and develop basic skills to reach their goals. The world was and continues to develop at a pace that only increases this gap, and we needed a human-centered solution to close it.

This essay explains this journey, and how we designed a human-centered approach to nurture an entrepreneurial ecosystem from within the walls of the Government's Office of Entrepreneurship (GOE) for the city of Buenos Aries. To articulate our approach, we begin by explaining the history and origins of the city, as it connects to the challenges we experienced upon taking our post. We then discuss some of the contemporary challenges in Argentina to contextualize the issues faced by our citizens. We then turn to our approach and share how we converted limitations into opportunities, executing a strategy that has supported significant growth and entrepreneurial activity across

Buenos Aires. The execution of this strategy laid the foundation for a culture shift that is continuing to spread across Argentina.

THE ORIGIN

From the beginning, Buenos Aires' existence has been based on entrepreneurial drive. In 1536, a convoy of the first Spaniards arriving from Europe settled in a nearby riverbed. After five years of adverse relations with the Querandí tribe, the increasing famine and constant disease, forced the remaining settlers to leave. Forty years passed before a second group of Spaniards led by Juan de Garay permanently settled in what would later become Buenos Aries. All of this wouldn't have been possible without the first settlers' attempt. In fact, the cattle and horses they left behind in 1541 flourished, given the rich landscape and conditions, creating a unique environment for the second group of settlers' success. Creative destruction has guided our city's development ever since.

But history has left its scars. The political instability and economic rollercoaster of the past decades have stressed the city [5]. As with most developing countries, infrastructure hasn't kept pace with the fluctuations in population related to rapid urbanization and waves of migration. With the passage of time, the chasm has only widened, creating as a consequence all sorts of symptoms of diseconomies of scale stemming from population growth. This combination of factors led to unplanned expansion of our megacity beyond its original boundaries, increasing the number and complexity of coordination requirements. People seek informal, alternative solutions to substitute for unmet need, further complicating existing problems. These and other disintegration issues decrease productivity and reduce the efficiency of public and private efforts to improve livelihoods and growth.

The historical challenges in Buenos Aires continue to impact modern day. We understood that in order to move forward and increase the collective productivity for citizens, the city needed dramatic improvements to infrastructure, urban planning, transportation, health coverage, and access to equal opportunities and skills development. Given the magnitude of these challenges, we recognized that regardless of the effort made to articulate long- and short-term goals within a finite budget, the increasing social anxiety would only grow over time. Upon taking office, we were coming out of the great commodity super-cycle of the past decade, which failed to trickle down to equal social development for all our citizens.[6] This issue had been present on the top of the agenda for most of Latin American govern-

ment officials for the past five years, which was a warning about the potential for Buenos Aires' long-term value creation.

Given the existing gap we faced, and our historical reliance on commodities, there was no alternative other than to leapfrog these barriers. We thus decided to embark on an alternative journey. Instead of focusing on the barriers as persistent, immovable problems, instead we concentrated on our strengths, and the positive disposition of the ecosystem and our people as our greatest asset. In other words, we decided to tap into the entrepreneurial roots of our culture. We wanted to connect with the spirit that has existed in Argentina since our origin, and harness it to gain traction with our citizens. After all, Buenos Aires is a city that had collapsed only ten years ago as a result of the 2001 financial crisis and come back to produce four of the six Latin American unicorns[7]

Against this backdrop, we sought to create a center of innovation and entrepreneurial activity from within the city of Buenos Aires that could deliver benefit to all of Argentina.

THE SOLUTION

After decades of bipartisanship, in 2008 a brand new political party gained control of the government of the city of Buenos Aires. (This positive experience catapulted the same party to repeat the feat at national level just three months ago in November of 2015). This original 2008 experience focused on gaining connectivity at all levels of social interactions. At the heart of the strategy was the belief that the more people interacted, the more value they could collaboratively create. This was done by a range of strategic guidelines that materialized into initiatives including moving city offices into impoverished areas, creating and promoting business districts, promoting alternative environmentally-friendly transportation, improving full access to quality education, and promoting a vast cultural agenda.

It was within this framework that the GOE started working on what would become a two-phased development program. During the first phase, most of the energy was focused on creating minimum required conditions. Cluster development districts where promoted, created, and reinforced. At the same time, new entrepreneur development programs were launched despite initial cultural challenges. In the beginning, the hard lesson of this initiative proved to be that the majority of benefits went to first movers. The startup entrepreneurial community wasn't fully benefiting from these initiatives. The initiative was not generating many new projects, in part because the country's suboptimal economics did not attract foreign investment. Once the first phase of minimum viable conditions had successfully

been implemented, the city still faced significant challenges. How could an underdeveloped megacity emulate the conditions of a unique hub like Silicon Valley or Tel Aviv?

As the Minister of Economic Development at the time (2013), Francisco Cabrera decided to create a new undersecretary position that would be in charge of nurturing the beginnings of a creative economy. This effort would foster the benefits of the interaction between technology, knowledge, and innovation. In this way, we hoped to tap into the economic revolution the rest of the world was going through.

The team started by designing a strategy based on a human-centered approach. The approach could serve as an integrator of the incipient trends that were creating a new approach to company building and scaling. Management trending initiatives like design thinking, the lean startup movement, and the business model canvas, were parts of a new management wave to help entrepreneurs in their quest. The city needed to embrace it all.

Given our small budget, the first decision was to elevate all initiatives to a more strategic level, beyond the office's reach, in order to increase scope and impact. We imagined ourselves as a central hub whose initiatives not only set the pace for the national entrepreneurial agenda but also set a standard for best practices. Being able to influence and coordinate other public and private entities in the same direction became critical. To do achieve this goal, we followed Michael Mauboussin's advice on cognitive diversity—"intentionally putting together different points of view that will challenge one another"—the most essential characteristic when hiring and building teams for this complex world. [8] Once we put together a diverse team with private and public experience, we decided to diagnose the local ecosystem.

THE EXECUTION

In mapping the local ecosystem, we again emphasized the needs of our citizens, approaching the process from a human-centered perspective. Our initial exhaustive diagnosis captured the needs of social, political, economic, and governmental stakeholders. The more we widened our research, the more we found similarities in what individuals required. At the same time, the more we searched, the clearer our key milestones became. In the end, our agenda was built on these insights, balanced between network and capability issues that where aligned with the city's strategy to increasing connectivity.

In terms of strengthening the network, all initiatives were required to have direct and indirect lasting, demonstrable social impact through some

kind of innovation in their model or value proposition. We aimed to take advantage of as many initiatives as possible in our quest to promote the creation of solutions that addressed systemic inefficiencies and existing gaps in human development. We were not promoting the creation of individual wealth, but if it came as a consequence, we would be happy for the risk-taking entrepreneur who benefited from their hard work. As officials, our aim focused on the direct and indirect creation of social value. We viewed any conscious, thriving business as a newborn hub of social wealth weaving its network deeper into our community.

At the same time, a core element of the network agenda was based on disseminating our approach at an exponential rate using "cross-pollination" hubs. We aimed to create social interaction within collaborative spaces. Every citizen should be able to access a private or public co-ideation, working, and collaboration space to develop ideas and engage with support services. In fact the CITIE[9] evaluation of Buenos Aires gave two of the three highest ranked elements to the city related to our connectivity infrastructure (i.e. "host" - how does the city use space to create opportunities; "connector" - how does the city facilitate physical and digital connectivity). Simultaneously, the city drastically increased its traditional connectivity. Through better public transport, infrastructure projects, and biking services, entrepreneurs were able to access one of the 15 different hubs created in the city, reaching new, and enriching existing, networks. The most emblematic hub is the Metropolitan Design Center,[10] which promotes design as a central element of value creation. Companies here were engaged to open up to the community on a regular basis to increase their permeability while also gaining knowledge, perspective, and experience. And at the same time, the city created diverse project and innovation competitions (IncuBA[11]), hackathons, and prizes that incentivized young entrepreneurs to form and build their dreams.

A key element to the network development was to actively push data sharing and transparency at all levels and types of public institutions. The city not only used data to optimize services, but also provided free access to raw data. The GOE created an Observatory to keep track of the government and third party activities in the entrepreneurship ecosystem. We measured progress and the impact of public policy, helped reorient decisions, offered live feedback to all stakeholders on their ideas, and constantly utilized information through interactions to realign and better execute our initiatives. We also mapped[12] all entrepreneurial activity in the city, making it easier for stakeholders to understand their positions and available options to grow their initiatives. Mapping strengthened our understanding of what

was working, and how to increase and improve on citizen interactions.

On the capability side of the agenda, we focused on giving entrepreneurs a broad array of skills and financial solutions to increase the success rate of their ventures. It's important that we do not forget that during this period, the country's economy was slowing down as inflation was compounding annually by 40 percent year after year. Conditions where not optimal, but the team was able to create matching funds with four local incubators. This is one of the most fundamental elements of any entrepreneurial ecosystem, and it's probably the weakest of the local environment in Buenos Aires. To date, most successful entrepreneurs find financing from their social network or high net worth individuals that are comfortable with the conditions of the local economy and not impacted by its unpredictability. Outside of these networks, traditional financing from banks tends to concentrate on profitable segments, while public institutions focus on production-oriented investments, leaving very limited investment in the venture community. Our team acknowledges the limited impact we had on this issue from within GOE. We continue to work to tackle this unmet challenge at the national level now with greater prospects, and finally, with a political agenda aligned to our needs.

Regarding skill development, the GOE worked on different initiatives oriented at decentralizing knowledge creation, sharing access to best in class content, and increasing the availability of public and private education institutions.[13] As a result, a strong network was created (comprised of coaches, experts, businessmen, and teachers) and put within reach of all interested entrepreneurs. At the same time, public schools incorporated into their curriculum entrepreneurial subjects for students in the final three years of school. This introduction of new curriculum lowered cultural and educational barriers, while increasing real world preparedness.

These initiatives grouped into network and capability elements are a brief summary of eight years of hard work, which will be followed and improved on by an even better-prepared and more experienced team operating from the national office. We have barely scratched the surface on all that was done, and it actually doesn't do justice to the underlying framework and strategic guidelines that directed the GOE's work during this time. In the end, all initiatives sought to work on two interdependent realities, strengthening the entrepreneur and improving the business environment. None by itself will produce change, and even when fully developed, it doesn't guarantee faster results. Beyond wisdom and mastery lies the ability to deeply comprehend gaps, maintain a long-term perspective, and focus on the next realistic step that all parties are willing to take. Understanding our

role as public servants has made a huge difference, allowing us to connect our personal purpose with the needs of our community. All in all, we seek to unleash the entrepreneurial spirit in all of our citizens and continue to root our approach in the perspective of every individual person.

Buenos Aires has been recognized as an Emerging Entrepreneurial Ecosystem in the coming Global Entrepreneurship Congress.[14] With all the success, this is still a reminder of the coming challenges, and that there is still much to be done.

THE HEAD FAKE

Our experience and lessons from this journey led to what we call a huge "head fake": it's all about understanding our culture. [15] Around 86 percent of the companies in all of Argentina employ less than 10 people, and 30 percent of these companies are less than three years old. Within the greater Buenos Aires area, 237,000 companies have fewer than 25 employees. In other words, a great part of our economy is sustained on formal and informal entrepreneurs. In considering the term entrepreneur, if we limit the definition to those who oppose risk taking, and merely provide basic services as business people, we are just using a fancy name for something that has existed for a long time. But if we are talking about socially conscious, professional, value-creating citizens, we are referring to a citizen that any city (and indisputably any megacity) must have. This kind of citizen entrepreneur plays a much needed social role that will continue to expand the cultural boundaries and lead cities during the era of globalization.

Government always changes from one ruling party to another, but the city will keep growing and developing. As we grow, we only become more interconnected and globalized. Technology's impact will increase, and human needs will remain more or less the same (although perhaps expressed in different ways). We can't stop change, but we can increase our city's readiness to embrace it. We can't regulate the market, but we can make better rules to improve its access for all our citizens to equal opportunities. And, the government won't and shouldn't be able to change people, but at least we can give them hope for better possibilities. The strategy could be brighter but it won't change the fact that we are molding culture on two fronts: the frame of mind to accept change and the social responsibility the community has with its entrepreneurs.

Evolution requires trial and error, and someone has to take chances. If it wasn't for this huge mass of entrepreneurs that seek to create value, communities would vanish. As Nasim Taleb rightly identifies in Antifragile, as a society we should learn to thank those who take risks, and as government

we should create the conditions to destigmatize and embrace failure.[16] Entrepreneurs are social assets that cities need to foster and develop to benefit the community's wellbeing.

From our experience, all initiatives were proper to our circumstance, but beyond experience, what any city and megacity will find is that they are creating better conditions, increasing understanding, empowering and allowing citizens to create their future through richer social interactions. We should aspire to make it easier for any person to accomplish their dreams by fostering an open and adaptive culture.

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Luís M. A. Bettencourt and Javier Gonzales

Science and Practice for Thriving Cities

The last decade has seen an increased focus on cities and urbanization in connection to tackling some of the most important, but also most difficult, problems of human societies.[1] Such issues range from sustainable development and resilience to climate change, to challenges of economic growth and inequality.[2] Not surprisingly, these issues have been part of the international and national political agendas for a long time. Despite the relatively greater resources available at higher levels of government, progress—almost always and almost everywhere—has been excruciatingly slow. Diverging ideological interests, a distance from the problems on the ground, an inability to properly analyze the issues as they affect individuals, and a lack of solutions as they are rolled out are all reasons that have made policy at these high levels ineffectual. There are many illustrations of this impasse. A particularly clear recent example deals with attempts to tackle the sources and consequences of global climate change.

While the issue has been gridlocked between developing and developed nations at the international level, and between environmentalist groups and

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conservatives within many nations, cities throughout the world, regardless of their national or political contexts, have stepped up to the plate and are creating a peer-to-peer movement leading to fast, practical, and effective change.[3]

The fact that cities may be able to address persistent societal and environmental challenges more effectively than national governments should not be surprising for a number of reasons. First, city and local governments are much closer to their citizens and their struggles. This allows them, in principle, to better understand the nature of their problems and respond faster. Second, local problems and policy solutions often are already in play and a close appreciation of these options may provide practical avenues for learning, taking action and iterating to improve. Finally, cities and other local governments must "stay with the problem" over the long term and assess whether it is being solved effectively. This can promote a more gradual and more practical approach to problems over the long run, with a focus on discovering what works.

The fact that cities may be able to address persistent societal and environmental challenges more effectively than national governments should not be surprising.

But, despite these advantages, the reality of local government is almost always much more constrained. Local governments are the principal providers of essential services to most people, such as water, sanitation, basic education, and emergency response. The daily operational demands of this kind of essential and exacting work tends to take precedence over more strategic issues that can move the needle on deeper problems over the longer term. As a result, local government action is often limited in scope with an emphasis on short-term objectives, and aspirations limited to simply "living to fight another day".[4] For these reasons, local governments have too often been shackled to attend to what is urgent, rather than to what is ultimately important.

Things are changing, though. There is presently much hope as well as much action empowering cities. What then is emboldening local governments to take on more than their immediate scope of work? What is it that is making it possible now for cities and local governments to tackle perennial problems of equity and sustainable development? And, if new factors are at play, what is their logic? How can they be better understood and used

more effectively to create thriving cities all over the world?

This paper examines these questions from two different but complementary points of view, represented by its two authors: A scientist leading the Cities Project at the Santa Fe Institute, an effort that has contributed to the recent emergence of a new multidisciplinary *Science of Cities*; and the Mayor of Santa Fe, New Mexico, a small city known for its creativity and deep multicultural historical roots, now striving to create new solutions to its most pressing problems. Our dialogue and our work together in Santa Fe, as well as our expertise and contacts throughout the world, have lead us to identify what we think is a new transformational movement—both intellectual and practical—of innovation in cities.

Our arguments intend to clarify what we think is fundamentally new about the power of cities to create much needed change in an age of global urbanization and pervasive information technologies. In this paper, we provide a rough guide to what can be achieved through a set of new collaborations involving city governments, scientists, technologists, civic organizations, and other stakeholders.

THREE ELEMENTS OF URBAN TRANSFORMATIONS: KNOWLEDGE, TECHNOLOGY, ACTION

Worldwide urbanization[5] and the growth of information and communication technologies[6] are the two most important forces shaping change all around the world today and for the foreseeable future. Though they may seem superficially independent, when taken together these two trends create a perfect setting for pervasive (urban) change. They enable social and economic innovation, democratize knowledge creation, and subvert many existing structures, including economic organizations, bureaucracies, and traditional forms of government. Such change is already apparent in cities throughout the world, but new models that capitalize on these opportunities in the civic realm are just beginning to emerge. To thrive, cities must help create new platforms and collaborations that lead to better knowledge of urban processes, exploit the power of new technologies, and combine these elements into a virtuous cycle of learning and action, which we describe later in this paper.[7]

Knowledge: A New Science of Cities as Systems

An exciting development in our approach to cities is emerging from the fact that new technologies and a more global interest are generating new data and more fundamental knowledge about many aspects of urban life.[8] Our

understanding of cities and urbanization in the past relied on a number of relatively disconnected academic disciplines that did not address the city as a system. For example, urban economics has emphasized problems of real estate and land rents by exploring how firm and individual productivity may be organized in space, subject to transportation costs and agent preferences.[9] Urban sociology, especially in the United States, has emphasized social structures, specifically social networks and their relationship to issues of inequity and exclusion, poverty, and crime.[10] Urban planning, engineering and geography tended, on the other hand, to concentrate on many different aspects of urban built form, infrastructure and services. But the crucial areas at the interface of these disciplines remain poorly understood: We would like to know more, for example, about the specific chain of causality by which improved urban infrastructure and services may enable economic activity and reduce poverty. How should such improvements be rolled out? Can incremental improvements to services have predictable consequences in terms of changes in local quality of life and business activity? Are they more sustainable financially? When are bigger scale public works essential?

Questions like these fall in between traditional academic boundaries and remain understudied. As a result, until recently several of the sciences of cities relied on simplistic conjectures and assumptions and remained under-constrained, and consequently were not set up to provide policy-makers with much needed predictive guidance.

But this situation is changing fast. The path to better scientific knowledge of cities is being opened by new empirical evidence—a proliferation of data—and by an expanded ability (and need) to create learning opportunities with each local intervention, to test and systematically expand our knowledge of urban processes. The latter are the result of new models of planning and policy—enabled by new scientific ideas and by technology—which are bringing practical action in cities closer to scientific methods of enquiry.

New data about thousands of cities throughout the world have created novel opportunities for comparative, quantitative studies of what is common, but also what is different between locations. Communalities speak to many basic but fundamental properties of all cities, big and small. Differences, on the other hand, exist at many levels, from individual and cultural characteristics, to physical geographies, histories, and levels of wealth, equity, and development.

Recently discovered communalities provide a general platform for collaboration across cities within nations, and internationally. First, regardless of levels of development or history, all cities should be first and foremost

seen as social and economic networks of people and organizations, embedded in a shared common physical space.[11] The main point about this simple observation is that the power of cities hinges on the realization of *network effects*, which are the fundamental dynamics that enable processes with greater economic productivity, faster innovation (civic and economic), and greater resilience.[12]

Network effect is a term borrowed from technology. It emphasizes that the power of networks lies in the fact that their value is proportional not to their number of nodes, but to the connections between them. This means that the prosperity of cities depends not so much in how many people they have (which is important, of course) but more fundamentally on their ability to connect with each other for mutual advantage. This emphasis on connection embodies familiar economic arguments at the basis of productivity and growth, such as the division of labor and knowledge and the exploitation of comparative advantage via trade and exchange. It also emphasizes fundamental ideas from sociology, such as collective efficacy (the means by which individuals in a society solve problems together), and the importance of heterogeneity and interdependence between individuals and organizations.

In this light, thriving cities are places where millions of strangers come together to explore how they can create economic and social complementarities that can lead to new, generative civic and economic enterprises. Such combinations are unlikely, unique, and often very valuable. They are also hard to create in an environment other than a city, which is why cities and urbanization are necessary conditions for fast economic growth. Thus thriving cities must facilitate social and economic interactions between different kinds of people by encouraging collaboration and accountability.[13]

In practical terms, thriving requires a systemic approach to physical infrastructure, services and socioeconomic life. For example, it requires good transportation infrastructure so that people can move and meet across the city. It also requires basic services and education so that people, especially women and children in developing cities, can become creative and entrepreneurial socioeconomic agents. And it requires a safe and collaborative environment where people with different histories, religions, races, and cultures can trust each other and hold each other accountable when things go wrong. Needless to say, we can all identify places and situations where things like this should work better than they do presently, along any of these dimensions. The solutions, though, may take different forms in different places, respecting local situations and contexts that cannot be easily copied from other cities and nations.

The consequences of network effects in cities are quite startling and profound. Cities exist with many different population sizes and densities. But network effects mean specifically that the number and value of socioeconomic products per capita increases with city size in a rather predictable way (about 16 percent with each doubling of the population), as connections between people increase faster than population.[14] This means that larger cities have larger economies per capita, and higher wages and rates of innovation, but also higher costs, by about the same amount. They are also denser, on average, by the same proportion.

It is this balance between higher pay and higher costs, and greater socioeconomic opportunities but less physical space, that on average makes living in larger cities a neutral proposition. This means that cities of all sizes have their own advantages and disadvantages. Whereas large cities often struggle with issues of larger inequality and more crime, intense use of infrastructure and therefore chronic repair needs, and limited affordable housing, they struggle less (relative to smaller cities) with innovation and economic development, or with attracting young and foreign populations. The latter are the predominant problems of smaller cities such as Santa Fe, New Mexico.

These comparative struggles matter for people at different stages in adult life: Individuals often cycle through different sized cities at different times in their lives. They tend to live in larger cities as young adults, where they build their social and economic lives and acquire human and social capital. Young adults typically care less about space and safety. Subsequently, older adults move to smaller or less dense areas as they become more established, have children, and reach the prime of their professional lives.

But while much progress is being made with understanding (mathematically) many of the general properties of cities, many crucial issues still require better science. These deal with understanding the incredible diversity (and inequality) that is immediately apparent in any city. To what extent are these heterogeneities "features" or "bugs"? How does a city promote an attractive, creative, and level playing field for everybody? How can safety be enforced without brutality or injustice? How can cities create productive inclusion for newcomers? These issues are being actively studied in practice and in theory. Their successful understanding and solution requires the kind of new tools and policies that we discuss next in order to bring science close enough to practice inside cities.

Technology: Smart(er) Cities

We have already pointed out the crucial role of technology (especially information and communication technologies) in enabling better knowledge and better practices in cities. These technologies are varied and fast changing. They include traditional elements of computing, now on every desk, with new uses, including digital data from sensors, maps, and surveys. They also include the new possibilities being opened up by smart phones, for such tasks as coordinating on demand services related to transportation, emergency response, or assisted living. Other new technologies, which can also synergize with information and communication technologies, are revolutionizing energy production (solar panels) and storage, transportation (autonomous vehicles), and health and environmental quality. Thus, the power of new technologies is better mapped in terms of their potential uses, the disruptions and possibilities they bring to urban life, and the capacity of local governments, businesses and civic organizations to use them to improve their current practices.

Many of these possibilities have been summarized in the push to create *Smart(er) Cities.*

In their initial conception by IBM and other technology companies, Smart Cities were essentially "better-engineered cities".[15] Early prototypes, such as the now scaled-back Masdar City (in the United Arab Emirates)[16], were thoroughly engineered urban environments where energy generation, transportation, water and sanitation, and other services were seamlessly integrated as an automated and "green" citywide system. Visions of automated cities, run by technology, go at least as far back as Le Corbusier[17] and the ideal modernist city, but these concepts have always failed to deliver liveable cities from a human-centric perspective.[18]

Consequently, the concept of Smart Cities is fast changing.[19] In the United States, for example, the recent White House initiative on Smart Cities has an objective to improve socioeconomic life and equity.[20] Recent initiatives in India and other nations seem also to have captured this emergent systemic zeitgeist and the primacy of socioeconomic issues.[21]

The use of technology at the interface of socioeconomic life in cities and their engineered systems requires an approach that is often fundamentally different from traditional engineering. Most early Smart City concepts relied on the idea of engineered control systems.[22] The most familiar example is the thermostat: it is not particularly smart, but it automatically adjusts a building's heating and cooling systems to maintain a chosen ambient temperature. Smart city concepts follow a similar logic: keep buses running on time, trash collected, power on, and other basic services working seamlessly

by continuously measuring levels of service and adjusting logistical management in real time. This may allow many city governments to perform their tasks more effectively and provide better quality of service, but it also introduces some rigidity into the nature of services and may erode their ability to adapt to rapid changes or unexpected events.

Such rigidity is, of course, anathema to issues for which we still don't have good automated solutions. We will give a couple of examples of our work in Santa Fe in the next section. Most such problems are socioeconomic, and deal with issues of development, innovation, economic growth, justice, equity, safety and security, among others. In these cases, technology can help in critical ways. But its uses are less about automation and more about supporting existing activities and helping solve difficult coordination problems between diverse stakeholders.

Action: Act Locally, Learn Globally

The convergence between the need to solve pressing problems in real cities and of deriving general knowledge from the aggregate of many such actions is what we call "act locally, learn globally." We propose this motto as a general principle for policy design, a means to anchor needed action to a large body of knowledge, and technology created by researchers, businesses and by other practitioners in other cities. The idea is that each local intervention can at once benefit and contribute to a growing body of practical and fundamental knowledge. Linking local proposals to the best science and practices is a process that can also help garner political support for action and speed up consensus.[23] Recent initiatives in the city of Santa Fe have been designed in this spirit.

911 Call Data and Emergency Medical Response

One issue tying together urban services is how emergency response—triggered by a 911 emergency line phone call—is being used overwhelmingly to provide medical assistance, especially to more vulnerable populations such as those with chronic conditions, the elderly, and the homeless. A 911 response is handled by the city's fire department, but it typically results in taking a subject to a hospital emergency room. As a result, fire department first responders are predominantly engaged in providing health assistance. An analysis of 911 call records reveals that the vast majority of responses results from just a few callers with chronic problems: about 0.3 percent of the city's population made up 18 percent of the city's 911 calls in 2014.[24] Thus the city has initiated a systemic program that targets providing better care to frequent callers. These groups often qualify for medical assistance

under the Affordable Care Act and other programs. The objective of the initiative is to improve health standards in the city, while better using fire department for fire protection, and saving health care costs. This solution has many of the ingredients described earlier in this paper: it addresses a multidimensional systemic problem; it is a collaboration with other cities and fire departments (in our state of New Mexico, and neighboring Colorado, and Arizona); and it is incremental but seeks tangible and constant improvement based on real time data. It also benefits from scientific analysis of these data from researchers at the Santa Fe Institute, who are creating assessment tests and predictive tools that support local action and embedding them into open-source simple technologies. We hope that the result of this collaboration will not only solve this issue in Santa Fe, but will create a system that can be used in any other city and constantly improved.

Carbon Neutrality by 2040

Like many other cities around the world, Santa Fe has recently passed a resolution to become carbon neutral by 2040. It has also joined the Compact of Mayors, an international network of more than 400 cities to create standardized and comparable measures of current greenhouse gas emissions and associated energy use.[25] The compact involves the United Nations, former New York City' Mayor Bloomberg, C40 cities, the International Council for Local Environmental Initiatives, and many other organizations dedicated to understanding and fighting climate change locally in cities.

Because Santa Fe's city government has limited resources and expertise to dedicate to this important issue, it created several working groups on the issues of sustainable development that include city officials, interested citizens with appropriate expertise, non-profit organizations, and researchers from the Santa Fe Institute and nearby Los Alamos National Laboratory. The issue of how to measure carbon emissions from all possible sources (e.g., electricity, heating, garbage, transportation) accurately and consistently over time presents a number of practical complexities that only a networked effort may be able to address. For example, it is difficult to obtain detailed data in space and time from utilities and businesses engaged in selling fuels, as in general no mechanism exists for disclosure, and these entities fear liability and competitiveness issues. It is also difficult to attribute emissions to consumed goods. A finer assessment of the lifecycle of products is ultimately necessary to create accurate measurements over time and to attribute them to various places of production, transportation, and consumption. For all these reasons, we believe that only a city-based but globally networked approach to energy use and accounting will ultimately

reveal the necessary data and produce the knowledge to effectively solve issues of climate change.

An especially exciting set of developments over the next few years in Santa Fe will be the transition between carbon inventory assessments and the effectiveness of different policies at reducing them. We see tremendous scope for peer-to-peer learning, tied to a quantitative scientific understanding of what works in these areas of local action.

NETWORKS OF LEARNING

Cities and local governments will always have limited financial and technological capacity. Being embedded into networks of other cities, non-profit organizations, researchers, and businesses is key to sustain learning and creation of technological know-how and practical progress. It may also help recruiting and retaining a workforce that is passionate about improving their city and has the technical skills badly needed in local governments.

A peer-to-peer collaborative model between cities and other institutions is already playing out in several important problem areas. For example, C40 Cities[26] and the recent international Compact of Mayors (to which Santa Fe belongs) are global initiatives to standardize the accounting of greenhouse gas emissions in cities and to promote innovations and collaborations to stop climate change. In the United States, the "my brothers keeper" initiative started by the White House, aims at creating a network of cities to address issues connected to disadvantaged youth.[26] The recently created MetroLab network brings together partnerships between research institutions and city governments to together develop practical solutions using ideas and technologies from scientific practice.[27] Several of the world's most prominent private philanthropy foundations, such as the Rockefeller and Bloomberg foundations, have recently created networks of cities dedicated to solving common problems. This includes the 100 Resilient Cities[28] network and What Works Cities[29] initiative. Non-profit organizations, such as Code for America,[30] also rely on a networking model between cities, businesses, and technologists to promote new technological adoption in local governments and innovation in persistent urban issues.

Thus, much like the dynamics of cities themselves, it is crucial to create technological platforms that enable network effects between cities and other urban stakeholders in order to drive global dynamics on innovation and sustainable development.

Models of Collective Knowledge Production

Central to networks of learning are new models of collective knowledge production, which came of age with the Internet. These models enable network effects that online take the familiar forms of Wikipedia, OpenStreetMap, Github and others.

The idea common to all these platforms is that knowledge and action can be combined and magnified tremendously in environments that are open, have very low entry costs (mostly time), and that can create knowledge incrementally relying on small contributions from many people over time. Though some existing examples[31]—Twitter and OpenStreetMap, in particular—have become important tools in issues of resilience (e.g., Haiti and Nepal earthquakes, Ebola crisis in West Africa), much more needs to be done to create technological platforms that support knowledge creation and action in cities, especially for civic purposes. The kind of collaborations we are developing with other researchers and governments require better mechanisms of exchange for data that are often sensitive. These collaborations also require sharing technology embedded solutions that are simple and can be readily modified to fit new uses and contexts. A set of recent proposals by the Presidential Council of Advisors for Science and Technology (PCAST) to the President of the United States explores mechanisms for the creation and management of a new set of enabling platforms for the use of technology in cities, and recommendations to facilitate the exchange of data and tools for creating more effective local policies and creating aggregate knowledge.

Further innovation in sharing and aggregating knowledge will be crucial to capitalize on the creativity and knowledge of billions of people living in urban environments, and to address urgent issues of sustainable development, justice, and equity everywhere.

Policy for Learning

Related to the collaborative use of technology is the issue of learning from each local intervention. The main goal of policy is to solve existing problems affecting particular people in specific places. The challenge is to ensure that knowledge of "what works" and "what doesn't work" can accumulate so that effort is not wasted on repeatedly reinventing the wheel. Thus, each local intervention can now, more than ever before, be formulated as a learning opportunity: each intervention has a goal and requires assessment. To the extent that such expectations can be stated clearly and assessments can test progress objectively towards them, one is in effect testing a hypothesis.

This is the only way we know to learn at a collective level. Thus, the formulation of policy as a mechanism for learning is essential. Thousands of such tests, happening in neighborhoods and cities throughout the world hold the promise of cumulating knowledge much more quickly and creating a large portfolio of solutions and best practices that can in turn be built upon and adapted in new places and problems anywhere. This eminently practical logic is the way science has progressed and provides the path not only to more effective policy but also to other opportunities, such as STEM education tied to local problems that are clear and present to most people involved.

The Role of National Policies

If cities are emboldened to solve many pressing problems of human societies, then what should be the role of higher levels of government? Should we think of a world increasingly governed in practice by city states? Or should the capacities presently developed locally be eventually taken over by national governments and international agencies? We believe that the answer is somewhere in the middle.

We alluded throughout this piece to the crucial enabling and coordinating roles of higher levels of government. They are uniquely positioned to help promote collaborations between cities, by funding integrative initiatives based on sharing local learning. They can also uniquely help set technology standards and best practices, as was done in part during the creation of the Internet. Another important dimension of what higher levels of government can do is to set the legislative environment that creates appropriate disclosures of data and guarantees privacy. Crucial examples at present are how cities may obtain energy use data from utilities or how medical records may be shared to create much more effective systemic healthcare solutions, involving emergency responders, social support civic organizations, hospitals, and other actors. Thus, national governments and international organizations are crucial to enable effective bottom-up innovation and collaboration emerging from local governments, entrepreneurs, businesses, and civic organizations.

CONCLUSION

Thriving cities must innovate and learn. This is no big news. But, what is new is that the means by which we learn and act as urban agents (governments, citizens, organizations) is changing quickly, empowering local action to tackle problems collaboratively of unprecedented scope and importance.

[1] Increased focus on cities.

[2] Good examples are the new sustainable development strategic plans put forward by many cities worldwide, such as NYC, LA, Tokyo or London.

[3]Cities peer-to peer climate change?

[4] An attempt at summarizing these issues was given in a recent PCAST report to the US President on Technology and the Future of Cities. https://www.whitehouse.gov/sites/default/files/microsites/ostp/PCAST/pcast_cities_report___final_3_2016.pdf

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[15] See as an example the IBM Smarter Cities initiative http://www.ibm.com/smarterplanet/us/en/smarter_cities/article/newyork2009.html

[16] Masdar: the shifting goalposts of Abu Dhabi's ambitious eco-city http://www.wired.co.uk/magazine/archive/2013/12/features/reality-hits-masdar

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Mary Walshok

A Systemic Approach to Accelerating Entrepreneurship

Extraordinary changes have taken place in the United States since the mid-1980s, when the passage of the Bayh/Dole Act, which allowed research institutions to license inventions coming out of federally funded grants, and the creation of the Small Business Innovation and Research (SBIR) program helped unleash an unprecedented era of innovation and entrepreneurship across the country. It is clear that the larger environment in which entrepreneurial enterprises emerge is critically important to the incubation, growth, and sustainability of wealth- and job-creating companies. We have a long history in this country of celebrating heroes, pioneers, and individual entrepreneurs, based on our deep belief in the power of the individual over his or her environment. However, increasing evidence suggests that environment, timing, and support can either enable or inhibit individual achievements, including successful entrepreneurship.

The 21st-century environment for innovation and entrepreneurship has become globally interdependent in terms of inventions, innovations, markets, production, and talent. Discretionary resources are dispersed, rather than being concentrated in the hands of a few individuals or companies. Thus, many of the policies and practices vis-à-vis incentivizing and accelerating entrepreneurship in the 1980s may be insufficient for the challenges of the 21st century. It may be time to rethink what it takes to accelerate innovation and entrepreneurship in a global knowledge economy.

My experience working in a community that completely reinvented itself over a 30-year period suggests that accelerating entrepreneurship is as much about community transformation as it is about helping individual entrepreneurs. Enhancing community capacity as it simultaneously sup-

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ported entrepreneurs was at the core of San Diego's strategy, especially the University of California, San Diego's innovative CONNECT organization, which was created to be a catalyst for technology entrepreneurship. Started in 1984, just as the larger environment that enabled more localized innovation and entrepreneurship was unleashed by less restrictive intellectual property and financial policies, CONNECT began with an explicit commitment to enhance community capacity as it simultaneously provided support to individual entrepreneurs.

SAN DIEGO'S TRANSFORMATIVE JOURNEY

In a nutshell, well into the 1970s, San Diego's economy had benefited from and leveraged federal relationships while supporting four wars—World Wars I and II, the Korean War, and the Vietnam War—and from the expanding military industrial complex that emerged in the late 1940s and 1950s. The military's growing appetite for advanced technologies built on good basic science, especially in the naval and aviation arenas, drove the growth of a major R&D sector. All of this activity was animated by concerns about defending democracy in the world and protecting national security on the home front. The remainder of San Diego's economy consisted of small businesses and booming real estate and tourism sectors. The result is that San Diego's economy throughout the 20th century and even in today's "new economy" has been and remains significantly dependent on military expenditures, which were close to 50 percent of the economy during the major wars and is approximately 25 percent today because of the installations and R&D activities going on in the region. However, the city's business culture has consisted of diverse small enterprises that collaborate and co-invest in a variety of initiatives, among which was assuring continued federal investment in the region.

The extent to which the military, and now the federal government more generally, has been the driver of economic prosperity in the San Diego region is the subject of a book I published with my colleague, historian Abe Shragge, *Invention and Reinvention: The Evolution of San Diego's Innovation Economy* (Walshok and Schragge, 2013). The story line, which is extremely relevant to contemporary discussions about accelerating entrepreneurship, highlights how important collaborative mechanisms, as well as an ambitious and adaptive civic culture, were to San Diego in its journey to becoming a major innovation hub. Supporting the development of new technology clusters and edgy, risky entrepreneurial enterprises, along with leveraging assets, especially land, has been a key component of the region's DNA for more than a century.

A distinguishing feature of San Diego's economic character is the fact that it has relatively few Fortune 500 companies, no significant history of multigenerational family wealth and influence, and little history of dominant employers, with the exception of the aerospace industry throughout World War II and during the Cold War. Lacking the traditional "anchor" institutions hosted by larger, older industrial cities, such as Pittsburgh, Detroit, St Louis, and even Seattle and Los Angeles, San Diego has had to rely for more than 150 years on coalitions of small businesses, collaborative initiatives between government and business boosters, and a unique relationship with the federal government that began as early as 1907.

> My experience working in a community that completely reinvented itself over a 30-year period suggests that accelerating entrepreneurship is as much about community transformation as it is about helping individual entrepreneurs.

In the 21st century, the features of San Diego's economy that were a liability during America's amazing agriculture and industrial growth—community practices and a social infrastructure that support, celebrate, and accelerate entrepreneurship—are now important assets. The San Diego story, and especially the story of CONNECT, an organization created by a group of civic leaders in partnership with UC San Diego, may have much to teach about which characteristics of community encourage not only individual entrepreneurs but also the growth of new business clusters driven by innovators and entrepreneurs on multiple fronts—communications, software, biomedical devices, pharmaceuticals, and sporting goods.

San Diego's transformative journey began early in the 1980s, when the entire Southwest was dealing with the implosion of the savings and loan industry, which resulted in bankruptcies and an overall decline in the powerful building and real estate financing industries, both of which had been major drivers of regional prosperity since the 1950s. This crisis was paralleled by a significant decline in defense manufacturing; in San Diego this included the aerospace industry and the Atlas missile. In fact, General Dynamics, whose workforce in the San Diego area at one time numbered 60,000, completely closed down over an 18-month period, leaving thou-

sands of engineers, technicians, and other workers without jobs by the late 1980s.

At this time, the entire country was coming to terms with the emergence of new global competitors, especially Germany and Japan: foreign cars, televisions, computers, and semiconductors were entering the U.S. market and significantly challenging U.S. industries that essentially had had a monopoly in their markets since World War II. There were many significant initiatives in response to these new global competitors, and to the decline of global market share, jobs, and the wealth of U.S. companies. Bayh-Dole, SBIR, and the deregulation of the banking industry were but a few.

Meanwhile, a consortia of industries interested in advancing technology in sectors where U.S. dominance was threatened came together to co-invest in major R&D and commercial centers. The Microcomputer Consortium in Austin, Texas, and Sematech in Northern Virginia are two examples. Smaller consortia were also developing across the country. In 1983 at UC San Diego, for example, 3M, Control Data, Eastman Kodak, and others joined with a local entrepreneurial company, Spin Physics, to create an R&D consortium around information storage for the computer industry. Their investment included hiring a full-time librarian, whose primary focus was Japanese and international research publications in the area of information storage and magnetic recording. These developments and perceived threats, which began to dominate conversations among industry and government leaders about challenges to America's competitiveness, had a profound impact on how regions in crisis began to think about new paths to prosperity.

San Diego began to develop strategies for engaging these new realities earlier than most cities. The city's long history of military-related R&D led to the establishment in the 1950s of institutes valuable to the military's technology needs. They were located on the Torrey Pines Mesa and included the new University of California, San Diego, which opened its doors in 1964. By the mid-1980s, the city's decision to give valuable land to organizations such as General Atomics, the Salk Institute, the Scripps Research Institute, and UC San Diego resulted in an array of basic research institutions that were attracting more than their fair share of funding from the Department of Defense, National Science Foundation (NSF), National Institutes of Health, and private foundations.

Although the robust basic research budgets for these institutions were clearly focused on advancing science and not on entrepreneurs who were commercializing technology, a number of companies were founded by the

talented individuals who had been drawn to the research institutions. This suggested to civic leaders that there might be potential to develop the region's entrepreneurial sector. The area already hosted entrepreneur-driven, high-growth companies that had been incubated on the Mesa contiguous to the rapidly growing basic research institutions: iMed and IVAC were founded by engineers working on the research vessels operated by the Scripps Institution of Oceanography; and military contracts related to satellite and wireless communications development were spurred by companies such as Linkabit and the groundbreaking biomedical company Hybritech, both of which were founded by UC San Diego professors. So at San Diego's moment of crisis, when large employers such as General Dynamics were beginning to downsize, a national furniture manufacturer was leaving, and efforts to attract R&D consortia had failed, regional leaders shifted their attention to growing more local enterprises that would draw on the technology applications emerging from the basic research being done on the Torrey Pines Mesa.

NURTURING AN ECOSYSTEM OF INNOVATION

In the summer of 1984, Dan Pegg, head of the San Diego Economic Development Corporation, approached Richard Atkinson, chancellor of UC San Diego, who had come to the school after six years as director of the NSF, where he had been a key player in the creation of both Bayh-Dole and SBIR. Atkinson was responsive to the idea of UC San Diego creating a school for entrepreneurship, with the goal of accelerating the kinds of success achieved by companies such as IVAC, a medical device company, Linkabit, a wireless communication company working with the Navy, and Hybritech, one of the nation's first biotech companies developing monoclonal antibodies for cancer drugs and other purposes. At that time, however, UC San Diego was firmly committed to being a basic research institution that primarily offered PhDs. It did have a medical school, but it was producing more medical researchers than practicing doctors. By 1984 the university had consolidated the computer science, electrical engineering, and applied mechanics departments into a division of engineering, but these departments also were graduating primarily doctoral students. The school's academic senate was adamantly against starting a business school or any applied professional schools, so the campus was ill equipped to create the kind of entrepreneurship education program civic leaders were advocating. However, the campus had developed a number of close ties to the technology companies on the Mesa through its extension division, in large part to

support Atkinson's desire to build links with local industry similar to those at Stanford University, where he was a professor for over 25 years.

In Atkinson's first two years at the helm of UC San Diego, the university's extension division launched an executive program for scientists and engineers, and a division of engineering continuing education that grew by leaps and bounds as it served engineers working primarily in local companies. I had been appointed dean of the extension division shortly after Atkinson's arrival, and as a sociologist I also had been studying the character of the local industry, its aspirations and needs. Chancellor Atkinson asked me to do a series of interviews with key technology leaders in the region to assess what UC San Diego might do to accelerate entrepreneurship and business creation, given the academic parameters within which we had to work. What we learned from this process proved pivotal to the region's development, and in the fall of 1984 it became the basis for the CONNECT organization, which has been credited by numerous sources (from Michael Porter to *Time, The Economist,* and the *Wall Street Journal*) with being the catalyst for reshaping the economy of San Diego.

What I learned from the interviews in San Diego varied enormously, depending on which player in the larger ecosystem I talked to. Leading attorneys, bankers, accountants, and marketing people in the region were quick to say that the only way to accelerate entrepreneurship in San Diego was to develop programs that taught scientists and engineers about business—how to assess the market value of their technology; to cost out what it would take to develop the technology; and to access customers, understand their competition and, eventually, build a winning business plan. The business service community was focused on the lack of traditional business skills among would-be entrepreneurs in the technology sector—skills without which the region was unlikely to start and grow more companies. Fortunately, I also interviewed some of the scientists who had built successful companies in the region, and their view was entirely different. They saw the absence of a tech-savvy business services community as the biggest challenge to accelerating entrepreneurship in San Diego. To a person they described how they had to go outside the city for their legal services, and how they had to recruit for marketing and human resources professionals and general managers outside of San Diego. Their view of how entrepreneurship was understood within the business community was that, if they "got" it at all, it was to build on an industrial model by creating products and companies for the local and regional market, and eventually to expand to national and international markets. This is what successful San Diego companies such as Price Club, Jack-in-the-Box, and WD40 had done. The

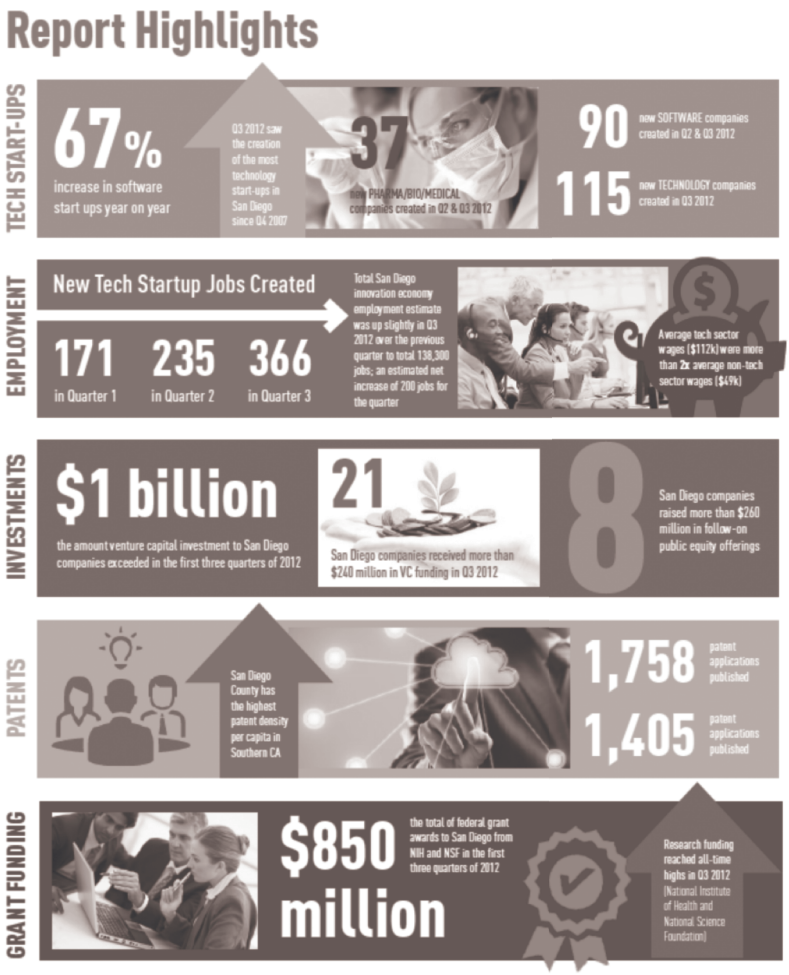


Figure 1. Summary of CONNECT impact from "2012 Innovation Report Highlights"

tech entrepreneurs underscored how important it was to understand IP, innovative financing, and global regulatory issues, and to tap into global sources of financing and build business strategies that were global from day one. The scientists asserted that this kind of competency did not exist within the regional San Diego business community.

With these inputs, a small advisory group that Atkinson and the CEO of the Economic Development Corporation had put together agreed that what was needed was some sort of organizational platform to change practice and align the two sectors, with UC San Diego acting as an honest broker.

The platform would provide education, training, and networking to create the knowledge flows between these two communities, enhance the competencies of each vis-à-vis new models of entrepreneurship, and in the process create a community of innovation and entrepreneurship, rather than just a set of mechanisms that would enable individual entrepreneurs to create individual companies. The strategy and insight proved pivotal to how CONNECT organized and launched its initiatives. It focused simultaneously from day one on enhancing community capacity and providing support to individual entrepreneurs. I had gone into sociology in part because of my interest in how the balance between individual problems and opportunities are shaped by a community's assets and gaps, and thus I was energized by the consensus that had emerged—what C. Wright Mills described as the connection between private problems and public issues (Mills, 1959).

The two contrasting views of what was needed to accelerate entrepreneurship in the San Diego region in the early 1980s became two interlocking themes within CONNECT over the next 20 years. Today most scholars and planners recognize that innovations in science and technology are supported by an ecosystem of complementary competencies and resources, but in the 1980s the CONNECT organization was distinctive in that it was set up to become the hub or connective link within the San Diego region's ecosystem of innovation. Its mission and goals, which were spelled out in a simple one-page statement, reflected two primary themes: the need to develop more sophisticated science and technology product development knowledge within the business community, and to develop more financial, marketing, and management intelligence within the scientific community (Walshok 2009).

One key characteristic of CONNECT is the frequency and intensity of the interactions it facilitates, which included more than 80 programs a year in its early days and more than 200 programs a year today, all of which have focused on both sides of the coin. Scientific briefings targeted to business, finance, and legal professionals such as Meet the Researcher, Frontiers of Science, and Stem Cells on the Mesa create forums through which business professionals can learn about the latest breakthroughs in science and technology and their potential applications down the road, whereas global strategies for financing high-tech companies and marketing bio-companies globally are examples of topics of value to entrepreneurs and business professionals alike. Programs such as Strategies for Financing High-Tech Companies, Springboard, which provides peer review of early technology ideas and business opportunities, and Meet the Entrepreneur help build the competencies of would-be entrepreneurs.

CONNECT is important not simply because of its programs but because of the extent to which all of its programs rely on the knowledge and insights of experienced entrepreneurs and professionals. It relies, for example, on panels of entrepreneurs in the medical device sector, who describe their experiences while a savvy moderator sums up the lessons or principles that come out of this experience. This sort of education has proved extremely helpful for entrepreneurs and would-be entrepreneurs, particularly in the technology arena. Another distinctive feature of CONNECT is that it offers a number of celebratory events and social activities that have helped to define and affirm the San Diego region's community of innovators and entrepreneurs. The Most Innovative Products of the Year Awards, for example, are like the Oscars for nerds. The Entrepreneur Hall of Fame celebrates the achievements of entrepreneurs who have built enterprises of substantial value but may not be known among the general public. CEO dinners and wine socials at law firms and incubators create opportunities for local innovators to interact informally. In sum, over a 30-year period, CONNECT has been instrumental in building a community of innovation and entrepreneurship, and in seeding a variety of complementary intermediary and trade organizations relevant to the future of the region's entrepreneurial economy, such as BIOCOM and CommNexus.

The results of not only CONNECT's efforts but those of the whole region to grow the innovation economy and support entrepreneurs and startup enterprises are demonstrated dramatically in CONNECT's "2012 Innovation Report Highlights" (see figure 1).

ESSENTIAL COMPONENTS OF A SUCCESSFUL STRATEGY

If one looks at the key components of an entrepreneurship accelerator such as CONNECT, it becomes clear that certain principles are embodied in its governance, financing, and activities that enable both the growth of an ecosystem of innovation and entrepreneurship and the acceleration of individual entrepreneurial activity, as measured over time by startups and successful companies. In a chapter from a book on developing university/industry relations, I described the essential components of the CONNECT program as follows:

1. CONNECT enables cross-professional knowledge sharing relevant to innovation.

CONNECT is a platform through which the business community, the research community and the innovation community made up of entrepre-

neurs and investors can regularly interact around issues of mutual concern, learning from one another, not only principles of business and entrepreneurship but from the on-the-ground experiences, practices, and needs of colleagues. This in turn builds the kind of trust that enables continuing collaboration and, most especially, willingness to share risk.

2. A risk-oriented culture adept at managing uncertainty may be the sine qua non of entrepreneurship-rich regions.

The growing understanding among the business community of the multiple factors that need to be addressed in the startup process and the varied resources that can make or break a startup company have significantly helped local companies. In San Diego, more than most regions I have studied, expensive attorneys, consultants, marketing experts, even accounting and venture capital professionals contribute a great deal of pro bono time to help the new entrepreneur with a lot of front-end knowledge, assistance, and advice. As a technology becomes a product with the promise of business creation, the companies and the consultants realize there may be a return to them in a new customer or a new service contract.

Thus the pro bono work becomes a type of longer term business development opportunity. Nearly all of CONNECT's activities are pretransactional, with CONNECT and its advisors receiving no direct monetary benefits in the early stages. Operating costs for CONNECT ($3 million) are covered primarily by memberships, underwriting, and selected event fees.

3. An additional distinctive feature of CONNECT is the extent to which it provides an integrated platform through which all members of the eco-system eventually interact.

Platforms such as these represent more than simply a collection of networking activities and events; they involve stakeholders in a variety of meaningful interactions that produce three sets of benefits that are sufficient to retain the commitment of hundreds of business professionals to providing services over multiple years. Successful integrative platforms do the following things, based on our experience:

(a) *They organize activities and harvest experience and knowledge that help validate ideas or provide truly meaningful input.* This is accomplished in large part because of meticulous attention to aligning the experience and knowledge of advisors with entrepreneurs; in technology assessment, business planning, and financing companies;

(b) *They occur in a setting that is pretransactional and completely open.* Ideas and plans can be discussed, criticized, and adapted in a highly col-

legial manner in advance of any "official" presentations. What results is a culture in which ideas are not stolen and side deals are not made. People therefore feel confident that sharing in a collegial manner is not a threat but an opportunity;

(c) *People learn about one another, their chemistry, their personalities, and not just about specific technologies or a business plan.* We have done research on members who contribute endless hours to various CONNECT mentoring, evaluation, and education programs. The comment that comes back time and time again is that the value of participating is not only providing support to an entrepreneur or a would-be entrepreneur but learning about the personalities, capabilities and culture of peer service providers and colleagues in the legal and business service environment.

The net effect of all of this is that people can identify pretransactionally potential partners or service providers they would be most comfortable working with.

4. A fourth principle that has emerged from the CONNECT experience is the importance of multiple gateways to the scientific community, as well as to the business community.

The frequency and diversity of activities and the wide range of topics and talent that are brought into the CONNECT program in any given year enables a multiplicity of issues and technologies to be addressed. In addition, the San Diego experience, which began in 1984 with the founding of CONNECT, over the years has witnessed the proliferation of regional intermediary institutions, each of which has a valuable role to play, none of which are directly competitive. A biotech company, for example, could be a member of CONNECT, a member of BIOCOM an industry trade organization, a supporter of the Von Liebig Entrepreneurism Center activities within the School of Engineering as well as an industrial affiliate of the School of Medicine. Many communities worry that too many organizations will result in competition and redundancy, but the overlapping networks serve to reinforce the culture of innovation and entrepreneurship in the region.

5. A final principle that we have concluded is an invaluable lesson learned from the CONNECT experience is how important a culture of co-investment and reinvestment is to sustainable entrepreneurial regions.

By reinvestment, we mean that the beneficiaries of programs or of company success reinvest some of the profits or benefits they have received back into

the innovation/entrepreneurship community. This begins with sharing knowledge and relationships and through contributions of personal time, to mentoring, speaking, and evaluating technology and business plans; in other words, a contribution of personal time. However, it also includes actual financial reinvestment. In San Diego, the growth of the Tech Coast Angels is an example. It numbers more than 150 individuals using the offices of CONNECT to run programs that enable early investments in promising ideas. It also is manifest in the significant growth in philanthropic support for the core research enterprises in the region. The San Diego region over the last 30 years has added in excess of $2 billion in new foundations and endowment funds. These institutions, in turn, are investing hundreds of millions of dollars in endowed chairs, fellowships, research facilities, and even scholarships and programs for high school students in science and technology topics. It is clear that the innovation and entrepreneurship community that has developed in San Diego is one that remains here in large part because of the quality of life, but it is also one that reinvests here, both in terms of time and philanthropy, including increasingly in the gifts to the CONNECT organization itself (Walshok 2009).

CONCLUSION

I wrote this essay to help broaden thinking about future strategies for accelerating entrepreneurship. The scholarly literature has given an enormous amount of attention to such things as university technology transfer and IP policies, business-planning competitions and entrepreneurship education for undergraduates, and the complex financing needs of technology-based startups, especially for proof of concept and clinical applications development. Less attention has been focused on the importance of the larger ecosystem in supporting emerging entrepreneurs on their journey to convert a promising idea or technology into a viable business that can create jobs for the region, as well as revenue that contributes to the local tax base and, eventually, to philanthropy. The San Diego experience and the catalytic role played by CONNECT represent an interesting case of an organization that focused from day one on building an ecosystem that broadly supported innovation and entrepreneurship, and not just a narrow set of issues related to individual entrepreneurs. In other writings and forthcoming articles, my colleagues at UC San Diego and I document many of these ideas through comparative regional studies, as well as quantitative analytical work on the cultural and social dynamics of innovative regions. At its heart, the CONNECT story is about changing the business culture and changing the social dynamics of the San Diego region. My hope is that the outcomes

described in this essay help make the case that a systemic approach to accelerating entrepreneurship has great promise.

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Rich Barton

Power to the People
Revolutionizing Businesses with Transformative Ideas

It has been more than 30 years since I first saw the Apple commercial directed by Ridley Scott (*Blade Runner, Alien*) that aired during Superbowl XIII, which introduced the Macintosh to the world. The ad shows a young woman, a "revolutionary," breaking free of the homogeneous life that George Orwell portrayed in his novel *1984.* She takes it upon herself to step outside the lines and to break through the boundaries of order by taking a mallet to a giant screen that is projecting Big Brother's talking head as drooling drones are staring at him blankly and nodding.

The commercial aired only once. The imagery and words clearly stated that Macintosh would show us "why 1984 won't be like *1984*." With that one commercial, Steve Jobs told us Apple would not conform and was set on changing the world. *Revolution.*

I was 16 at the time, and that TV spot moved me. As a young man growing up in a sleepy suburb of New York City, I was in search of my own revolution. I was struck by how powerful freedom—or a lack thereof—could

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be. Why? Because freedom is innate to our species. People don't want to be drooling drones. We want to be free.

This instinctive need for freedom has been a catalyst and an inspiration for revolutions around the world for centuries, and we're seeing this play out in many economies today.

At a more mundane level, revolutions are also taking place in industry after industry around the world: travel, financial services, employment, newspapers, retail, movies, music. Technology is the driving force behind these revolutions. Just about every industry has been, or is in the process of being, revolutionized by young companies wielding new technologies as their weapons, which they are using to take power away from the incumbents and give it to the people—to everyday consumers.

This hunger for freedom and an innate drive to empower consumers is also the spark of the ideas behind my philosophy of company creation and investment—what I call "power to the people." Revolutionary companies give power to the people, which they use to disrupt entrenched incumbents and usher in a new order.

THE EXPEDIA CONCEPTION

Ten years after I saw that Apple commercial, I found myself in Redmond, Washington, working for Microsoft as a product manager. It was there that I first became enamored of the revolutionary possibilities of the Internet. This was in 1994 and before Mosaic and Netscape, so the graphical World Wide Web had not yet happened. Back then, the Internet was a command-line thing primarily for geeks, academics, and the U.S. government.

During that time, I became a frequent business traveler and was incredibly frustrated by how hard and time-consuming it was to purchase airline tickets, hotel rooms, and rental cars. I would talk on the phone to a travel agent and hear the "click click" of her fingers on the keyboard as she browsed the mainframe reservations systems. I remember feeling incredibly powerless. What did she see that I couldn't? I wanted to jump through the phone and turn the monitor my way so I could do it myself. I wanted the power. I wanted the information set free. My frustration led me to the conclusion that one of the first major markets that would be revolutionized by the Internet would be travel, and an idea was ignited.

Microsoft was still relatively small at the time, and even though I was only 26, I was given a chance to pitch the Expedia idea directly to Bill Gates and Steve Ballmer. With my business plan in tow, I told them about my big dream of how connected PCs would eventually empower people all over the world to make and take better trips, and how this could dramatically

reshape a trillion dollar industry. I told them that Microsoft could one day become the largest seller of travel in the world. Of course this sounded crazy, but it was also crazy interesting. After a little contemplation, Bill Gates gave me the green light and funded what would become Expedia. To this day, I think of him not only as a mentor but also as my first venture capitalist.

Because I knew that a big travel agency was not going to be at the core of Microsoft's software mission, I quickly pitched Bill on allowing this new venture to operate as a separate company. We instead decided to incubate it within Microsoft and would reevaluate spinning it out later if it took flight. I was fortunate to be able to hire the smartest, most entrepreneurial people at Microsoft to join the Expedia team. Selecting the right team can mean the difference between success and failure, and when you have the right team, it is vitally important to make them meaningful owners of the company. In fact, I've learned that, at least to a point, the more of the company employees own, the bigger the outcome for everyone.

We officially launched Expedia in 1996 on the very young graphical World Wide Web, and it took off immediately. We grew significantly over the next three years, and we were confident that we could actually become the largest seller of travel in the world. But, we needed capital—lots of capital—to invest in marketing and television advertising to increase awareness of the Expedia brand. That is when Microsoft set us free. In 1999, 148 of us spun out of Microsoft in an IPO that raised approximately $80 million in growth capital, and we took flight. Expedia now sells about $40 billion in travel each year.

I left the company in 2003, when it was bought by Interactive Corp., and I have since taken the power-to-the-people approach in creating other new companies. In 2005, a number of former Expedia compatriots and I started Zillow to tackle the information asymmetry that existed in residential real estate. Then, in 2007, again with former Expedia colleagues, I cofounded Glassdoor, which introduced a new level of transparency around jobs and employers.

THE RISE—AND VALUE—OF POWER-TO-THE-PEOPLE COMPANIES

By setting information free and putting valuable data and tools in the hands of consumers, people are empowered and marketplaces thrive. This approach is revolutionizing a number of industries and building big businesses. For example:

- Amazon has completely changed the face of retail by empowering people

to shop wherever and whenever they please for whatever they want, and delivery happens as fast as they desire. Amazon is now the ninth largest retailer in the world, and I expect it to become the largest in the not too distant future.

- Yelp and TripAdvisor have collected millions of user-generated reviews, which enables just about every business in the world to be indexed and rated. I firmly believe that if something can be rated, it will be rated. The people's voice will ultimately be heard, no matter how uncomfortable that may be for those being rated. User-generated content ratings models are particularly interesting because they create a virtuous cycle—that is, the more reviews TripAdvisor has, the more visitors they get; the more visitors they have, the more reviews they get. And so the virtuous cycle turns.
- Netflix, where I serve on the board of directors, has revolutionized the way people shop for and watch filmed entertainment in a growing number of countries around the world. It started with a simple disruption model of shipping DVDs, which changed how consumers thought about in-home entertainment. A trip to Blockbuster was no longer required; all people had to do was open and close their mailbox. Netflix now has 50 million subscribers who stream movies and television programs, including a growing slate of original productions like the Emmy-award-winning *House of Cards,* to their televisions, tablets, PCs, XBoxes, and smartphones. In the U.S., one-third of all prime time downstream Internet traffic now consists of subscribers streaming Netflix.
- Zillow, where I am now executive chairman, gives regular people access to comprehensive real estate information on every home in the United States. This is anchored by the "Zestimate," an estimated market value of every home in the country that is updated every night. Before Zillow's launch there were commodity "for sale" listings websites, which were owned by the industry, but Zillow was the first site to pull back the curtain on a world of information that had previously been hidden from consumers. Zillow is now a public company and the largest U.S. real estate marketplace. Nearly 89 million users visit our website and mobile apps each month.

Building products that empower consumers can lead to large businesses. These five companies and others like them have succeeded because they have leveraged new technologies to make new information and services available to consumers. If you can attract and serve a large audience of consumers, you can attract capital and investors. The power-to-the-people companies described above together have more than $53 billion in market capitalization.

The Global Rise of Entrepreneurship

Participating in the fourth annual Global Entrepreneurship Summit in Kuala Lumpur was an incredibly rewarding experience. In addition to giving the keynote speech, I was invited to participate in multiple events that exposed me to a large number of the young entrepreneurs participating who came from all corners of the globe. I also participated in a press conference and round table with the U.S. Secretary of Commerce, Penny Pritzker, and judged the final competition of the Global Startup Youth—which was possibly my favorite part of the conference. Global Startup Youth brought 500 young people, ages 16-25, from around the world and broke them into 50 teams. Each team had 48 hours to dream up and build a smartphone app, which they then presented in a Shark Tank-like competition in front of the crowd. The raw energy and creativity emanating from the participants was truly awesome. I admit that I found myself sneaking out of the dignitary dinners with the guys in suits to find the Malaysian satay buffets that fueled the kids wearing T-shirts and flip-flops. The rise of entrepreneurship in that part of the world felt like destiny to me, as long as some modicum of political stability predominates.

As our world gets ever smaller and the entrepreneurial spirit breaks through the binding chains of legacy infrastructures that have stifled innovation and competition, inspiration and innovation will rise. In fact, I had the opportunity to look into the eyes of those making it a reality already.

In April 2014, I was honored to be named a Presidential Ambassador for Global Entrepreneurship by President Obama, and am now working closely with Secretary Pritzker and my fellow ambassadors to help spread Western-style entrepreneurship and capitalism to other parts of the world. This work has reminded me that none of us should take good government for granted. Despite being frustrated at times, we in the U.S. owe a great deal of our own business success to an unusually fair and transparent government.

Whether as a fellow entrepreneur, investor, educator, media representative, or government official, I highly recommend plugging in to the global rise of entrepreneurship.

LEVERAGING BHAGS

A critical ingredient for turning ideas into successful businesses lies in management's ability to define and motivate the team around a "Big Hairy

Audacious Goal," or BHAG. Author Jim Collins, who wrote the iconic business book, *Good to Great*, talks about this principle in detail. At Expedia, our BHAG was to become the largest seller of travel in the world. In Microsoft's early years, Bill Gates provided a clear vision of what he thought the future could and should look like when he spoke of the company's BHAG: a computer on every desk and in every home running Microsoft software. At Google nearly two decades later, Larry Page and Sergey Brin's BHAG was to organize the world's information and make it universally accessible and useful.

And, BHAGs go beyond business. In 1960, President John F. Kennedy challenged the United States to "land a man on the moon and return him safely to earth." Less than a decade later, astronaut Neil Armstrong stepped onto the surface of the moon and uttered the timeless words: "That's one small step for a man, one giant leap for mankind."

When communicated clearly by passionate leaders, BHAGs can work. To a certain extent they are self-fulfilling. Creating a BHAG for a company is somewhat like painting a mental picture of Mt. Rainier, a 4,400-meter peak near Seattle. It is about creating a vision so compelling and important that people—employees, recruits, partners, customers, the press, investors—want to join you in your effort to reach the summit. The reality is, we all want to be a part of something larger than ourselves, and a BHAG can galvanize people around a common mission and help them visualize standing together at the mountain top high above the clouds, arms raised in triumph.

THE IMPORTANCE OF VIBRANT ECOSYSTEMS IN CREATING ENTREPRENEURIAL OPPORTUNITY

Another critical factor in turning revolutionary ideas into thriving businesses is the market in which a startup is operating. Obviously not every entrepreneur and idea is born in Silicon Valley. Seattle, for example, where I started Expedia and Zillow, offers entrepreneurs a healthy idea startup ecosystem. In fact, burgeoning startup ecosystems are being created and nurtured around the globe. As I travel around the world, I see more and more markets ripe for development.

I regularly observe three key ingredients in a vibrant startup ecosystem, regardless of the location: good government, access to talent, and access to capital. I think of these ingredients as a metaphor for what you need to grow a healthy garden: soil, water, and sunshine.

- **Good government:** The soil. Fair representation in government policymaking is crucial to enable startups to compete on a level playing field

with more established incumbents. Startups cannot thrive in an ecosystem where the corporate heavyweights control taxation, regulation, and law. A startup ecosystem must offer a level playing field and provide fair access to entry.

- **Access to talent:** The water. A continuous flow of well-educated graduates is fundamental to startup ecosystems. Silicon Valley, for example, has Stanford and Cal Berkeley, while Seattle has the University of Washington. Local businesses and startups should reach out to partner with the professors and graduate students at local universities. They can hire undergraduate interns during the summer, cultivate the supply of potential talent, and give students reason to stay in the area after graduation.
- **Access to capital:** The sunshine. At some stage of a startup, the founders need to determine if and when they will raise money, and how much. Any money is good, but smart money is much better. The experienced people behind smart capital will be helpful in building and growing a company. In Seattle, for example, Microsoft, Amazon, Starbucks, Boeing, Expedia, and others have created huge amounts of personal wealth among founders and employees. Some of this money has been recycled through angel investors into seed investing, which encourages new company creation, and through professional venture capitalists, who are needed to get most startups beyond the seed stage. For entrepreneurs, networking and building relationships with angel investors and venture capitalists before they are needed can make all the difference when they do.

Another vital aspect of attracting smart capital is the likelihood that investors will have a positive exit, whether through an IPO, acquisition, or buyout. If an angel investor or venture capitalist sees no likely opportunity to make a positive exit, they will have no reason to invest in the first place.

THEN THERE WAS MOBILE: THE DEVICE THAT HAS CHANGED EVERYTHING

When Steve Jobs introduced the iPhone in 2007, he said, "Every once in a while a revolutionary product comes along that changes everything." Apple was at the forefront of the personal computer revolution when it introduced the Macintosh; with the introduction of the iPhone, Apple changed everything—again. It essentially created a new Internet and a new platform—the mobile Internet.

During one three-month period in 2013, 250 million new smart mobile devices were activated worldwide. This is larger than the entire Internet at the time Expedia launched. Today there are seven billion Internet-connect-

ed mobile devices—more than the number of people on the planet—with much of the growth occurring in Asia, the Middle East, and Africa.

As an investor, I no longer consider investments in companies without a mobile strategy, as any company not focused on mobile will not be around in three years to wonder what went wrong. Accessing the world through a handheld device is one of the most significant forms of power to the people we have ever seen. Mobile is not the future: the future is here.

GO FORTH TO CHANGE THE WORLD

Revolutionaries love disruptive new ideas that empower people to overthrow the old guard. New entrepreneurs start revolutions every day. I challenge today's young entrepreneur-revolutionaries to explore the globe's unlimited possibilities, define a BHAG, shape their own ecosystems, and go forth to change the world. Power to the people!

Sabeen Mahmud

Creative Karachi

Establishing an Arts & Culture Center for the World's Most Rapidly Growing City

Innovations Case Narrative:
PeaceNiche and The Second Floor

Twenty-four years ago, I fell in love for the first time—with a Macintosh Plus computer. It had a tiny 9-inch screen, an 8-MHz processor, 1 MB of RAM, and no hard disk. It was the computer for "the rest of us," and it profoundly altered the course of my life. As Steve Jobs said, you can only connect the dots looking backwards, and I now realize how significant the Mac was in shaping my anti-establishment, anti-war, pro-freedom worldview. The Mac became a portal into myriad subcultures, from beat poetry to the Yippies, fueled by the dark meanderings of Pink Floyd. My mother, Mahenaz, stoked my socialist tendencies, and my mentor Zak, who was in attendance at Woodstock, introduced me to Lenny Bruce, Abbie Hoffman, *The Whole Earth Catalog,* and a host of revolutionary Urdu poets. I slipped into a solitary stupor for a couple of years and taught myself programming and the essentials of graphic design, while living the counterculture dream in my head. Who needed people when one had MacPaint, MacDraw, MacWrite, Tetris, Pink Floyd, and Party Slims Chili Chips (Karachi's equivalent of Jolt Cola)?

I spent my college years, the early 1990s, valiantly trying to drop out. Just about everything, however mundane, was more exciting than the stifling confines of a classroom. Around this time, I started developing a conscious, virulent distaste for traditional education. I wrote a lot of bad poetry and started getting involved in protest movements. Whenever I returned to

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Sabeen Mahmud was killed in Karachi on April 24th, 2015.

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Karachi from Lahore, I'd run straight to Solutions Unlimited, an Apple Computer dealership where I learned how to solder wires, install hard drives, and swap motherboards, for intellectual respite and rejuvenation. Zak would further corrupt my mind and make me believe that it was entirely possible to recreate the hippie movement of the 1960s in Karachi.

How could we become agents of social change if our theater practitioners had no rehearsal spaces, if our underground musicians had no venues to perform in, if our emerging artists had nowhere to hang their work? How could creative dissidents even learn of each other's existence, let alone build and cultivate a community, without physical spaces where people could talk politics?

After college, I spent the next several years developing multimedia products and exploring the intersection between technology, art, literature, and music. The dotcom boom brought with it a deranged sense of empowerment that led me to believe that anarchism could work and that the Internet would enable us to topple corporations. Then many bubbles burst and reality set in. I built websites by day and picketed by night. But, by the mid-2000s, consumed by my awareness of the military-industrial complex, I was getting increasingly restless. Karachi was a cesspool of chaos, "clean-up operations," and fragmentation. People were leaving in droves, our politicians continued to make promises they had no intention of fulfilling, and the country lurched from one military dictatorship to another. People had become apathetic and a sense of hopelessness engulfed the city. All my friends had gone to university abroad and had chosen not to return. I began to wonder why I was wasting "the best years of my life" helping behemoths like Unilever and Shell peddle toothpaste and motor oil. It was a depressing time and I experienced my first existential crisis. I accepted an offer to move to Delhi to oversee web strategy for a public interest journalism initiative.

BEGINNING TO DREAM

While waiting for my visa to come through, I started fantasizing about creating a public space for free speech and creative expression. I had long conversations with myself: How could we become agents of social change if our theater practitioners had no rehearsal spaces, if our underground musicians had no venues to perform in, if our emerging artists had nowhere to hang their work? How could creative dissidents even learn of each other's existence, let alone build and cultivate a community, without physical spaces where people could talk politics? In fact, years of military rule, terrible violence, and a range of other events had stripped people of their political will and the desire to be the change they wished to see. I had grown up hearing stories about Pakistan's teahouses where poets and revolutionaries would gather, and I had seen countless photographs of inspirational leaders from the women's movement being tear-gassed for demanding their rights. What would it take to create a space that espoused liberal, secular values through its programming and projects? I wondered if I could create a minuscule postmodern hippie outpost, a safe haven for artists, musicians, writers, poets, activists, and thinkers—essentially anyone who wanted to escape the relentless tyranny of the city for a little while. If I built it, would anyone come?

Years of military rule, terrible violence, and a range of other events had stripped people of their political will and the desire to be the change they wished to see.

The next day, the conversation moved out of my head and onto a whiteboard. I sketched out a fantasy space: a large open courtyard for theatre, dance, spoken word and improv performances, readings, talks, and film screenings. All around the courtyard would be smaller rooms for workshops and events, a bookshop, a coffeehouse, studios for artists and designers, shops for artisans to showcase their work, and a bed and breakfast that would pull in some income to subsidize operations. With Rs. 12,000 (about USD$113) in my bank account, I asked my accountant to run across to a real estate agent and check out the cost of land. He came back with a ridiculously astronomical figure with dozens of zeroes. I was paralyzed into inaction for months. Ignoring the wisdom of my elders, I remained adamant about creating an ambitious project that would include all of the compo-

nents above; without them it would be pointless. I blame Bruce Springsteen and his lyrics, "I want it all or nothing at all."

Toward the end of 2006, I was walking up the stairs to my office and the penny dropped. I realized that the grownups were right: I should start small, test, and iterate. However, even the tiniest of ventures needs money, especially one involving bricks and mortar. I have a terrible relationship with money and my biggest fear has always been falling in love with an investment banker. I have lived by Buckminster Fuller's aphorism, "You have to decide whether you want to make money or make sense, because the two are mutually exclusive." As a result, despite being the COO and cofounder of a well-respected technology/design company with great blue-chip clients, I had a pittance in my bank account. Zak once said, "It doesn't matter if you can't swim—jump right in but just make sure the pool has water." My mother has also consistently encouraged reckless behavior. So, trained by those key people in my life, I took a leap of faith.

My office was on the second floor of a building in what is commonly referred to as a posh area of Karachi. We had recently vacated a space on the same floor and I figured it would make sense to start from there. It had 1,800 square feet, an open(ish) plan, and two toilets. I had narrowed down my long list of desirables to a combined café, bookshop, and performance space. I placed calls to the landlord, a coffee machine dealer, a book publisher, a carpenter, and a mason. The landlord said the space was still available and we made a verbal agreement on the phone. The coffee machine dealer said, come over in an hour's time. The mason showed up 15 minutes later, and I set up a meeting with the publisher for the next day.

I truly respect people who have the patience and ability to make business plans, but I am not blessed with either attribute. So, the next morning I told the mason to knock down a wall and showed the carpenter my designs for tables and chairs. Using OmniOutliner, I produced a detailed plan. Game on.

The next morning, I suddenly remembered my Delhi plan—I had decided to leave the country. Another moment of crisis. But a very short one. Home to over 21 million people, Karachi has earned the dubious honor of being the world's most dangerous megacity. Wracked by violence and crime, it is governed by multiple realities and unknown overlords. It is dysfunctional, messy, incredible, and insanely loveable—and I cannot bear the thought of living anywhere else. With that decision out of the way, I inconveniently remembered that I had no money whatsoever and had just ordered a coffee machine, a coffee grinder, and lots of pretty pine furniture.

FINDING SOME MONEY

I had decided that this little social enterprise in the making was to be a not-for-profit venture. I took this decision because I wanted to make meaning, not money. I recognize that making money is critical for any endeavor to succeed and survive, but maximizing profits and creating value for shareholders were hardly matters of interest to me. With the nonprofit model, raising capital from investors was not an option. My mother is a teacher and works for a nonprofit organization; we had no savings, no land, and no jewelry to sell. Banks don't give loans to people like us, and most people couldn't comprehend exactly what I was trying to do anyway.

A few months ago, my maternal uncle, based in London, had sent over Rs. 1,000,000 (about USD$9,400) for my grandmother's health fund. He advised us to stow it away for a rainy day. With no money on the horizon and immediate bills to be paid, I decided to take the cash and run. I told my grandmother what I was planning to do and assured her that if she fell ill, we'd give her a triple shot of espresso that would either cure her or kill her. After a jolly giggle, she gave me her blessings. The following year, she suffered a heart attack and needed a quadruple bypass, and then had colon cancer. "It never rains around here . . ."

Entrepreneurship involves a great deal of fire fighting. You lurch from one disaster to the next, and in between you try to get some work done and do your best to remember the cause for which you decided to give up any semblance of normalcy in your life—with a straight face. Also, if you're nit-picky about details—and I am a pixel pusher to the point of neurosis—you find yourself losing sight of the forest for the trees. This really used to frustrate me, but I learned to remind myself that forests would not exist without the trees. You just have to pull the all-nighters, find time for big-picture thinking, sweat the small stuff, and try not to feel sorry for yourself as you keep signing checks.

In January 2007, we christened The Second Floor (T2F), and I got to work on the legalese. Although it was tempting to skip this step, I wanted to go through all the proper procedures of registering a nonprofit organization. When I sat down to work on the Memorandum of Association and the Articles of Association, I realized this was a time for big-picture thinking. After some quick consultations and brainstorming, PeaceNiche was born, and T2F became its first project. As "intellectual poverty alleviation" lies at the heart of PeaceNiche's mission, we wrote up the articles in a way that would let us add projects in the areas of arts and culture, science and technology, and advocacy, as we expanded. PeaceNiche was finally registered on

April 21, 2007, under the arcane Societies Act of 1860.

The target launch date for T2F was set for May 2007. In February 2007, I locked myself in a room for two days and designed the logo, branding guidelines, a concept note for public consumption, and a single-page website with an opt-in mailing list form. I sent the concept note to family and friends and asked them to pass it along if they liked the idea. The website also went live and—to my great surprise—people started to sign up. In the meantime, I was frantically reading up on cafés, bookshops, art galleries, and event programming while scavenging for cash on a daily basis, and trying not to murder our wonderful carpenter, who, despite living for decades in Karachi, only speaks an unintelligible dialect of Punjabi. The health fund money was long gone. My mother and a dear family friend wrote some checks, and I reached out to my uncle again. I also wrote a do-or-die letter to the founder of the South Asia Foundation, a wonderful, kindly gentleman whose son got very, very rich just before the dotcom bubble burst. A remittance for USD$10,000 came through the next day.

T2F opened its doors to the public without any fanfare or glitzy launch parties for celebrities and the press. I had conducted no research and done no target market segmentation. . . . I could not stomach focus groups and just went with intuition and the fervent hope that there were at least a few more people like me. It was a scary time.

DECORATING—AND OPENING—ON A SHOESTRING

We spent a lot more money than regular business-minded folk would deem necessary on the look and feel of the space. We discovered a wonderful young artist (who would commit suicide three years later) and commissioned him to paint a mural. Here is an extract of a speech I made at his retrospective exhibition last year:

> When I was setting up The Second Floor, I didn't want mundane paintings or posters on the walls. A friend suggested I meet this

mad chap, Asim Butt, who had been running around painting elaborate murals outside shrines. I called him and requested an appointment. This was in March 2007.

As I explained the idea of T2F to Asim, he got excited but was skeptical. We convinced him to do a mural for us and he brought out his sketch book and started talking animatedly about a concept he was working on. He said it would take three months to complete, and I said, but we're opening mid-May and this just has to happen. So he said, these things take time, let me give you a painting to hang on the wall. I said "No, why don't you just start scribbling some ideas on the wall and we can say it's a work in progress—it's under construction—and you can keep working on it, even after we open?" He was noncommittal.

The next day, Asim came to see the space. I will never forget how he jumped up and down and clapped his hands gleefully. He was like a child—pure and uninhibited. I imagine the sight of those empty walls drove him into a state of ecstasy. He asked for the keys so he could work at night. Each morning, we'd come in and Asim would have encroached, just a little more, into areas he was not supposed to touch. He'd then jump up and down and talk our ears off about what he'd added and why. Sometimes he drove us to distraction. He threw a fit one day and demanded that we remove the speaker wires because they were getting in the way of a puff of smoke that he'd painted just below the ceiling. I was exasperated and wanted to murder him.

Thanks to Asim's boundless energy, the mural, which he named "Class," was completed before we opened our doors, and it became an intrinsic part of T2F's identity.

T2F's first emerging artist showcase, School's Out, was a scathing indictment of the traditional education system, by Maryam Asif, a graphic design graduate. It presented a stark visual contrast to Asim Butt's stunning mural that stretched across three walls, and I was thrilled to see my personal politics reflected in the space on opening day.

T2F opened its doors to the public without any fanfare or glitzy launch parties for celebrities and the press. I had conducted no research and done no target market segmentation. My uncompromising adoration of Steve Jobs meant I could not stomach focus groups and just went with intuition and the fervent hope that there were at least a few more people like me. It was a scary time.

The next few months really took their toll. I was on my feet for a minimum of 20 hours a day, grappling with training staff, graphic design tasks, writing, press interviews, event programming, administrative chores,

accounting, and the eternal lack of cash in hand. Oh, and responding to the bewildered people who'd walk through the doors and ask what on earth this place was. Unlike most NGOs in Pakistan, we had revenue streams: the café, bookshop, merchandise, and art sales. However, we intentionally kept our prices low, in keeping with our philosophy. We weren't earning enough to make ends meet and all the early injections of cash were long gone—spent on capital expenses and the first couple months of operating expenses. It was time to bootstrap, and all I had at my disposal were seven credit cards. I proceeded to max them out and got through the next few weeks.

In addition to general expenses, the biggest financial drain was renting a generator and buying diesel to keep it running full time. Karachi is hostage to constant power failures. Being on the second floor meant people would invariably use the lift and we didn't want anyone getting stuck midway. So we were forced to run the generator all the time to ensure uninterrupted electricity. Ideally I would have leased a generator, but no one was willing to underwrite a lease to a non-profit startup. On the home front, my relationship with my mother was severely challenged. I typically got home at 1:00 AM, leaving us no time to converse or for me to deal with any responsibilities. I was not earning a penny, couldn't contribute financially, and wasn't even around to say hello, let alone help with anything. Somehow we got through those dark days. If it weren't for my mother's uncompromising support, I would have crumbled and given up.

During those months, we had our first open mic, our first Urdu poetry reading, our first science talk, our first film screening, and our first press review. Version 1.0 was up and running. People came. A community began to develop. The lack of money was a nagging constant, but it taught us how to do a lot with very little, to stretch our pennies, and to stay lean and hungry. In those early days, my mother and Zak were instrumental in teaching me how to develop a thick skin. A lot of people questioned my motives and agenda and wrote nasty blog posts. I'd cry. A lot. But I learned to ignore the noise and lived by Guy Kawasaki's teaching, "Don't let the bozos grind you down."

SHOCK

By 2009, we were picking up speed, the brand had grown and gained respect, and I was feeling a little more in control, relatively speaking. I still hadn't earned a penny and was working nights to pay my bills—but more about that later. Only days after we'd celebrated the New Year, I got the phone call that resulted in the following blog post:

Dear PeaceNiche and T2F Community,

612 days ago T2F opened its doors to you. Our vision was lofty, and frankly, a bit mad. Who would walk up to the second floor of an office building on Khayaban-e-Ittehad to listen to a poet rambling on about revolution, or a scientist arguing in favour of evolution, or some kids playing drums? Well, as it turns out, thousands of people . . .

In these 612 days minus Mondays, our tiny space has hosted over 150 events featuring thought leaders, artists, poets, musicians, scientists, magicians, writers, philosophers, dancers, actors, lawyers, and activists. Hundreds of you have written in to tell us how much T2F means to you and to the city of Karachi. Every e-mail, snail mail, text message, and Facebook Wall post that you have sent has given us the strength to carry on. Many of you have supported us through your donations and even helped us replace our stolen Mac. We can't thank you enough.

By now you are probably thinking that we're closing down and that this is a goodbye note. No such luck :D But there is some critical news that we need to share with you.

We called our landlord the day-before-yesterday, to ask him when he was going to get the lift fixed. He was non-committal and then said he wanted us to vacate the premises. The initial shock was soon replaced by calm determination and optimism.

At yesterday's literary event, we broke the news. Practically everyone came forward to express solidarity and support. Some of you graciously volunteered your offices, houses, gardens, and basements for us to conduct our events till we find our own space. And one of you, a volunteer/student/journalist, kick-started the donation drive with a contribution of Rs. 5,000. Thank you Batool.

So, here's the plan:

We plan to vacate the current premises by early February 2009. We have already been offered several temporary spaces to conduct our events until such time that we find a permanent venue. We would like to move to a new space—a home we can call our own—as soon as possible. It's going to be tough and we can't do it alone. We simply don't have the funds. As you know, PeaceNiche is a non-profit organization and we have meager funding. We are reaching out to you to help us in any way that you can. We will be writing to you

again with specific requirements, but in the meanwhile, please spread the word about our need for a permanent, rent-free space so that we can get up and running without losing momentum.

Over the next few days, please come to T2F as often as possible—we'll recreate the magic wherever we go but this is where it all started. Thank you Karachi for believing in us.

Peace/Sabeen

17th January 2009

Responses started flowing in immediately. Here are a few of them:

We have seen how much love and support T2F has created in the community for what it offers and the generosity with which it does this. We are here, you are not alone, and we will help in any way we can.

—Shazia Mohamed

You know there had to come a situation when T2F became as public as it is and the responsibility was shared with all the people whom T2F has served so proactively. This situation has helped shake up the supporters and given the people the opportunity to work together—however each may—to preserve and grow a cultural institution that citizens have set up for citizens. The only way, then, is forward.

—Ramla Akhtar

T2F is an incomparable asset for Karachi. It will not only survive this little setback, but thrive. There's no better time for Karachites, here and abroad, to come together and support a priceless institution.

—Shahjahan Chaudhary

I feel your enthusiasm and commitment, your cause is so great that it cannot simply be abandoned. I will reach out to my friends, a few sponsors I know.

—Zunaira Sohag

The love you all have shown me and my work has been a source of encouragement and affirmation....T2F has provided the city with a much needed nerve centre of artistic activity and debate and I am heartened by your resolve to proliferate your agenda beyond the venue at Ittehad.

—Asim Butt

> It's rare to come across a place in Karachi which has so much to offer and to meet people who contribute towards society selflessly and intellectually! Even though we haven't contributed in any way so far we would love to help in any way possible! I'm convinced that the matter will get resolved in due time and our support is always there!
>
> —Rania Ghangro

A week later, I received an email from someone who'd seen a news report in Pakistan's leading English language daily about the landlord's notice. He said he had a space he'd like to show me. PeaceNiche was now in debt and I was at my lowest ebb. I had no idea what kind of rent the gentleman had in mind, but I went along anyway to have a look. Close to our original premises, it was a five-story building under construction. Only two floors had been built thus far. It was in an interesting lane flanked by tailor shops and estate agencies. The ground floor was a large open space with a lot of promise. I asked about the first floor and the owner said, go up and have a look. By now I had started imagining T2F spread over two floors. Till now, given that everything had to happen in the same space, we had to move furniture around every day and suspend café operations during events. Spreading out over two floors would let us increase both sales and efficiency.

I wandered upstairs by myself and stood there for a minute, imagining the possibilities. I knew that whatever rent he would ask for would not be an option considering our dire financial situation. I came back down and asked him what he had in mind. He nonchalantly said, "50 paisa for the ground floor and 50 paisa for the first floor"—a grand total of Rs. 12 (about US 11 cents) in annual rent. I was dumbfounded. After sputtering and stammering unintelligibly, I thanked him in tears and said I'd go home and respond via email. I was too emotionally charged to speak coherently. I went home and then, like a typical Pakistani conspiracy theorist, wondered why this gentleman, who prefers to remain anonymous, was doing this. What did he want? What were his motivations? Did he have some kind of agenda he'd try to fulfill through T2F? Anyhow, I quickly stopped theorizing and shared an update with the community.

On April 1, 2009, we vacated T2F 1.0 and set plans in motion for the next version.

HARD CHOICES PAY OFF

Thus began the next phase of our journey. It took what felt like forever to get up and running again. Naturally the building had to be completed before we could move in; that took nearly a year. During that time, we not only retained our entire team but also took on a couple of new people, and I started taking out personal loans. In fact I was getting loans to pay off other loans. My mother asked me what the hell I was doing. I told her I was gambling. This time I was determined to lease a generator. It took three months, but it got done, somehow. I can't fathom how this reputable company agreed to lease a piece of equipment worth Rs. 1,700,000 (about USD$16,000) to a nonfunctioning nonprofit organization with no office and mounting debt. To provide a sense of the ongoing daily dramas from those heady days, here is an extract from a letter I sent out:

> The most dreaded question I am unable to answer these days is "When exactly is T2F reopening?" It's heartwarming that so many people want T2F back in their lives and it's aggravating beyond belief to not be able to give them a straight answer. If you've ever built a house or an office, you'll know why.
>
> In May, I said, "Oh, definitely June." In June, I realized the enormity of the task at hand and said, "July for sure." Well, July isn't over yet, but it will be, all too soon. I now tell people, "As soon as there is electricity and I can guarantee that cement blocks won't fall on your head." Naturally the next question is, "So when do you think that will be?"
>
> Unfortunately, this particular situation involves painters, masons, air conditioner installers, plumbers, carpenters, and electricians, each of whom move to the beat of a different drummer, and no, not in a nice, esoteric way. Adding to the trauma is the fact that the building we're moving into has still not been granted an electrical connection by our favorite utility company. So each time someone needs to drill a hole in the wall, they need to rent a generator!
>
> It became fairly apparent, somewhere in June, that we would not be blessed with an electrical connection any time soon. I sent out an email asking for donations to help us buy a generator. Thanks to some absolutely wonderful individuals, we were able to raise enough money for a down payment on the generator. We were several lakhs short of being able to buy one, so I had to sign my life over to the leasing firm.

> The good news is that we got the lease and the generator will hopefully be installed by next week. The painters have started painting and the carpenter is doing the best he can in the dark. Thanks to the generosity of our amazing donor, we have not one, but two floors of space. Events will now be held on the ground floor and no musician will ever have to lug equipment up two flights of stairs again, ever! Our upcoming project, Faraar—a playground for creative expression—is also downstairs and we are super excited about our first exhibition featuring three talented young artists. Music and dance classes will also be held downstairs. The coffeehouse will be upstairs (during events, coffee will also be available from a counter downstairs), along with offices for us and some new spaces. We now have a dedicated conference room that we will rent out for meetings, and a co-working studio to let out to aspiring entrepreneurs, writers, designers, researchers—well really anyone who needs a quiet, furnished space with access to various forms of mentoring, free wifi and a funky vibe.
>
> Other exciting new PeaceNiche projects are brewing and we'll share them with you very soon. Right now, the focus is to get T2F 2.0 up and running. The last four months have been very tough but we're too pig-headed to let adversity get in the way. There are tons of things that need to get done but once the bare essentials are in place, we're going to throw the doors open for beta testing. Uhhhh, don't ask when exactly!!! Sometime in August. Yes, this year!

We finally moved in December of 2009! Fending off financial, mental, and emotional crises, I felt I was in the throes of a near-death experience. But we had such a beautiful space that it was all truly worthwhile. Three sets of artists had painted murals (http://www.t2f.biz/an-ode-to-our-artists/), everything looked fresh and exciting, and there was a palpable energy all around us. We had a little party for close friends and supporters and just got back to work again as if nothing had changed.

By mid 2010, I realized I couldn't go on any longer without a salary. I was putting in 15 hours a day on PeaceNiche's various initiatives and continued to work nights to pay my own bills. I had constant vertigo and eventually my doctor prescribed antidepressants and told me to go on a holiday. I had a valid visa for the United States but no ticket money. I sold my iPad on Facebook and my mother put in the rest of the cash. I went to New York and collapsed on a friend's sofa and slept for three days. Eventually he said, enough is enough, we're going out. We ended up on the roof of Gawker Media owner Nick Denton's house and I met a bunch of talented, passion-

ate people and had some greatly energizing conversations. The next day I got a long lecture from my friend, who validated my work and reminded me that I'd created something valuable and should get over my anxiety about asking people for financial support. We worked out a yearly budget, including a salary for me, and I went off to see someone at the Open Society Foundation's headquarters. Eventually we received an institutional grant from the foundation that saw us through the next year. During that time, I was able to hire more people, including a proper accountant and a tax/legal consultant, and I started drawing a salary. That meant I could get some sleep at night. Because we generate 50 percent of our operating budget through a variety of revenue streams, we were able to stretch the grant out over a two-year period.

Having a bit of money in the bank also meant I could stop fretting about going belly up on the first of every month. For the first time in years, I could take a breath and focus on programming and innovation. Observing how people interact with speakers, performers, and each other when they're at T2F has taught me a great deal about how much built spaces affect communication and engagement. The team and I love to tinker with what we call "the physical"; we try to create fresh experiences just by playing around with what we have. We want to evoke curiosity when people walk through the door, so they will wander around and discover things for themselves. That's why the bathroom door features a poem in Urdu by Faiz Ahmed Faiz rather than a standard toilet sign.

A great deal of our programming is proactive and responsive to current affairs, visitors to the city, and the serendipitous discovery of awesome people and ideas. We also operate several specific, recurring programs. First Fridays: Open Mic Night and LitLab: Literary Open Mic provide platforms for emerging musicians, comedians, poets, and writers to showcase their talent. Our open mics feature encouraging hosts who are able to connect with audiences and coax people to come up on stage. Over the course of an evening, scores of shy people make their way across the room and ask to be slotted in. Several people who have performed at our open mics have been highlighted on radio and television shows, have forged partnerships, and have started bands with people they've met at T2F.

Our Philosophy 101 series, which seeks to introduce the works of great philosophers to lay audiences, regularly draws a diverse crowd, ranging from architects and environmentalists to musicians and doctors. Our Science Ka Adda series pulls in a similar mix; people typically sit around for hours, heatedly discussing evolution, the Large Hadron Collider, and the possibility of life on Mars. Every Saturday afternoon, the people who walk

through our doors are treated to the exquisite reverberations of Ustad Khurshid Hussain's tabla; anyone can sit at his feet and listen to his wonderful tales and audit a lesson.

On Sunday afternoons, T2F is abuzz with the sound of young children, who are enthralled by the enactment of folk tales and oral storytelling by a dynamic group called ToffeeTV. Zambeel Dramatic Readings is another troupe with whom we regularly collaborate; they captivate audiences with dramatic renditions of texts from Urdu literature. They recently celebrated their second birthday and graciously acknowledged us:

> Sabeen Mahmud at T2F . . . has from the very beginning shown her confidence in us and supported us in every way. We have enjoyed every moment of performing at T2F and look forward to many more such occasions. A special thanks to Chaand at T2F who has always organized the pre-production details with complete efficiency. We cannot do without you Chaand!

Another key feature of our programming is the preservation of South Asian classical music traditions. From qavvaali to sitar performances, our Traditional Music Preservation series features renowned and upcoming artistes who are trained in the centuries-old Eastern classical and devotional styles of music, keeping alive our incredible heritage while cultivating new audiences.

One of our quarterly features is the Jumma Hafta Art Bazaar (JHAB), which aims to cultivate a new and fresh viewership for the arts. JHAB is a platform for established and emerging artists to get to know each other; interact with art enthusiasts, collectors, and students; and sell their artwork in a vibrant, approachable community setting. JHAB typically features pop-up shops, public art, performance art, and hands-on workshops.

I'll let a member of a little theater group, Cogito, describe the welcome they found at T2F:

> T2F opened its doors to . . . Cogito, and allowed us to conduct workshops and rehearsals and put up fortnightly events free of charge and gave us the opportunity to do what we love, i.e. ENTERTAIN! We have since gone on to perform in Lahore and Islamabad but honestly, there is no place in Pakistan like T2F. It is unique in its environment and its purpose—a true cultural center. The best part is the welcoming nature of the people; nowhere else do strangers share tables and share their life stories. While conducting rehearsals at T2F, we met a writer from India who helped us with our script, an elderly doctor who told us about his youth

> and his passion for theater, musicians who became involved with our performances, and even some people who told us to be less loud. Artists like us are only good at what they do, so without the institutional support provided by forums such as T2F, we would also end up as bitter doctors who never pursued their passion. Thanks to T2F, we can keep on entertaining and hopefully pursue what we love! Thank you for everything!

T2F is proud to have instituted the Perween Rehman Lecture Series in memory of one of Pakistan's brightest lights. A renowned social worker, urban planner, and architect, Perween spent decades working on poverty alleviation projects with the guiding philosophy of *apni madad aap* (help yourself). On March 13, 2013, she was murdered by armed assailants while returning home from work. Her death has been mourned across Pakistan and the social development world. We instituted the lecture series to keep Perween's voice and legacy alive and to continue talking about the issues closest to her heart.

Earlier this year, T2F hosted and cosponsored Pakistan's first Civic Hackathon. Over a weekend, developers, designers, urban cartographers, data analysts, and problem-solvers came together to create web and mobile solutions to Pakistan's civic problems. These solutions, created in less than a day, ranged from crime mapping to emergency services and demonstrated the power of self-motivated doers who have had enough of complaining and want to use their skills and talent to build useful applications that can help citizens.

T2F offers space and guidance to the Debating Circuit, Karachi's first official debating collective. In sessions with students from a variety of educational institutions across the city, the group aims to break the oligopoly of debating excellence held by a few elite schools, and make debating more accessible. Its members win honors at public speaking events and debating tournaments. One of the founders said, "T2F's generosity has been instrumental in the functioning of The Debating Circuit since its inception. Our relationship had been based on a mutual respect for debating and differing points of view, and our objective was to further that in Karachi. We have slowly but surely gained traction, and we owe it all to T2F for giving us a centralized location to have our sessions, that too absolutely free."

T2F also provides space to Open Letters, a growing community of writers who host fortnightly writers' workshops where they read out and discuss their work.

Having an open mind and an open-door policy has let us fulfill dreams beyond my wildest imagination. When we were setting up T2F, one of my

key ambitions was to blur the lines between disciplines and create programming that would attract a range of people irrespective of their specialties and disciplines. Since its inception six years ago, T2F has hosted over 600 events. Standup comedy, film screenings, talks, readings, meetups with poets and writers and thought leaders, concerts, programming workshops, art exhibitions, Skype sessions with exiled leaders and like-minded friends in India, corner meetings for independent political candidates, tributes to iconic thinkers and activists, symposia on culture and technology and society: a heady mix of the true liberal arts. I continue to derive immense pleasure when an artist shows up for a science talk or a techie says, "I come to T2F to exercise the right side of my brain."

We now have 23 staff members, a strong base of volunteers and interns, a number of partners and a loyal community of followers around the world. Approximately 95 people walk through our doors each day and thousands more follow us on Twitter, Facebook, Instagram, and the web. Our events are live streamed, live tweeted, and recorded for our archives and for sharing online.

Other ventures, inspired by T2F, have sprung up in Islamabad and Lahore. A youth café has just opened in Lyari, one of Karachi's most conflicted, troubled localities known for its gang wars. In interviews with the press, its founders said they are modeling it on T2F. We work closely with them and provide guidance, mentoring, and ideas to their young and dynamic leaders.

Our impact in Karachi is best measured by what its citizens have to say:

> Public Service Announcement: Sometimes one wishes that there was a T2F when one was growing up. #HappyBirthdayT2F.
>
> —HM Naqvi

> You have already done 50 years work in these five years.
>
> —Zeenia Shaukat

> Happy Birthday T2F. I can't imagine a Karachi without you, anymore.
>
> —Rabail Baig

> I don't just like The Second Floor, I LOVE it. You make me want to move back to Pakistan and join the movement. You are a space within a space within a space that I certainly dream of creating but didn't know it was possible to making a reality. Thank you for creating it and thank you for giving Pakistan substance and Pakistanis hope.

—Sehr Karim Jaffer

> You and T2F have played an amazing role in all of our lives and the music that we do collectively.
>
> —Shahab Hussain

In the words of leading Pakistani peace activist and physics professor Pervez Hoodbhoy, "T2F is the only worthwhile arts and culture center in the city."

T2F has, slowly and organically, become the hub of artistic and intellectual activity that I had envisaged six years ago. While it has been a very difficult journey, it has been rewarding beyond my wildest imagination. If I had made a business plan, T2F would have not gone beyond the idea stage. It is still financially unstable, but the model is workable and replicable. By creating this space, I have had the honor and privilege of meeting hundreds of talented individuals who have renewed my faith in humanity. Many of them have become dear friends, coconspirators, and advisors, and I look forward to continuing this shared journey of creativity, rabble-rousing, and resistance.

Daniel Isenberg and Vincent Onyemah

Fostering Scale Up Ecosystems for Regional Economic Growth

Innovations Case Narrative:
Manizales-Mas and
Scale Up Milwaukee

The search for reliable and replicable strategies to stimulate regional economic prosperity is as old as the field of economic development itself.[1,2] These strategies have included the encouragement of direct investment, business attraction and retention,[3] and sector-based cluster strategies.[4] More recently, the role of entrepreneurship has been explicitly recognized, descriptively and prescriptively. Glaeser et al. and others have shown that one essential element in sustained regional growth is the presence of significant concentrations of indigenous small and growing businesses.[5] On the surface, these empirical findings are consistent with the popularization of the entrepreneurship ecosystem metaphor and the subsequent launching by governments and civic organizations of a plethora of startup encouragement programs (e.g., the Startup America Partnership; Startup Chile) as a lead economic development strategy.[6,7] The startup movements have drawn support from the recurrent observation that startups (i.e., young

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firms) have produced a disproportionate number of new jobs, despite the fact that research has raised questions about the meaning of these findings and their extrapolation to startup policies[8,9]

Given the amount of investment in and the public visibility of the startup movements (there is now a Startup Nations movement), there is a paucity of evidence linking startup encouragement to indices related to economic growth. To the contrary, some indications are that the return on investment in startup encouragement is poor (e.g., Startup New York; Skolkovo Foundation; Startup Chile).[10] Furthermore, empirical evidence presented can be interpreted as showing that startup activity is negatively correlated with firm survival,[11] negatively correlated with national competitiveness, and negatively correlated with the proximity of mid-market firms. [12,13]

In 2010, one of the authors (Isenberg) created the intervention-oriented Babson Entrepreneurship Ecosystem Project (BEEP). BEEP launches and operates regional economic development projects to explore whether the critical economic development variable of entrepreneurship is how many new firms are started or *how many firms start new growth*. In short, BEEP translates the Glaeser et al. findings from empirical description to intervention. BEEP's underlying premise is that regional economic growth is positively stimulated by more indigenous companies growing more and more rapidly, and that an "ecosystem" (see explanation in the next section) aligned with this objective is needed to systematize, scale, and sustain the growth. To this end, BEEP has developed concepts and methodologies intended to stimulate a broad range of actors to recognize and support new growth, each in ways that are specific to those stakeholders, and each of which addresses those stakeholders' idiosyncratic needs. The modus operandi of BEEP has been to demonstrate the regional economic impact of achieving new growth in a critical mass of regional firms, while simultaneously stimulating the growth-driven engagement of the ecosystem actors.

This article presents the concepts, strategies, and methods of BEEP projects and illustrates them in two sites, Manizales, Colombia (Manizales-Mas), and Milwaukee, Wisconsin (Scale Up Milwaukee). The use of these sites is potentially significant in part because methodologies developed and shown to be effective in these "mid-tier" regions are believed to be broadly applicable to a wide range of mid-sized regional economies—more so, for example, than interventions in New York, Jakarta or Delhi.

CORE CONCEPTS

BEEP embodies a number of core concepts that guide all projects, including Manizales-Mas and Scale Up Milwaukee:

- **Entrepreneurship**. Various definitions of entrepreneurship conflate entrepreneurship primarily with firm age (young firms are *ipso facto* considered to be entrepreneurial), self-employment (firm ownership), financial risk taking, and innovation (use of novel processes, products, among others). Conversely, the BEEP perspective maintains that whereas age, ownership, risk taking, and innovation may be correlated with entrepreneurship in some cases, they are not intrinsic to the definition. Rather, the common denominators of entrepreneurship are two necessary and sufficient variables, namely, the creation of extraordinary economic value for customers and the capture of some meaningful portion of that value for the people who drive the value creation process.[14] The practical implication is that BEEP's interventions are indifferent to firm age, ownership, and innovation. There is no claim that this definition of entrepreneurship is "right," only that it is particularly useful for economic development purposes.
- **Scale up**. Scale up refers to a company that grows consistently and significantly. Precedent suggests quantifying high-growth firms as having 20 percent growth in revenues or headcount for three years running, after reaching at least 10 people and $1 million in revenues.[15] BEEP assumes that whereas the OECD definition of high growth firms may serve a lower-bound proxy for scale up, more ambitious growth rates are achievable.
- **Entrepreneurship ecosystem**. Since 2010, the term "entrepreneurship ecosystem" has rapidly become an integral part of the entrepreneurship and economic development discussion.[16,17] The popular use of the ecosystem metaphor typically refers to those formal institutions (e.g., incubators, mentoring programs, angel investor networks) whose leaders, members, or charters explicitly intend to foster entrepreneurship. The assumption underlying BEEP programs is that neither intention nor formality are essential for ecosystem elements, and thereby the BEEP usage closely parallels the biological use of the term in that the presence of critical elements (e.g., social norms that value wealth creation and business success) need not be intentional or formal. [18] The common denominator among entrepreneurship ecosystem elements is their essentialness for increasing numbers of companies growing more and more rapidly. Intrinsic to the ecosystem metaphor is that these elements interact in ways that the "whole" (the ecosystem), is self-sustaining. BEEP programs do recognize the role of formal institutions, but again, regardless of their explicit charters. For example, the existence of accessible and well-functioning stock exchanges may not have the intention of fostering entrepre-

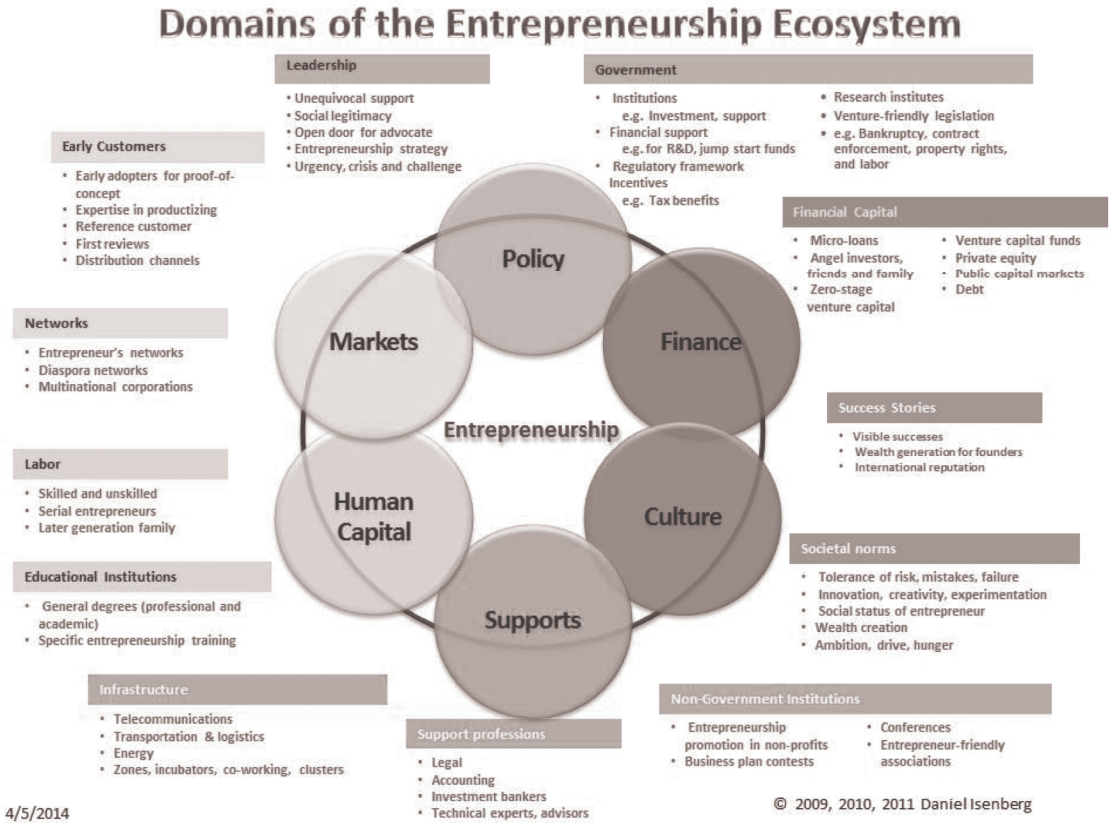


Figure 1. Domains of the Entrepreneurship Ecosystem

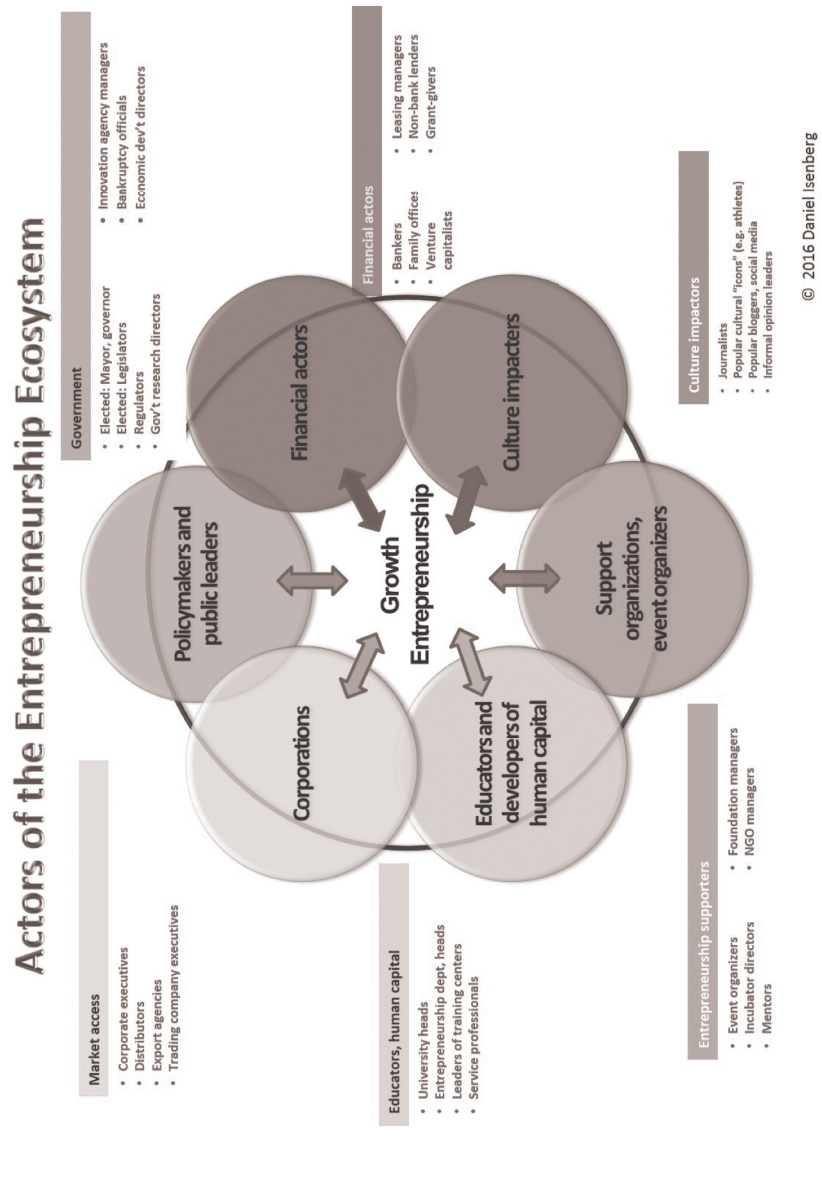


Figure 2. Actors of the Entrepreneurship Ecosystem

neurship per se, but it may still have a strongly facilitative or even causal effect. Figure 1 is a widely cited representation of the abstract elements of the entrepreneurship ecosystem, organized into six comprehensive "domains".[19]

- **Stakeholders**. In each domain, individual actors can be identified who have an actual or potential interest in more companies growing more rapidly in their region (figure 2). Examples would include local bankers (finance domain), who directly benefit from growth; executives in large local corporations, who benefit from growing companies to partner with or acquire (markets domain); administrative heads of local universities (human capital domain), who benefit from success at placing alumni in local jobs or receiving research funding from local corporations; and journalists, who benefit from having growth stories to attract and retain readers.
- **Demonstration effects**. Whereas BEEP programs do not assume that the regional stakeholders necessarily have an explicit intention to foster regional scale ups and a regional scale up ecosystem, as they stand to benefit from regional scale ups. They demonstrate to the stakeholders that scale up serves their interests and will increase their investment of time, effort, or material resources. The tactical objective, therefore, of many BEEP programs is to foster demonstration effects of scale up. Demonstration effects are also important because as the stakeholders invest more, less outside intervention is required. One of the BEEP principles is to reduce its regional involvement after certain growth thresholds have been achieved in order to ensure that the ecosystem has been strengthened.
- **Spillovers**. One purpose of creating the demonstration effects is to increase the probabilities that stakeholders will spontaneously and increasingly make growth-fostering investments (financial and otherwise), and cause others to make investments that foster regional entrepreneurship, independent of any centrally coordinated or imposed efforts to do so. One of the BEEP principles is to intentionally foster such indirect or higher order "spillover effects" of scale up entrepreneurship by communicating growth events to stakeholders and other entrepreneurs.

MANIZALES[20]

Manizales, capital of the Colombian state of Caldas, is an urban region of about 400,000 inhabitants located in Colombia's coffee-growing region. It is roughly equidistant from Bogotá, Cali, and Medellin. Founded in 1849 by pioneers from Antioquia (near Medellin, Colombia) who trekked through

the mountainous Andes searching for fertile land, Manizales' economy prospered from coffee until the global coffee cartel collapsed in the 1980s. The founders brought to Manizales values in education, industry, collaboration, and art. In 2010, Manizales was Colombia's sixth largest industrial city, producing goods (consumer white goods, clothing, shoes, and agricultural equipment) and services (e.g., one of Latin America's largest contact centers). Manizales also had 35,000 university students, one of Colombia's highest concentrations per capita. In 2010, five of the city's seven universities formed a loose consortium, SUMA (Sistema de Universidades de Manizales)) to facilitate sharing of classes and other resources. The city was ranked highly on "quality of life" and "business friendliness,"[21] and citizens viewed Manizales as a safe enclave, even during Colombia's worst drug wars.

Despite Manizales's advantages, job opportunities for graduates were limited, unemployment was in the high teens,[22] and the city had been plagued by floods, earthquakes, and fires. In 2010 BEEP interviewers repeatedly heard that many students came to Manizales to study and then moved to other larger cities for work. It was also common to hear stories of people in their 50s returning to Manizales to take advantage of the high quality of life.

MANIZALES-MAS

In 2010 Manizales began discussions with BEEP about conducting a project to stimulate economic development. Since that time, "Manizales-Mas" has evolved through roughly four phases, which for convenience we label (1) activating the stakeholders, (2) aligning the leaders, (3) establishing execution platform and proof-of-concept programs, and (4) systematizing and expanding programs and local capacity.

Activating the stakeholders

Manizales-Mas was conceived during meetings in Boston between representatives of Luker Foundation[23] and Babson College in late 2009 and early 2010. Luker, created in 1995, was the nonprofit foundation of a fifth-generation family-owned cacao producer, Casa Luker, headquartered in Manizales. In 2009, Luker had concluded that without economic growth and associated job opportunities, the city would continue to lose its best-educated students. A year-long study resulted in a revised mission with a strategic plan to combine investment in education with an entrepreneurship intervention to sustainably create job opportunities. Between February and May of the following year, Luker funded BEEP to conduct an activation

process. The process consisted of group and individual interviews of more than 120 leaders from government, business, finance, universities, churches, and labor unions. The activation phase culminated in a series of town hall-type workshops, during which hundreds of the city's leaders heard and debated BEEP's observations and ideas for developing entrepreneurship in Manizales. Following two large workshops with virtually all of the local stakeholders participating, there was broad enthusiasm for implementing a BEEP project in the region. Following the workshops, the city's public, business, labor, and civic leaders sent a jointly signed official letter to Babson College's president inviting Babson to partner with the city's institutions to create "fundamental" change, leading to a nonbinding memorandum of understanding to collaborate in spurring economic growth in Manizales.

A strategic decision was made to not invest resources in diagnosing, measuring, or mapping the entrepreneurship ecosystem of Manizales, despite the existence of well-developed indices and mapping methodologies.[24] The rationale for this is detailed elsewhere,[25] but includes the time and financial resources that would have been consumed, the omnibus nature of many of the indicators, and the highly complex link between description and prescription in complex social systems. We also believed that the process of implementing certain programs would efficiently yield practical information about the obstacles facing companies with growth ambitions.

Aligning the leaders

Over the ensuing almost two years, BEEP and Luker discussed, at times heatedly, a long-term project with the objective of fostering tangible growth in Manizales's economy. Among the several reasons for the unexpectedly lengthy incubation period, were:

- Luker's implementation of BEEP's recommendation to persuade a cross-section of local institutions to collectively fund and oversee Manizales-Mas to ensure a broad commitment to Manizales-Mas's outcomes;
- the intrinsically complex nature of impacting a city's entire ecosystem, compounded by the lack of precedent-setting examples to refer to, which led to many different perceptions of the objectives, process, and program;
- differences between BEEP and the local stakeholders regarding concepts of entrepreneurship, entrepreneurship ecosystem, and methods of measuring impact; and
- differences between BEEP and the local stakeholders regarding the degree to which it would be possible to specify actions and measure outcomes during the first 12-month contract period.

As an example of conceptual differences, some of the stakeholders insisted on prioritizing an increase in the number of startups in Manizales, whereas the BEEP professionals insisted that the core objective should be firm growth. As an example of differences in programs, BEEP professionals asserted that it would be more effective to specify the initial months of activity, and revise the rest of the year's plans thereafter. The local stakeholders, on the other hand, insisted on specificity throughout the entire 12 month implementation.

In retrospect, one of the outcomes of the lengthy activation and alignment periods was that when the Babson–Manizales agreement was signed with explicit deliverables and programs, a group of 11 local stakeholders had a strong collective commitment to Manizales-Mas's success.[26]

During the "aligning the leaders" process, BEEP led intense discussion and debate regarding the specific objectives. During and as a result of this process a heuristic was developed by BEEP in order to focus stakeholders on the purpose of Manizales-Mas: For every 100,000 population, one firm would enter into a significantly more rapid growth trajectory (that is, become a "scale up," every year. This was presented to the leaders not as an end-goal, but as a proxy for a "tipping point" at which point a virtuous cycle among firm growth, capital deployment, capital formation and other spillovers would be evidenced.

Execution Platform and Proof-of-Concept

In June, 2012, the first 12 months of intensive and extensive activity began, at the end of which was consensus to continue Manizales-Mas, which is still ongoing. With professional guidance from the BEEP team, a "platform" was established, and which grew to include the following elements (see "Exhibit" section for additional details):

- **Project team.** A local project team leader was hired (with BEEP input) by the local stakeholders. The team leader reports administratively to the general manager of Luker and professionally to BEEP. The leader hired and manages a project team consisting of directors of communications and academic coordination, an administrative assistant, and several team members assigned on part-time bases by the stakeholders (full-time coordinators of the Scalerator program and special activities were added later to the team). The purpose of the project team is to support the professional team (Babson) in executing all of the Manizales-Mas programs, including pilot programs; to the extent possible, to take responsibility for scaling up successful pilots and repeat executions of the Manizales-Mas programs; to initiate new programs that the project team itself could execute,

with advice from the professional team; to manage the communications program; to coordinate BEEP contract renewals; and to report to the executive committee.

- **Project software.** A project management software platform consisting of an "industrial strength" application has been implemented and is used by all project team members. The purpose of the project management platform is to ensure coordination, timely execution, and efficient use of resources.[27]
- **Governance—Steering committee.** A steering committee was formed consisting of representatives of the 11 stakeholders. The purpose of the steering committee is to negotiate and approve the BEEP contract; to provide input to and approval of the annual project plan; to provide input to and approval of the communications strategy, and to provide ongoing support to the various Manizales-Mas programs (e.g., promotion, participation, guidance). Since the project's inception the steering committee composition has changed very little.
- **Governance—Executive committee.** Midway through 2013, at BEEP's suggestion the steering committee established a four-member executive committee to meet more frequently with the project team and professional team (see details later in this paper). The executive committee has authority to make modifications in the deliverables, and can be convened at short notice to provide guidance to the project team.
- **Academic committee.** The steering committee also created an academic committee consisting of an academic coordinator, and one representative from each of the five SUMA universities. All representatives are entrepreneurship-related faculty. The purpose of the academic committee is to propose and support programs, run by BEEP, to train faculty in teaching entrepreneurship and in running nonacademic entrepreneurship programs.
- **Professional team.** Over time, BEEP created a professional team of Babson faculty and program administrators, including a nearly full-time program manager fluent in Spanish, and a near full time project director,[28] who has overall responsibility for executing the BEEP contract and meeting the deliverables. The BEEP professional team consists of approximately 10 Babson faculty who are responsible for specific Manizales-Mas programs. The BEEP professional team meets monthly to share updates on Manizales-Mas and to identify and amplify synergies among the different programs. In addition, faculty members responsible for different programs meet frequently with the program manager and director to design and execute specific programs. Non-Babson experts (e.g., the MIT

Venture Mentoring Service) have been contracted in the event that, in the judgment of the project director, they could provide more appropriate specific expertise.

Some of the above structures were guided by written policies and procedures, for example, a clear delineation of the responsibilities of the project team, on the one hand, and the steering committee and executive committee, on the other hand.

MANIZALES-MAS PROGRAMS

The core programs of Manizales-Mas commenced in 2012. Unless specified otherwise, the major programs during 2012–2015 are listed in approximate chronological order of their introduction. The programs to train local faculty are specified in the section on Systematization and Expansion.

Scalerator program

The Scalerator (Empresas de Alto Potencial, or High Potential Ventures) program spans six months with about 15 companies per cohort. Each Scalerator program consists of four components:

- **Seven 1.5-day workshops.** The workshops are conducted by faculty[29] with extensive teaching and practical experience, and they focus primarily on sales and sales management, human resources and leadership, and operational finance. The workshops are highly interactive and focus on applications of all concepts to the specifics of each of the company participants. During the six-month Scalerator program, each company's owners and team prepare and execute a detailed plan to grow their revenues at a much faster rate compared to the pre-Scalerator era.
- **Peer-to-Peer program.** The Peer-to-Peer program consists of exercises held in between workshops, conducted without faculty by groups of 3 companies each. The programs are designed to prepare the participants for the upcoming workshop and build a culture of mutual support among Scalerator companies. One of the unintended consequences of the program and other inter-participant activities is that approximately one-third of the participants begin new business relationships with other participants.
- **Mentoring sessions by Scalerator faculty.** Mentoring sessions are held remotely once or twice with each company during the Scalerator program to monitor and assist the companies in developing and executing their accelerated growth plans.
- **Ecosystem "Plug-ins" programs.** These programs are of two types. One brings local ecosystem stakeholders from each of the six domains—

bankers, public officials, educators, government officials, large company executives, support organizations—to observe the Scalerator, meet the participants, and connect them with ecosystem resources. By observing the Scalerator companies, the stakeholders themselves become more clearly focused on growth-related phenomena as they manifest themselves. An example would be the Scalerator visit by the mayor who might solicit ideas from participants on what the city can do to support and promote company growth. The second type of plug-in program engages the Scalerator participants in non-Scalerator activities, such as large corporation CEO forums, workshops with the banking sector, and the like, which are also parts of the entrepreneurship ecosystem projects.

The Scalerator is only for companies that have passed a minimal sales threshold (approximately $200,000, which is the equivalent of about a $1,000,000 company in the U.S. in terms of headcount), and a scalable business model. Neither firm sector nor firm age are used in selection. Some of the most rapidly growing participants are companies that may have experienced little or no growth for one or two generations of ownership. Generally speaking, roughly 50 percent of the applicants that pass the revenue threshold and complete an application have been accepted into the Scalerator—therefore not highly selective.

The Scalerator has multiple purposes in the context of Manizales-Mas. One is to impact the non-Scalerator participants to be more growth oriented by showcasing growth events. Most educators, public officials, NGOs, and foundation leaders, although they may espouse economic growth in their regions, do not have a clear concept of what growth looks like on the ground. These grounded "growth events" consist of the myriad short term precursors or lead indicators of growth, such as new hires, facilities expansions, sales agreements, new financings, export contracts, and the like. Giving leaders examples to refer to when they discuss policies or interventions helps focus their efforts and resources.

A second purpose of the Scalerator is that it is convenient for explaining one of the impacts of Manizales-Mas because it is *relatively* easy to measure its impact on the participants. The three completed cohorts of Manizales-Mas (as well as the two Scale Up Milwaukee cohorts) have been consistently experiencing new growth (on the order of 25 percent to 50 percent new growth on the average) with the typically associated new hires, within a year of finishing the Scalerator.[30]

Leadership and policy training

In order to align and engage a broader circle of leaders from public, private, educational, and civic institutions, an annual 3-day leadership retreat is conducted by Daniel Isenberg. The retreat is also attended by the project team, the steering council, and representatives of the academic committee. Two leadership training programs were held at Babson, and one was held offsite in Colombia, with about 25 people attending the programs at Babson, and 55 people attending the program held in the north of Colombia. The highly interactive program consists of case studies, lectures and exercises on entrepreneurship ecosystems and growth, reviews of Manizales-Mas projects, and action-planning exercises and projects designed to enhance the effectiveness and impact of Manizales-Mas. The leadership programs have significantly influenced the commitment to Manizales-Mas's objectives and programs. Selectively invited non-Manizales national institutions (e.g., national banks, government agencies, NGOs, foundations) have been invited as observers, resulting in increased engagement and even funding from outside of Manizales.

Communications

An active communications program was initiated at the beginning of Manizales-Mas with the overarching purpose of catalyzing and maximizing spillover effects from Manizales-Mas and its specific programs to the entrepreneurship ecosystem. For example, Scalerator participants' specific growth events were communicated through social and other media in order to increase the aspiration levels of a larger number of local entrepreneurs. The initial communications strategy, which remained largely unchanged, was prepared by the project team, communications director, and the BEEP professional team, and presented to the steering committee for discussion and approval. Important components of the Manizales-Mas communications program included

- **Branding:** The project team developed the project name and logo immediately upon signing the agreement between Manizales and BEEP. The initial proposal generated a significant amount of controversy within the steering committee because the initial logo (Manizales-Up) reminded some members of the logo of the 1980s radical political party, "UP." Manizales-Mas (which means "Manizales-More" was subsequently agreed upon. The suffix "Mas" was subsequently adopted in several of the specific programs (see later section).

- **Celebratory events:** Numerous communitywide events celebrated Manizales-Mas and its achievements throughout the region. These included the launch of Manizales-Mas in July, 2012, for which the mayor closed off a section of the city. A stage was constructed, bands played music, and 3,000 balloons were launched, all of which was covered by regional media. Similar annual events have been held, as well as frequent public lectures and panel discussions on aspects of entrepreneurship.
- **Social media:** The Manizales-Mas communications program has included active social media campaigns from the project's inception. For example, during an event highlighting the achievements of women entrepreneurs in the region, the event was designated one of the top media trending events in Colombia.
- **Public-sector leader communications:** Numerous videos featuring public leaders have been created and publicized, including a public video address by the Colombian President Jose Manuel Santos,[31] in which President Santos labeled Manizales-Mas one of the most important projects in Colombia. Additional communications have been published by various ministers, the mayor, and the head of Colombia's innovation agency.
- Although most of the communications have in Spanish, a number of English-language international communications collectively have given Manizales-Mas global visibility. Professor Hugo Kantis[32] visited Manizales-Mas from Argentina for three days as a consultant, and he published commentary on the project; one of the authors (Isenberg) has mentioned Manizales-Mas in global keynote speeches and articles and blog posts, as well as has published a case study on Manizales-Mas.

Financing ecosystem

Financing programs were introduced in Manizales to enhance the "discovery" process between sources of capital (debt and equity investors) and channels of deployment (entrepreneurial ventures).[33] These programs have taken into account that Colombia does not have a well-developed financial entrepreneurial ecosystem, and neither private equity nor public capital markets are available to high growth, relatively small firms, nor would rational equity investors deploy their capital in small, high growth private firms due to the lack of markets for the firms' stock. More specifically, five assumptions underlie Manizales-Mas activities in the finance area:

(a) The sufficient capital in the region could in principle be redeployed to fund most new growth that would be directly and indirectly stimulated by Manizales-Mas

(b) This capital had not "discovered" that one productive avenue of cap-

ital deployment would be companies that entered into new rapid growth trajectories

(c) The discovery process between capital sources and channels of deployment would be more effective and efficient if market forces were first allowed to function in shaping the deal flow, naturally culling out some less viable ventures, and accelerating growth in those companies with viable products and the capacity to execute

(d) Those market forces could be accelerated by training entrepreneurs to address investors' needs

(e) Following (c) and (d) above, development of new investment vehicles and deal structures could take advantage of the discovery process while partially compensating for the lack of liquidity of companies' stocks.

Numerous specific programs were implemented to address the above, such as ongoing training on the "sell side," including public training sessions for actual and aspiring entrepreneurs of all ages (including youth), covering topics such as investment readiness, pitching to investors, and engaging with banks. Additionally, ongoing training on the "buy side" including training sessions for dozens of bank officers and potential early-stage private investors. A "financial innovations" think tank also convened in Manizales (following several months of interviews and discussions) and attended by Colombian investors, senior bank executives, and the private equity trade association, national foundations, and public sector representatives. The outcomes of the think tank include a new fund organization by private investors and government lobbying to update regulatory frameworks for private equity.

Mentoring program

From the outset of Manizales-Mas, high priority was placed on creating an effective regional resource to give growth-aspiring entrepreneurs mentoring from experienced local business people and professionals. Following training programs with MIT's Venture Mentoring Service in Cambridge and Manizales, mentors (30 were selected out of more than 140 applications) and a local NGO, in close coordination with the Manizales-Mas project team, began to administer Mentor-Mas, with BEEP professionals supplementing the program with ongoing short training sessions. Since its inception, these 30 mentors have held more than 470 sessions with 41 companies. Mentor-Mas has been presented as a "best practice" by the MIT Venture Mentoring Service. Numerous anecdotes have been reported of mentors having had large positive impacts on companies' growth, and the national reputation of Mentor-Mas has brought new investors to Manizales

based on the perception that Mentor-Mas improves the attractiveness of potential investments.

University-related entrepreneurship accelerators

By design, university-related, startup-oriented programs in Manizales-Mas followed the demonstration that the Scalerator and other activities could actually stimulate new growth in existing companies. The assumption was that local growth role models would positively impact the demonstration that growth was achievable, and the Scalerator participants themselves could be useful mentors for early-stage entrepreneurs. ADDVenture-Mas, modeled after Babson's Summer Venture Accelerator and focusing on post-idea start-ups affiliated with SUMA universities, was implemented shortly following the start of the second Scalerator cohort. Startup-Mas was implemented the following year as an even earlier-stage program focusing on opportunity identification. [34] Scalerator participants have played an active role as guest presenters and mentors in both programs, as planned. Following the initial year, BEEP staff handed off leadership of these programs to faculty and staff of the SUMA university entrepreneurship departments or related units.

Additional programs

Space constraints prevents description of all of the programs and activities of Manizales-Mas beyond a listing. These have included training of SUMA administrators in entrepreneurial thought and action (ETA™); workshops with larger local companies to facilitate their engagement with local entrepreneurs; conferences on women's entrepreneurship; export delegations to Chile; a "growth survey" assessing hundreds of companies' perceptions of the region's conduciveness to growth; advising the mayor on communications infrastructure; and a training program for all of the major local NGOs and entrepreneurship support organization. The unifying theme of all of these activities has been the fostering of more growth in more and more companies by impacting all six domains of the entrepreneurship ecosystem.

SYSTEMATIZING AND EXPANDING PROGRAMS

From the inception of Manizales-Mas, BEEP and the stakeholders have collaborated to build a local capacity to implement the Manizales-Mas programs independently of BEEP's professional team. This has been successfully achieved notably with Mentor-Mas, ADDVenture-Mas, Startup-Mas and the communications programs. This fourth section describes the main

programs specifically for creating an entrepreneurship education capacity on the assumption that this is an essential component of systematizing, sustaining and scaling up Manizales-Mas.

Program for Modules for Entrepreneurship Educators

Based on Babson's experience in conducting programs for entrepreneurship educators for more than a decade, BEEP faculty have conducted four individual 2–3 day workshops for entrepreneurship faculty in Manizales, teaching topics such as sales, strategy, marketing, and so on.

Global Affiliates Program

Two cohorts of two and three SUMA faculty selected by the Babson Entrepreneurship Department have spent a semester each in residence on the Babson campus attending classes, writing cases, meeting with assigned faculty mentors, studying the Babson curriculum, and participating in executive education programs.[35] Participants in completed cohorts have played an active role in Manizales-Mas upon returning to Colombia. They support many of the Manizales-Mas programs by providing professional and academic inputs.

High Potential Professors Program

In the third full year of implementation, Manizales-Mas created a cohort of 11 SUMA entrepreneurship faculty to participate in a specially designed nine-month program consisting of six remote workshops led by BEEP, two on-site workshops, and observation of Scalerator workshops by visiting BEEP faculty.[36] This program was immediately followed by a seminar reflecting on the teaching methods used during the workshop. Each of the SUMA professors conceived of and executed a teaching project that he or she presented to the other program faculty.

OUTCOME MEASUREMENT

Since its inception in 2010, the stakeholders of Manizales-Mas have invested approximately $2.4 million, consisting of approximately 80 percent cash payments to Babson and the rest in tangible in-kind payment (e.g., salaries of the project team).[37] Has this investment been worthwhile? Although the consensus across a broad spectrum of private and public institutions in Manizales is that it has been essential to the region's revitalization, it is well known that measurement of entrepreneurship ecosystems and how they are developing or changing is very complex.[38] Furthermore, there are no

accepted standards for such measurement.[39] Even more complex is showing causality between the interventions and the outcomes.[40] However, some imperfect proxies indicate positive outcomes.

- **Social progress**. In September 2015, the Social Progress Imperative released its report of Social Progress Indicators, with specific indicators of cities within Colombia.[41] Porter singled out Manizales in his preface: "The city of Manizales, best known for their coffee and their schools, has recorded higher levels of social progress than the capital city of Bogota, while average income in Bogota is 1.3 times higher. The growing social progress of Manizales is highly correlated with increases in income, reduction of inequality and poverty reduction." The report authors were unaware of Manizales-Mas. Although we cannot attribute causality to Manizales-Mas, the data are consistent with the hypothesis that Manizales-Mas plays a causal role, as the social progress indicators in Manizales have increased since 2010.
- **Company growth**: At a more micro-level, the performance of all of the participants' in the Scalerator program have been tracked before and after their participation in the Scalerator. Qualitative interviews suggest that participants tie growth outcomes to specific lessons and exercises in the Scalerator program. Nevertheless, whereas we believe Manizales-Mas played some causal role, the data can be accounted for by alternative explanations. Some of the key outcomes for Scalerator participants include the following:
  - 55 percent average revenue growth (comparing the 12 months pre- and post-participation). The growth rates were 88 percent, 34 percent, and 43 percent for the three cohorts, respectively.
  - More than 80 percent experienced new growth
  - 703 new jobs created
  - About $3 million of new debt and equity financings
  - 1071 new customers (for non-consumer products and services)
  - First-time exporting by five Scalerator participants
- **Community and academic engagement**. There appear to be broad effects from Manizales-Mas's formal programs. As of August, 2014,
  - more than 8,000 people had participated in one or more Manizales-Mas events,
  - 66 courses in entrepreneurship and entrepreneurship-related subjects reported significant curriculum changes, and
  - 166 video contents had been created, viewed by of 14,000 people.

SPILLOVER EFFECTS

Although BEEP projects explicitly attempt to catalyze positive spillover effects (e.g., growth by the Scalerator participants is intended to facilitate growth by nonparticipants), these and other spillover effects in broad regional economic interventions are notoriously difficult to measure.[42] In both Manizales-Mas at this point it is only possible to report qualitative, unsystematic evidence. In the case of Manizales-Mas, there have been numerous anecdotal reports of local business owners being inspired by the publicized and otherwise communicated examples of Scalerator participants growing their firms. These growth events are consistently reported in the local media (highly concentrated in print and radio) and discussed at family and social gatherings. Furthermore, some of the consumer products and services companies themselves are publicly visible, as is their expansion (e.g., in opening new store locations). Although these need to be measured more systematically, dozens of the stakeholders have reported to BEEP that the atmosphere of growth, including aspiration levels, have changed more broadly in the city. The Social Progress Index findings are consistent with this belief.

SCALE UP MILWAUKEE

Before attempting to present some practical conclusions from BEEP projects, it is potentially informative to briefly compare the experience from Scale Up Milwaukee, a BEEP-affiliated project that in late 2015 completed its proof-of-concept phase. Although Scale Up Milwaukee has had less time to develop than Manizales-Mas has, it is particularly interesting to compare with Manizales-Mas because of the similar assumptions, programs, and structure, on the one hand, but the very different environments. Compared with Manizales, Milwaukee is an advanced economy with about three times the metropolitan population and about 20 times the economic activity, with easy access to export markets via O'Hare airport and a long legacy of manufacturing and business excellence. The Milwaukee region hosts the headquarters of leading multinational companies including Manpower, Johnson Controls, Briggs and Stratton, GE Healthcare, Rockwell Automation, Kohl's Department Stores, Northwest Mutual, and other large, if less well known, corporations.

Scale Up Milwaukee was launched with the financial and communications support of the American Express OPEN division, which had been the initiator of Small Business Saturday, a highly visible initiative to stimulate sales of small businesses in the United States. Scale Up Milwaukee has also

been supported by the Wisconsin Economic Development Corporation, private foundations, and private individual donors. The primary BEEP partner in Scale Up Milwaukee has been the Greater Milwaukee Committee, a civic organization formed in the late 1940s to initiate projects that contribute to the cultural and economic base of the greater Milwaukee. The committee's membership comprises leaders in business, professional services, labor, education, philanthropy, nonprofit, and community development.

Scale Up Milwaukee and Manizales-Mas: Key Similarities and Differences

Scale Up Milwaukee and Manizales-Mas have the following significant similarities:

- Both have a small dedicated project team to develop and execute the project programming. Both report to the key execution partner (Luker and the Greater Milwaukee Committee, respectively) administratively, and to the BEEP staff for professional guidance.
- Both have an advisory council with local leaders representing a broad cross-section of sectors volunteering their time and support (the Scale Up Milwaukee "steering council" has neither formal authority nor officially represents the funding stakeholders).
- Both have structures for engaging larger groups of stakeholders through task forces (in the case of Scale Up Milwaukee) or committees (as in the case of the academic committee of Manizales-Mas).
- Both have one lead local partner involved in all aspects of formulating, funding, and executing the project. We view these partners to have particular local prominence and influence.
- Both have significant communications campaigns (although Manizales-Mas has had a dedicated communications director throughout the project, whereas Scale Up Milwaukee has had part time communications support), which have generated significant national and global interest.
- Both have near-identical Scalerator programs with nearly identical faculty, content, and cohort sizes.
- Both have achieved similar outcomes in terms of expanded firm growth, new customer acquisition, job creation, export enhancement, and new investments.

Whereas we view these similarities as greater than the differences, we are aware of the likelihood that these similarities may be in part artifacts of our own views of what interventions are required for regional economic growth. By a similar token, the differences between Scale Up Milwaukee and Manizales-Mas may partly reflect the different maturity levels and ages

of the projects, rather than intrinsic differences. Nevertheless, some differences between the two projects appear to be substantive:

- The engagement of the larger corporation sector in Scale Up Milwaukee is significantly greater, and it has been fueled by a specially created quarterly forum. This forum allows large corporate CEOs to candidly discuss their growth and innovation strategies, including how to engage with growth-oriented local entrepreneurs. This difference may be due simply to the more extensive presence of large company headquarters in the Milwaukee area.
- The mentoring program in Manizales-Mas has not been replicated in Milwaukee, in part due to funding priorities, and in part due to the availability of existing de facto mentoring resources in Milwaukee in the form of professional services firms and peer-to-peer forums.[43] * Whereas the leadership of Manizales-Mas has participated annually in the three-day leadership training, in Milwaukee intensive training for the stakeholders has not occurred, or has occurred in short segments of 2–3 hour sessions that are less pedagogical and more practical.
- In Manizales-Mas virtually all of the funding has been from local stakeholders for the initial three years, and only as the project has matured have national funders joined. On the other hand, Scale Up Milwaukee was initially funded through national (American Express) grants or state funds (e.g., Wisconsin Economic Development Corporation), and only recently has the level of financial support from local foundations and donors increased to a significant portion of the budget.
- Scale Up Milwaukee has explicitly adopted and regularly communicates the number of new growth firms targeted by the project. This started out as 60 within five years, which reflects about one per 100,000 population per year. The project team later revised this target to 200 within six years and this has been communicated as an explicit target. In Manizales-Mas, no explicit target has been set in terms of number of firms with new growth, although there has been a consistent emphasis on measuring growth of Scalerator and other firms.

CONCLUSIONS AND KEY TAKEAWAYS: PRINCIPLES OF SCALE UP™ ECOSYSTEMS

It is useful, at least as a heuristic, to exploit BEEP's five years of experience fostering regional ecosystems for scale up entrepreneurship to hypothesize about which action prescriptions can be generalized. Of particular interest have been the two longest running projects, Manizales-Mas and Scale Up Milwaukee, because the two regional environments represent a high degree

of heterogeneity (cultural, historical, economic, ethnic, geographical among others).

Assuming that the outcomes and causal paths to the outcomes of Manizales-Mas and Scale Up Milwaukee are meaningful, particularly in light of the contextual heterogeneity, the most overarching takeaway is that there is a significant amount of "design re-use" in scale up ecosystem projects, including the governance structures, the project team organization, the Scalerator program and the stakeholder alignment and spillover processes. Following are a few more specific hypothesized principles about which commonalities can be generalized from these two projects to a bigger set of regions and translated into prescriptions.

- **Identify a region with a moderately dense metro population**. The BEEP experience suggests hypothetical upper and lower bounds of size. Manizales is close to 0.5 million, and Milwaukee is closer to 1.5 million. While there is no reason to conclude that these by coincidence represent specific lower and upper bounds, the underlying operative factors include the ability of the leaders from the different domains to experience a sense of responsibility for the project's outcomes. In order to agree on and achieve those outcomes, they must be able to meet with each other face to face, for the process of alignment as well as to facilitate spillover effects. However, below a hypothetical lower bound there may not be the critical mass in the region of human, financial, and other resources. Again, as a heuristic, the population bounds are hypothesized to be approximately between a few hundred thousand to 1.5 to 2 million people.[44]
- **Within the specified region, identify influencers (formal or informal leaders) in each of the six entrepreneurship ecosystem domains** and engage them to secure their alignment with and commitment to a set of objectives. From the outset in Manizales-Mas, and increasingly in Scale Up Milwaukee, the local business, civic, educational, and public leaders are becoming supportive of and committed to generating new growth in more and more regional companies.
- **Set objectives for the number and time frame of companies to enter into measurably more rapid scale up trajectories**. The BEEP experience suggests[45] that the heuristic of one newly growing each year per 100,000 population is "directionally correct" enough that the risks of misspecification are likely to be lower than the risks of not having quantifiable objectives at all. Furthermore, the BEEP experience suggests that framing the objectives in terms of firm growth has the practical advantage of focusing the stakeholders' attention and activities on inducing more rapid growth in more firms.

- **Compose funding, at least in significant part, from a cross-section of local funders**. It is BEEP's experience that although the strategic decision by Luker to persuade a broad group of local stakeholders to fund Manizales-Mas took a long time to implement, the benefits in terms of commitment of those stakeholders to the success of Manizales-Mas was crucial in sustaining the effort. In the case of Scale Up Milwaukee, more than half of the initial seed funding was from a nonlocal stakeholder (American Express) and caused Scale Up Milwaukee's programming to be launched very quickly. In transitioning from the proof-of-concept phase to scaling up the programming, the large majority of the funding is coming from local and state stakeholders. It is the impression of the authors that whereas this process has been more difficult than the activating and aligning phases, the process of local fundraising has galvanized a broad cross-section of stakeholders to support and prioritize Scale Up Milwaukee, and support its objectives privately and publicly.
- **Continually escalate and broaden activation and alignment**. The experiences of both Scale Up Milwaukee and Manizales-Mas strongly suggest that the activation and alignment of a broad cross-section of stakeholders is both cause and effect, and although it is convenient to describe the process in linear phases, the reality is that the phases interact in cyclical or spiral fashion. In both projects, many of the current stakeholders were not stakeholders at the outset, but particularly in Scale Up Milwaukee this is the case. Rather than view the incomplete initial commitment as a weakness or shortcoming, it is possible that incomplete commitment is natural, to be expected and planned for.[46]
- **Generate "quick wins" by focusing on firms with existing revenue base**. One of the rationales for the Scalerator program is that it can generate relatively rapid demonstration effects, and the rapidity is important to catalyze the spiraling of commitment by stakeholders. We believe that the ability to show all of the stakeholders, as well as the entrepreneurs themselves, that (for example) they can have significant new growth events within a few months, and in some cases weeks, provides a unique stimulus for further commitment to invest in growth.
- **Communicate from the outset that BEEP will have a time-limited presence and that local stakeholders will eventually develop and execute all of the local programming**. One of BEEP's strategic objectives is to strengthen the local institutions in order to be able to take over the development and execution of the programs. This principle is important for several reasons, the most obvious of which is perhaps the effective use of finite resources. A more subtle reason, perhaps, is to signal to the local

economic development agencies that the success of the BEEP project will increase their own success as well.

CONCLUSION

Space prevents presentation of an exhaustive list of principles and methodologies which comprise BEEP—the reality of instigating or catalyzing economic change in a region defies simplistic prescription. Nevertheless, the cases and their outcomes presented herein, and the authors' attempts to codify them, suggest that these methodologies are worthy of further experimentation, discussion, and learning.

GOVERNANCE AUTHORITIES AND RESPONSIBILITIES IN MANIZALES-MAS[47]

Steering Committee (SC)—formal authority

Approve continuation or cancelation of Manizales-Mas/Babson contract at end of each contract period
Approve annual strategic plan for Manizales-Mas
Approve mission statement and any modifications
Approve decision making authority of Executive Committee (EC)
Approve appointment, removal of EC members
Approve major modifications of the plan for Manizales-Mas
Approve the annual general communications strategy for Manizales-Mas and any major modifications of the communications strategy (execution of the strategy will be led by Babson and the Project Team)
Provide Project Team with input, feedback, and connections that lead to more efficient execution

Executive Committee—formal authority

Approve changes in Babson contract deliverables provided that they are consistent with Manizales-Mas strategic plan and mission
Approve changes in the Project Team leadership
Regularly communicate Manizales-Mas progress to SC
Propose the communications strategy to the SC
Provide Project Team with input, feedback and connections that lead to more efficient execution
Approve the inclusion of new members (funders) of Manizales-Mas with Babson's advice
Propose changes in budget to SC
Propose changes in the agreements between stakeholders as per Plan
Meeting every 15 days or as required by stakeholders (Babson, PT leader or SC members)

Project Team—formal authority

Execute the strategic plan of Manizales-Mas under the direct supervision of Babson

Project team leader will take instructions from Babson; the PT leader will not take instructions from the SC or the EC

Present regular updates and communicate regularly to the EC and to the SC

Upon request of the SC, make reports on the progress of Manizales-Mas

Any changes in the PT membership, including the PT leader, will be made in consensus between Babson and the EC

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[1] We use the term "region" specifically to refer to a populated area including and adjacent to an urban center of at least 250,000 people within which it is reasonable to assume there are relatively unrestricted flows of goods, services, and labor.

[2] See, e.g., P. Aghion and P. Howitt, "The Economics of Growth," MIT Press, 2009; see also R. Hausmann, "On the Other Hand: High Bandwidth Development Policy." Harvard Kennedy School of Government CID working paper #179, 2008. , L. Pritchett, and D. Rodrik. Growth Accelerations, Journal of Economic Growth, December 2005, Volume 10, Issue 4, pp. 303-329.

[3] See, e.g., E. Malecki, "Jockeying for Position: What It Means and Why It Matters to Regional Development Policy When Places Compete," Regional Studies, Vol. 38 (9), pp. 1110-1120.

[4] M. Porter, "Clusters and the New Economics of Competition," Harvard Business Review, November-December, 1998.

[5] See, e.g., E. Glaeser, W. Kerr, and G. Ponzetto, "Clusters of Entrepreneurship," Journal of Urban Economics, 67(10< pp. 150-168, 2010

[6] See, e.g., D. Isenberg (a), "How to Start an Entrepreneurial Revolution," Harvard Business Review, June, 2010

[7] See, e.g., D. Isenberg (2010b), "New Gold: Mining for Entrepreneurs," The Economist Ideas Economy Online, December 8, 2010.

[8] See, e.g., J. Haltiwanger, R. Jarmin, and J. Miranda, "Who Creates Jobs? Small versus Large versus Young," Journal of Economics and Statistics, May 2013, Vol. 95, No. 2, Pages 347-361

[9] J. Kuhn, N. Malchow-Moller, A. Sorensen, Job creation and job types: New evidence from Danish entrepreneurs. Rockwool Foundation, Paper 100, November, 2015; Brown, R. and Mawson, S. Trigger points and high growth firms: A conceptualisation and review of public policy implications. Journal of Small Business and Enterprise Development, 20(2), 2013, pp. 279-295; A. Davila, G. Foster, X. He. And C. Shimizu. The rise and fall of startups: Creation and destruction of revenue and jobs by young companies. Australian Journal of Management, 40(1), 6-35, 2015.

[10] M. Davies, "Russian Vanity Projects Lose Lustre," May 26, 2014, Irish Times. D. Feige,. Start-up Chile: A Critical Analysis. International Affairs Forum, June 2014. http://www.ia-forum.org/Files/Start-Up%20Chile%20A%20Critical%20Analysis2.pdf. accessed, January 12, 2016.

[11] See, e.g., I. Hathaway and R. Litan, "Declining Business Dynamism in the United States: A Look at States and Metros." The Brookings Institution, May, 2014.

[12] World Economic Forum, "Leveraging Entrepreneurial Ambition and Innovation," January, 2015

[13] G. Dorf and D. Isenberg, "The Kauffman Foundation's Incomplete Message," Wisconsin Journal-Sentinel, July 4, 2015.

[14] See, e.g., D. Isenberg, "Worthless, Impossible and Stupid: How Entrepreneurs Create and Capture Extraordinary Value," Harvard Business Review Press, 2013. The authors recognize the

challenges in defining entrepreneurship in part based on the outcomes, and believe this is at least partially justified by the highly unpredictable, and even contrarian, nature of entrepreneurship.

15 N. Ahmad and D. R. Petersen, "High-Growth Enterprises and Gazelles—Preliminary and Summary Sensitivity Analysis," OECD-FORA, Paris, 2007.

16 Isenberg, 2010a, ibid.

17 C. Mason and R. Brown, "Entrepreneurial Ecosystems and High Growth Entrepreneurship," OECD, January, 2014. D. Stangler and J. Bell-Masterson, "Measuring an Entrepreneurial Ecosystem," Kauffman Foundation Report, March, 2015, http://www.kauffman.org accessed January 24, 2016. World Economic Forum, ibid.

18 See., e.g., C. Krebs, The Experimental Analysis of Distribution and Abundance, Cummings, 2008

19 D. Isenberg, "Seeding Entrepreneurship: How to Create a Venture Finance Ecosystem," The Economist Idea Economy, November 2, 2011.

20 Much of the information for this section is taken from D. Isenberg, "Manizales-Mas: Cree, Crea, Crece—Believe, Create, Grow." Babson College, Harvard Business School Publishing, Case#BAB226, September,2015.

21 In a 2010 study conducted by the World Bank, Manizales ranked first in Colombia for ease of doing business.

22 Internal Luker Foundation document.

23 Primarily the Luker Foundation general manager, Ana Maria Gonzales Londono.

24 See for example, J. F. Gauthier, "Hong Kong Startup Ecosystem Report," January 26, 2016, for a recent example. http://blog.compass.co/hong-kong/ accessed February 5, 2016; Z. Acs, L. Szerb, and E. Autio, "Global Entrepreneurship Development Index 2014," Springer, 2015.

25 D. Isenberg, "The Entrepreneurship Ecosystem Strategy as a New Paradigm for Economic Policy," Institute for International European Affairs: Principles for Cultivating Entrepreneurship." Dublin, Ireland (2011) http://www.wheda.com/uploadedFiles/Website/About_Wheda/Babson%20Entrepreneurship%20Ecosystem%20Project.pdf accessed February 5, 2016.

26 The stakeholders consisted of Luker Foundation, the SUMA universities, the municipality, and five NGOs including the chamber of commerce.

27 To date, the project team has used Central Desktop (now "iMeetCentral").

28 Sofia Stolberg and Daniel Isenberg, respectively.

29 To date the faculty have all been experienced Babson College faculty members, coordinated and supervised by the author (Onyemah).

30 For new evidence on how external support can accelerate firm growth, see E. Autio and H. Rannikko, "Retaining winners: Can policy boost high-growth entrepreneurship?" Research Policy, Volume 45 (1), February 2016, Pages 42–55.

31 See https://www.youtube.com/watch?v=gmQTI10VlT8 accessed January 23, 2016.

32 Professor, Universidad Nacional de General Sarmiento, Argentina.

33 Isenberg, 2011, ibid.

34 Led by Babson Lecturer Mary Gale

35 Led by Professor Candida Brush

36 Led by Associate Professor Matthew Allen with the support of the authors (Isenberg, Onyemah).

37 Authors' estimate.

38 Based on numerous conversations between the authors and the stakeholders.

39 Stangler and Bell-Masterson, ibid

[40] Hausmann, ibid

[41] M. Porter and S. Stern, "Social Progress Index 2015," Social Progress Imperative, accessed January 28, 2016.

[42] S. Baird, J. Bohren, Craig McIntosh, and B Ozler, "Designing Experiments to Measure Spillover Effects," Institute for Economic Policy, Working Paper, 214-11, February, 2014

[43] See for example The Executive Committee, https://tecmidwest.com/about-tec/ .

[44] BEEP has conducted pilot projects and workshops in Rio de Janeiro (6.5 million population), Mexico City (10 million), Istanbul (14 million) and St. Petersburg (5 million), none of which went beyond the pilot stage. It is the author's (Isenberg) impression the large populations impeded the processes of activation and alignment.

[45] Isenberg, 2010a ibid; see also S. Coutu, The UK Scale Up Report. Accessed January 28, 2016.

[46] E. Autio and J. Levie "Management of Entrepreneurial Ecosystems," September, 2015, unpublished manuscript, present a highly coherent argument for the need for deep stakeholder engagement when intervening in entrepreneurship ecosystems to facilitate high growth entrepreneurship.

[47] Source, Manizales-Mas case, ibid.

Christopher Gergen and Lyndon Rego

Making Beautiful Places
Fostering Inclusive Innovation through Place-Based Ecosystem Development

Innovations Case Narrative:
Bull City Forward, Forward Cities, and Forward Impact

Take a look at our cities, and you see some marked differences. Some urban ecosystems like Seattle, Palo Alto, Austin, and Boston have emerged as meccas for talent and investment, buzzing with start-ups, fast-track companies, and entrepreneurial activity. Elsewhere, once-thriving metropolises have plunged into a state of distress, as traditional industries have collapsed and entrenched racial and economic divisions have spawned division and conflict that have triggered the flight of people and capital. Many other cities lie in between the two categories as they seek to seed new sources of vitality to stave off the forces that would send them tumbling into the latter category. What makes the difference?

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A century ago, the Sufi mystic Hazrat Inayat Khan wrote: "Some people look for a beautiful place, others make a place beautiful." This article focuses on creating beautiful places where people and economies can thrive. Along the lines of Inayat Khan, we believe that it is people who write the future of cities; beautiful places come into being when people find ways to work together across boundaries to claim a common future that benefits all of us. It is about creative and collective leadership. In a competitive global economy, this is a dynamic process that requires continual adaptation and innovation. The future of our communities thus depends on shaping new solutions to emerging challenges that yield revitalization and benefit for all stakeholders.

Innovation for beautiful cities largely happens through *place-based* activities and investment. The long-term success and sustainability of place-based innovation occurs when these efforts are lifting all boats, rather than leading to greater inequities. In addition, accelerating place-based innovation involves adopting efforts that are interconnected, rather than isolated from one another. To be successful, cities and communities need to seek opportunities for sharing promising practices, lessons learned, and potential collaborative connections. These connection points are even stronger when cities collaborate within a state or common geographic region.

The challenge is that often communities and cities take innovation for granted; they expect that innovation will flourish on its own, that these innovation ecosystems will inherently be inclusive, and that efforts to accelerate innovation within cities will naturally connect with similar efforts in other cities. Our experience is that nothing is accidental. Cities interested in creating inclusive entrepreneurial ecosystems must be highly intentional and committed to sustained public and private investment of time, energy, and resources by all stakeholders in the community.

This paper is organized around three questions: (1) What are the specific elements of a healthy entrepreneurial ecosystem? (2) What can be done to foster inclusion within this ecosystem? (3) How can these place-based strategies nationally and regionally connect with each other? In each case, we highlight specific efforts to put the answers to these questions into action that will advance this important work.

BUILDING HEALTHY PLACE-BASED ENTREPRENEURIAL ECOSYSTEMS

Both of us come to this work through entrepreneurial talent development. Specifically, we have helped create dynamic learning pathways for next generation entrepreneurial leaders through our work with the Center for Creative Leadership, Duke University, and with partners like the Algernon

Sydney Sullivan Foundation, articles and book chapters we have written together, as well as a book that Christopher co-authored with Gregg Vanourek titled *Life Entrepreneurs: Ordinary People Creating Extraordinary Lives*. But just simply focusing on awakening and empowering really good, entrepreneurial talent is not enough. Long-term success means paying attention to the fertile ground in which to plant those seeds. If these talented entrepreneurs land in cities or communities that don't embrace their entrepreneurial spirit, they will wither. Cities can't afford to squander this creative talent—especially places that need entrepreneurial activity to grow new jobs and replace older, declining industries.

The creative, entrepreneurial base for cities is a source of competitive advantage. Creative work is correlated with innovation and economic growth as well as higher wages (Martin et al. 2016). According to the U.S. Small Business Administration, firms that are less than five years old create more than 65 percent of net new jobs (SBA 2011). This is the future of the nation's economy, and our country cannot borrow or spent its way forward, Innovation is the way forward. Entrepreneurship is going to be one of the major growth engines, and it is necessary to innovate in order to stay ahead of the game. An isolated island of creative and entrepreneurial activity in a community, however, is not adequate.

The evidence indicates that the rise of creative jobs in a city can also drive disparity. Individuals who are not part of the creative economy can be left behind and further marginalized by the influx of job seekers and rising costs (Martin et al. 2016). It is important, therefore, for stakeholders across all parts of the community to join together to direct entrepreneurial, innovative energies and spirit to tackle inequalities and tough challenges in education, health care, environmental impact, poverty, among others.

How do we create the intentional environment to foster place-based change-making? This is how Bull City Forward, where Christopher served as founding Executive Director, came into being. Durham, North Carolina is a hotbed of talent development. In addition to Duke University, North Carolina Central University, and Durham Tech, Durham is one corner of the Research Triangle along with the University of North Carolina at Chapel Hill and North Carolina State University. Although it was once a booming international hub of tobacco and textiles as well as one of the nation's premiere African American business communities (known as "Black Wall Street"), the city hit tough times in the latter part of the twentieth century, and the downtown emptied out. Young entrepreneurial talent had no incentive to stay in the Bull City.

Left in the wake were beautiful brick warehouses. Supported by city and university partners (particularly Duke University), a group of pioneering investors began to redevelop downtown Durham in the early 2000s. A subsequent question: how could the city create the right kinds of conditions to recruit and retain creative and entrepreneurial talent pool needed?

In response to this challenge, a group of community leaders came together to answer the question: "how can we create a city where innovation never sleeps?" Naming ourselves Bull City Forward, we did two different things: To assess the field, we first mapped all of the assets and strengths of our community and gaps to fill. Second, we looked at promising practices around the world, including cities like Helsinki, Pittsburgh, Seattle and Providence—13 cities in total. We also looked at the research and work of Living Cities, the Surdna Foundation, the Annie E. Casey Foundation, Ashoka, Social Venture Partners, New Profit Inc., and the Brookings Institute, among others. We tried to learn as much as we possibly could from efforts to harness that entrepreneurial energy.

We came to realize that there were a lot of really good ideas out there. Some communities, like Indianapolis, were doing a great job developing and recruiting a strong pipeline of entrepreneurial talent. Others, like New Orleans, Pittsburgh, and London, had built out robust entrepreneurial support systems. Cities such as San Francisco, Toronto, and Boston had created model incubator/accelerator spaces. And others, like Providence and Pittsburgh, were smartly tapping into their universities for talent, research, and new venture pipeline. Data on impact were relatively scarce but increasingly important. Policymaking, while recognized for its importance, was often not actively directed toward promoting and supporting social and commercial enterprise development. Finally, the importance of access to capital came up again and again though with a few exceptions (San Francisco in particular) it was relatively thin in most communities and not well organized. In short, while there was much to be learned from each community, it was quickly apparent that no community was taking a truly comprehensive approach to intentionally fostering, developing, and scaling high-impact, high-growth social enterprises.

Despite the sought-after comprehensive approach, these collective community-building efforts suggest five key levers to achieving enduring impact through entrepreneurial ecosystem development: (1) building talent pipelines through local education efforts, recruitment, and retention; (2) creating strong enabling environments to connect emerging problem solvers with the resources and relationships they need to grow (e.g., access to capital, collaborative work spaces, mentorship); (3) developing robust

data-gathering efforts to measure the economic and community impact being created through entrepreneurial and innovation output; (4) fostering a supportive community and economic development policy environment to lend public support to these efforts; and (5) shining a light on these efforts through storytelling and building a narrative around a community's burgeoning entrepreneurial community.

Durham is a microcosm of another important issue. From millennials to people in mid-career transition to retiring baby boomers, there is a burgeoning entrepreneurial movement in our cities, but the challenge is that most of our entrepreneurs are not connected to one another. They're often working in isolation. But if we help plant thousands of entrepreneurial seeds and create an intertwined, integrated collaborative environment, those entrepreneurs will stay, they'll flourish, they'll grow, they'll create jobs, they'll create impact, and they will transform the communities they live in.

One of the things holding us back from creating truly sustainable economic and social impact is *scale*. While there are hundreds of examples of some highly dynamic social enterprises, they are just scratching the surface of much deeper systemic challenges such as economic inequity, environmental degradation, health disparities, and more. To truly address these challenges, it's not going to happen at the individual organizational level. There may be a couple of breakthroughs, but even at the individual level achieving high scale, sustained impact is very difficult.

Developing scaled solutions to social challenges that have staying power is going to require individual organizations to come together around a common purpose that cultivate collaboration and produces collective impact. It's going to require a shift of mindset for individuals, community leaders, and funders. If we can overcome the hurdle of "individualism," we have a real shot at moving the needle on a number of important issues for our economy and for our society and change our current trajectory in a very positive way.

We are both part of efforts to catalyze these collaborative entrepreneurial ecosystems across North Carolina and beyond that are starting to see some tangible success, measured by new enterprise growth, new job formation, positive community development, inflow of capital investment, talent attraction and retention, media coverage, policy influence, and more. Our vision is to transform North Carolina into a state where a world-class cluster of creative minds is creating and scaling thousands of innovative for-profit companies and nonprofit enterprises that drive breakthrough solutions to our more pressing local and global challenges and improving our

communities in meaningful and measurable ways. This continually evolving cluster is sustained by a talent pipeline of problem-solvers who are homegrown locally and recruited globally. The effort is defined by collaboration, sustainability, diversity, and accountability—and its success creates tens of thousands of jobs, attracts hundreds of millions of dollars in investment capital, and fundamentally changes the long-term trajectory of our region.

But what has become apparent through the pursuit of this vision is that not only do cities have to be intentional about cultivating collaborative, scaled, place-based entrepreneurial ecosystems, we also have to be intentional about making them inclusive. Specifically, cities need to insure that they are growing a proportional number of minority and women led enterprises that reflects the diversity of our communities.

Durham, for instance, has significant economic disparity as well as ethnic diversity. It's approximately 45 percent African American, 45 percent white, and 10 percent Hispanic, and the Hispanic population is one of the fastest growing in the country. Yet Durham's entrepreneurial landscape does not reflect this rich diversity.

Elsewhere, in Greensboro as in much of the nation, there is a slide towards inequality with some neighborhoods seeing incomes drop by much as 25 percent, despite an overall rise in average community incomes. A Stanford University study found that the proportion of families living in either poor or affluent neighborhoods across the nation increased from 15 percent to 31 percent from 1970 to 2007 (Green 2012). Inequity is greatest in Southern cities. Nine of the 15 cities where poverty is expanding at the greatest rates are located in the South (Kneebone 2014). In a study by New Orleans Data Center, for example, 60 percent of that city's population is African American yet only 2 percent of business receipts are generated by black-owned enterprises. This is not just or sustainable.

A critical factor in solving these disparities is nurturing collective leadership across economic and racial lines in communities that work together to shape a common destiny. In communities where these populations live apart, natural centrifugal forces tend to drive greater separation and disparity over time. Integration and collective action require the work of catalytic agents that can bring stakeholders together. For example, the Center for Creative Leadership works to globally foster connectivity and trusting relationships that make the work of collaboration possible. Specifically, CCL promotes a model called "Boundary Spanning Leadership" (Ernst and Mason 2011).

The process of spanning boundaries requires creating opportunities for stakeholders to connect on a human level. In these facilitated interactions, stakeholders share their stories of identity and aspirations, finding that they often value similar things and have common hopes for their families and the future. While this requires slowing down the process at the outset, it pays dividends in creating sustained outcomes. From these initial encounters, the work of tackling complex challenges flows away from the stereotypical exercise of influence and advocacy towards seeking mutual understanding and co-creation. Cross-sectoral action teams work together to collaboratively shape solutions, bringing insights and resources from their individual networks and groups to tackle difficult challenges. We have seen this pattern play out in our work in North Carolina to Kenya to El Salvador. In El Salvador, the teams spanned business, civil society and government and focused on driving economic development in 50 municipalities across the nation.

Given how difficult these questions are, cities can't address these challenges in isolation. Recognizing this, Christopher co-founded a national learning collaborative called Forward Cities (www.forwardcities.org). Forward Cities is a two-year multicity learning collaborative between Detroit, New Orleans, Cleveland, and Durham focused on "inclusive innovation." The effort is led by Friends of New Orleans and Forward Impact, and includes the Urban Institute, the Aspen Institute, and Issue Media Group. The coalition aspires to (1)identify ways to develop and support more business entrepreneurs, social innovators, and neighborhood changemakers from low-income communities of color,; (2) determine best strategies for harnessing the collective talent and creativity of our local entrepreneurial/innovation ecosystems in order to address the most critical issues/challenges that exist in our cities' most distressed neighborhoods and communities; (3) strengthen existing networks and accelerate entrepreneurial activity within the participating cities and their surrounding areas; (4) foster best practice sharing, relationship building, and entrepreneurial activity among the participating cities and their surrounding areas; and (5) serve as a dynamic knowledge resource for others who are looking to build out their innovation ecosystems.

Although this is a structured learning collaborative, each of the participating cities is taking a different approach to developing its entrepreneurial ecosystems. Each has a distinctive local context and is at a different phase in terms of its ecosystem "development." With this in mind, Forward Cities has taken the following approach to strengthening local inclusive innovation efforts while creating connections across the participating cities. These

efforts include forming teams, convening site visits, connecting and collaborating, learning platforms, and evaluation and tool building.

Local Innovation Councils and Teams: Local innovation "councils" have to be formed in each of the participating cities to ensure local input and ownership by the key stakeholders of that city's entrepreneurial ecosystem. Comprising more than 30 local leaders (private and public), these councils help select specific communities to focus on, inform local data gathering efforts, drive strategic planning, and contribute to a set of collective impact efforts to strengthen the city's inclusive innovation ecosystem (ostensibly acting as a "board of directors"). From the councils, a local innovation team is selected (i.e., the "executive committee") made up of six entrepreneurial leaders who travel to represent their city at each of the convenings, and who participate in small Aspen Institute-style moderated leadership sessions with members of the other city teams. This approach creates a fellowship between innovation leaders across the cities. Local innovation team members are also responsible for bringing their learning back home to their council, thus ensuring that knowledge is captured and shared with all of the key stakeholders in that city.

Cross-City Convenings and Site Visits: Relationship building and best practice/knowledge sharing takes place over a series of cross-city convenings, twice a year, for two years. Starting in New Orleans in December 2014, followed by Detroit in June 2015, Durham in December 2015, and finally Cleveland in June 2016 the convenings have several goals: (1) allow the host metropolitan area to showcase its own innovation ecosystem through a set of site visits; (2) establish relationships between like-minded innovators in respective participating cities; (3) share current strategies, models, and visions for each city/region's future community and economic development; and (4) explore ways to share this knowledge with others.

At each of the four convenings, the following key questions are addressed: How do we ensure that our growing entrepreneurial ecosystem does not leave anyone behind? How do we nurture entrepreneurs from low-income communities and communities of color? And how do we encourage more activity by innovative social entrepreneurs and change-makers in our city/region's most distressed neighborhoods or areas? Understanding historic racial inequities and implicit bias has been critical to this work and conversation.

Entrepreneurial Connection, Networking, and Collaboration: The more cities understand each other's communities, the more they can help connect the dots. Given that the collaborative is working with a robust cluster of civic innovators and social entrepreneurs, opportunities to connect

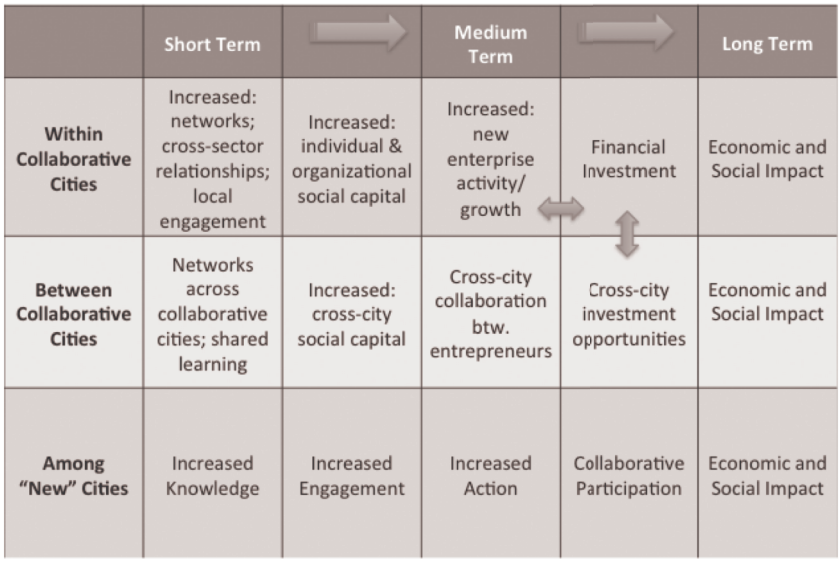


Figure 1. National Learning Collaborative: Intended Outcomes

them with one another and start up new collaborations abound. For example, through Forward Cities entrepreneurial support organizations like Jumpstart in Cleveland, TechTown in Detroit, Propeller in New Orleans, and Invictus Office Center in Durham, cities are finding opportunities to share strategies and look for collaborative opportunities. PowerMoves NOLA and 4th Sector Capital are talking through minority-focused investment strategies; and universities are finding opportunities to collaborate around entrepreneurial programming (e.g., Duke University launched a program for social entrepreneurs in Detroit with support from Wayne State University).

National Learning Platform: To facilitate shared learning across a global network of cities and regions, Forward Cities partnered with Issue Media Group to launch an open knowledge platform to document lessons learned from the collaborative. Products include multimedia profiles of each of the participating cities. On its website, ForwardCities.org includes emerging stories of urban innovation from each of the four cities and the national landscape, as well as community-building models, tools, and strategies. Gained knowledge is curated and shared through a monthly newsletter.

Evaluation and Tool-Building: The local impacts of the Forward Cities collaborative and the four innovation councils is being measured through a

partnership with the Urban Institute and local research organizations in each city, including Data Driven Detroit, Tulane University, Cleveland State University's Center for Economic Development, and the City of Durham's Neighborhood Compass team. Through data mapping, a set of survey tools, and interviews, the data teams are working on trying to measure a set of outcomes as shown in Figure 1.

As this work evolves, we are also discovering many opportunities to educate respective key stakeholders who can become powerful advocates for the value of improving the support systems for social innovators and business entrepreneurs (e.g., policy influencers, city and state leaders, universities, funders). We hope this work and ensuing research will not only help to capture measurable impact but help to influence relevant policy at the local, state, and federal levels. Key findings will be published to help further understanding. And the Forward Cities team shares lessons from the collaborative with national foundations, support organizations, and federal government agencies through the learning platform, as well as through presentations to related national and international networks.

One exciting opportunity to replicate this work is through a similarly designed two-year multicity learning collaborative across North Carolina. Although the state is notable for pioneering efforts to build innovation clusters such as Research Triangle Park, and cities like Durham, Raleigh, and Charlotte are increasingly being recognized as hotbeds of entrepreneurial activity, not all communities are experiencing this renaissance. In fact, a recent Institute for Emerging Issues study, using SAS Visual Analytics software, found that North Carolina sits well below the top quartile of states and even trails the U.S. average on key innovation indicators, including output and compensation. Current trend lines offer no sign that North Carolina will reach the top quartile unless it involves many more people in more cities in a turn-around effort through which it reconstructs its innovation model and expands innovation capacity.

With this in mind, more than 10 statewide partners including N.C. State University's Institute for Emerging Issues, Forward Impact, the UNC System; Duke University's Sanford School of Public Policy, UNC Chapel Hill's Kenan Institute for Private Enterprise and Department of Public Policy; RTI International; UNC-TV; the Council for Entrepreneurial Development; the Research Triangle Foundation; and the N.C. Board of Science, Technology, and Innovation have come together to launch InnovateNC (www.innovatenc.org), using the Forward Cities design. The goals of InnovateNC are fourfold: (1) increase innovation capacity, activity, and connectivity; (2) broaden demographic and sectoral diversity of those

engaged in the innovation economy; (3) increase collaborative cross-city learning and partnerships; and (4) increase visibility and financial support for innovation district efforts.

To ensure broad geographic reach and strong community buy-in, a competitive request for proposal process was launched in the summer of 2015. Within their proposals, interested cities outlined their current innovation efforts, gaps, and vision for the future; existing organizational capacity; the diversity, influence, and depth of local partners committed to supporting this effort; and evaluation resources available to measure progress. In addition, each community committed $15,000 of local funding.

Ultimately, 18 communities responded to the request for proposals from every corner of the state—ranging from smaller rural communities to the state's largest cities (with the exception of the Triangle and Charlotte, which were precluded from applying). Through a competitive selection process, five communities' proposals were selected:

- Grow city's emerging environmental and climate science industry sector that fosters broad demographic economic inclusion and participation (Asheville);
- Untap innovation potential of diverse population while becoming a "Maker City" for the twenty-first century global economy (Greensboro);
- Build upon entrepreneurial and university resources while utilizing diversity and heritage of region including the Lumbee Tribe of North Carolina (Pembroke);
- Strengthen region's emerging marine/life sciences innovation ecosystem (Wilmington/Carolina Coast); and
- Develop an inclusive entrepreneurial economy while building on local assets including their community-owned Greenlight Gigabit Network (Wilson).

The InnovateNC launched in December 2015 with its first convening. Through the leadership of its local innovation council, each community is now completing an innovation ecosystem asset map, assessing its current policy landscape, and developing a strategic plan to be launched after the June convening.

In addition to the impact potential this work has within North Carolina, InnovateNC is notable for the precedent it may set for other states interested in taking their innovation economies to another level. By fostering place-based innovation economies in five cities across a state and then plugging them into other vibrant entrepreneurial ecosystems in the Triangle and Charlotte, InnovateNC is creating a truly scaled interconnected movement.

What if you were able to accelerate this movement through a set of cre-

ative state policy strategies designed to accelerate inclusive innovation? For example, one potential strategy could be the creation of a competitive North Carolina Community Innovation Fund. Similar to the N.C. Department of Commerce's Main Street Program, whichfocuses on revitalizing historic downtowns, the Community Innovation Fund would be a competitive block grant dedicated to helping communities foster local entrepreneurship. Communities would compete to participate in the N.C. Community Innovation Fund by presenting a compelling local entrepreneurial acceleration plan with measurable outcomes, a clear implementation timeline, broad stakeholder engagement, and evidence of matching local funds to invest in the plan. Once selected, communities would work with assigned innovation experts to refine the plan to receive the initial matched funds. Once specific milestones were hit, additional funding would be available to scale the impact. Success would be measured based on the number of new businesses launched, number and quality of jobs created (measured on their broad demographic reach), and the amount of additional private sector investment generated.

For instance, according to an economic impact study by the Main Street Center, every $5,000 invested through its fund created 10 net new jobs in Main Street districts, 3 new businesses, and $691,000 in private-sector investment. The same could be measured on entrepreneurial output through the N.C. Community Innovation Fund—making sure to include progress on minority entrepreneurship.

The NC Community Innovation Fund would also help generate significant new investment opportunities for local and national venture funds. This, in turn, would help leverage the Venture Multiplier, a policy initiative newly proposed by the governor and state treasurer to create a matching investment vehicle for N.C. venture funds and increase investment in local enterprises, helping fuel their growth. And there is no reason these ideas need to be contained to North Carolina.

To be competitive as a state and indeed a nation, we need to invest in our local innovation economies and ensure these efforts yield shared prosperity for all of our citizens. Fortunately, there are promising models out there to learn from. In many ways, we hope that the work presented here offers a model that can be extended to the national and international landscape to take on the complex challenges faced on the economic, political, environmental, and health fronts. The work is far from finished. More than ever, cities need to keep pushing forward together to realize the full innovative potential of its citizenry.

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Rodrigo Villar Esquivel

From a Local Chapter to a Regional Catalyzer

Innovations Case Narrative:
New Ventures México

New Ventures México (NVM) started out almost 10 years ago as a small dream, when I was recruited to start a local chapter of the New Ventures program, the brainchild of the World Resources Institute (WRI), a think tank based in Washington, D.C. The program's purpose was to involve the private sector in the funding of environmental enterprises to achieve large-scale impact. The challenge was daunting: no one even spoke of social or environmental companies in Mexico at the time, let alone supporting or funding them in any way. Nevertheless, it was a challenge I was eager to take on.

At first we supported environmental businesses through an acceleration program, but we quickly built a dynamic team that had contagious entrepreneurial energy, which resulted in something much greater. Our acceleration program is now sustained by the integrated platform we've developed, which includes a series of initiatives such as Las Paginas Verdes (LPV), the Latin American Impact Investment Forum, and Adobe Capital. NVM has grown alongside Mexico's green business ecosystem, and in the process we have learned to adapt to external changes while sticking to our core mission and values. This strategic approach accounts for the progress we've made so far.

I hope my story and that of NVM can shed some light on how we transitioned from a local chapter of a think tank to a business platform that is sustainable and scalable, attracts top-tier talent, and is an important catalyst in the region. I also hope my personal story will add to the growing momen-

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tum behind the idea that it is possible to do good while doing well, and that the private sector can have a positive impact on problems that were once considered exclusively the responsibility of the nonprofit and government sectors.

MY BACKGROUND AND TRAJECTORY

The story begins in 2004, when I was fresh from my MBA program and looking for a job back in Mexico. With my creative and restless character, I knew I could never be part of a large corporation, thus I had to find something flexible and challenging. I somehow stumbled upon the WRI and its nascent project, New Ventures, and immediately fell in love with its mission: to create and showcase successful environmental and (later) social businesses, to demonstrate their viability, and generate a demonstration effect that inspires other environmental and social entrepreneurs and attracts investors to these companies and strengthens the ecosystem.

After four years of accounting studies at Tec de Monterrey University, three years of work in accounting and finance, and then a two-year MBA program at Australia's Royal Melbourne Institute of Technology, it was exhilarating to apply my accumulated technical knowledge to something so different from the kind of work I had envisioned myself doing for the rest of my life. I also realized that I wanted to rescue the essence of the entrepreneurial self I had manifested as a child. If I had graduated from high school when entrepreneurship was flourishing, I never would have been an accountant and would have been able to thrive doing what I enjoyed at an earlier age. Therefore, the position I was offered as founder and director of NVM was an invaluable opportunity to take my career in a new direction.

Looking back at my childhood, I now realize that I always had an entrepreneurial spirit. As a kid I organized small-scale businesses that I thought would make me rich, such as hunting and selling grasshoppers, organizing fairs with my friends and charging an entrance fee, buying toy cars from one friend to sell them for a profit to my schoolmates, and giving rides to my neighbors in supermarket carts and charging their parents for the service. This entrepreneurial spirit, along with an insatiable desire to shake things up and do something different, led me to accept the position at NVM.

Oddly, I took on the position without having had a desire previously to be actively involved in solving social and environmental issues. It was not something I had manifested early on, as I had my entrepreneurial spirit. I cannot even say that I was drawn to taking courses on these issues during my studies. I developed this passion only after I had dived into my work at

NVM. After 10 years of working in the field and talking to people about my trajectory, I still enjoy the responses I get when people learn that I was not deeply engaged in social and sustainable issues before working with NVM. In my opinion, this transition was rather simple. One does not have to be academically engaged in social and environmental issues to care profoundly about them, and I like to ask, "Who does not want to improve the well-being of the environment and the people who inhabit it?"

The greater challenge of our work does not stem from ideology but from the practicality—or lack thereof—of resolving identified social and environmental problems. When I learned about New Ventures' approach to tackling environmental issues, I knew I could use my hard skills and impulsive, driven, entrepreneurial child-self to do something big. New Ventures provided a platform that I knew I could build on and expand without feeling limited by the fact that we had to work within a certain structure: all that mattered was the bottom line, our core values, and our vision, which I knew I shared with New Ventures. And so, NVM was born. I had little idea at the time of how I was going to accomplish our mission, but that was a great part of the appeal.

BIRTH OF NEW VENTURES MÉXICO

In 2004, WRI formalized a partnership with the Mexican Fund for the Conservation of Nature (FMCN), and NVM was officially established. The WRI and FMCN each contributed $35,000 to fund the acceleration of 10 environmental enterprises. Although this beginning was thrilling, I realized the learning curve would be steep. Social entrepreneurship was practically unheard of in Mexico and Latin America and accelerators were nonexistent, thus NVM developed along with the movement.

One colleague's recent comment nicely illustrates what I believe we have achieved: "Before NVM there were only hippies with green ideas. Today there are social and environmental entrepreneurs in Mexico and Latin America." This rapid growth and development of the sector has been impressive and dynamic, and although it is still emerging I am proud to say there is an ecosystem: there are now 26 incubators and 12 accelerators that are recognized and supported by the national government; more than 700 identified social and environmental enterprises; more than five recognized investment funds focused on small- and medium-size enterprises (although only our fund, Adobe Capital, is currently focused on social and environmental impact); and there are other key organizations, such as Ashoka, that have contributed to establishing the sector and creating a link between all of the existing and new players. We acknowledge that it will require decades

to become more than a niche, yet we believe the progress that has been made within the past 10 years has been significant and visionary

Many of the acceleration programs emerging during the current boom are undergoing an identity crisis, their leaders often asking me, "What is the real role of an accelerator?" "How can we measure its success?" "How can the model be sustainable?" I do not pretend to have found all the answers, but I do believe we at NVM have found a unique model that has proven to be successful and sustainable.

EARLY STAGES OF NEW VENTURES MÉXICO

During its first year, NVM set the pace for innovating and developing initiatives. We were granted the funds needed to identify and accelerate 10 companies with interesting business models that tackled critical environmental problems. Although finding companies during the first year of operations presented a challenge, we contacted 33 companies and selected 10 to participate in NVM's first acceleration and showcasing process. An investor forum was held in November 2004 in Mexico City, which brought together more than a hundred participants. The FMCN provided office space for NVM. With generous support from our founders and allies, we continued to accelerate small and medium-size enterprises to generate environmental, social, and economic impact.

The task of finding viable companies remained a challenge during our second year, but 28 companies applied to the NVM program, from which the top 10 were selected, accelerated, and presented at an investor forum. Despite a scarcity of companies, NVM chose promising companies, such as Alianza por la Biosfera (Alibio), a leading firm in the research, development, and commercialization of sustainable biotechnology products. Alibio remains in operation today; it has developed two thousand microbial strains and has clients such as Bimbo, Modelo, and Cuervo, making it a leader in Mexico's biotechnology sector. I cannot say that we alone are responsible for Alibio's success or growth. Instead, I believe that Alibio and other such companies exist as a result of an entrepreneurial vision to resolve an issue, and of the drive and tenacity to make it happen.

Many of the social and environmental entrepreneurs with whom we work often feel alone in their efforts to solve social or environmental problems by applying innovative business strategies; through their work with NVM, they discover an entire ecosystem of support and opportunity. We've developed an acceleration process that helps entrepreneurs step out of their day-to-day operations and see the bigger picture with the guidance of deeply committed mentors. Witnessing these companies' growth and

maturity gives me great satisfaction, but even more powerful are the synergies that arise. A large number of our portfolio companies have established long-lasting relationships with each other and are either doing business together or collaborating by sharing information, contacts, and so on.

The nature and culture of the NVM team is what has driven all our projects. We have always been a dynamic group, sometimes failing, sometimes succeeding, constantly experimenting. In the early years we organized two investor forums that did not last, as the Mexican ecosystem was not yet prepared for our visionary initiative. Even today, with a much more developed ecosystem, organizations struggle to find investors for social and environmental enterprises in Mexico. Nevertheless, the forums did put impact investing on the agenda and helped to make NVM what it is today.

Another unsuccessful project that helped strengthen our understanding of the challenges entrepreneurs face was an incubation program. Given our small team, we were not able to work with companies in such early stages of development. In retrospect, it is clear that our current success is largely a positive result of how our team has used our failures to modify successive steps. We've had to find individuals with solid finance backgrounds, with sales experience, and those with great communications and public relations skills. We have learned to identify the tasks that need to be done and to find individuals with the perfect blend of skills and passion to accomplish those tasks.

By 2006, we were expanding our focus to include a wide variety of environmental and social enterprises. New Ventures followed the direction of WRI board member C. K. Prahalad's bottom of the pyramid theory, thereby drastically changing the direction we would take and the impact we would have on the sector in Mexico. We were outgrowing the FMCN, both physically and philosophically. Therefore, we created a spinoff of NVM, a separate nonprofit to house and run the NVM program and to carry on the mission of raising funds to support environmental entrepreneurs and connect them with investors. A new board was formed to guide the spinoff, and NVM launched an ongoing, year-round search that same year to source more and better companies. That year the Mexican Ministry of Economy also created a program to support accelerators; we were one of the first six to be officially recognized. With a strong injection of government funding, we continued to scale our operations and moved into our beautiful permanent office.

Our physical move to Coyoacan marked the beginning of a new stage for NVM. Though we had a strong injection of funds, we still depended on FMCN and on funding from the Ministry of Economy. It soon became clear that I could become a permanent fundraiser to keep the accelerator afloat. I did not enjoy fundraising, and I realized that growth would be limited by the funds we could raise, and that sustained growth would be very difficult to plan and even more difficult to accomplish. Therefore, we formed a for-profit entity to complement our nonprofit arm and generate sustainable income sources, such as LPV. In addition, companies started supporting NVM through their business units by enlisting it as a contractor rather than making outright gifts. We also started supplying and charging for consulting services, the revenue of which went to the NVM acceleration program. Not all the alternative revenue streams survived, but NVM did as a result of their returns. Months of sleepless nights and relative uncertainty eventually came to an end because we had found the ideal balance between our nonprofit and for-profit work to keep us afloat.

Paginas Verdes

The most successful for-profit project we founded within NVM was Las Paginas Verdes, a "green" directory for sustainable products and services. I recognized that a bottleneck separated customers from sustainable-technology enterprises, and I thought a directory would be useful. I also thought it would foster networking between companies that might be working on the same things in isolation. I wanted this directory to be a revenue stream for NVM. However, I also wanted to include as many companies as possible, thus I couldn't charge them for listings, and for them to reach the relevant targets I couldn't charge users either. So we developed a model that produced revenue by selling advertising in the directory. LPV became a significant pipeline for the acceleration program by helping it to map the universe of sustainable companies in Mexico and providing NVM with an additional source of revenue.

These funding sources allowed NVM to scale its operations and amplify the impact of the original funds. Little did I know how relevant this for-profit arm would become, as government and donor funding in recent years have shifted away from acceleration services and toward direct support of social enterprises, thus making NVM's original funding model untenable. With new funding sources and various projects up and running,

our first year drew to a successful close; in fact, I was recognized as an Ashoka Fellow for the creation of LPV. Becoming part of the Ashoka program reminded me how important it is for an entrepreneur to step back and evaluate ongoing operations objectively in order to plan next steps strategically. The year 2007 was a turning point in our trajectory. We began to formalize and expand our mentoring process and network, institutionalize best practices, showcase successful companies as proof of the profitability of environmental entrepreneurship, and develop new initiatives to further support environmental entrepreneurs.

In 2008, we started producing the first Global Reporting Initiative reports with our entrepreneurs in Latin America. This laid the foundation for what would be a much more strategic focus on measuring impact. As a result of this initiative and the others we were working on, I was granted the UBS (Union de Bancos Suizos) Visionaris Social Entrepreneur of the Year Award, which was created in 2004 in order to bring recognition and added impetus to leading Mexico-based social entrepreneurs who are solving social problems with innovative and groundbreaking ideas. Receiving such awards reminds me that the hard work is well worth it but, more importantly, it motivates me to work to a high standard. As a government-certified accelerator who had won awards for entrepreneurship, I had to step back and evaluate our status carefully to take full advantage of our momentum.

Strategy Boot Camp

Becoming a government-certified accelerator is something we are proud of. Although our acceleration program, the Strategy Boot Camp, has been modified as needed, its core structure and purpose have remained the same. It consists of a five-month process, during which the founders of 10 social and environmental enterprises are each assigned three to five mentors, whom they meet with once a month to work on the following topics: business potential and going to market; risk and opportunity management; growth requirements; critical issues; and speed pitch and impact measurement. At each session, the entrepreneur analyzes the enterprise's current status and begins devising strategies that will enable the company to grow at the desired rate while maintaining, if not increasing, its overall social and/or environmental impact.

Entrepreneurs find it invaluable to step away from day-to-day operations and to reevaluate strategy with the guidance of experienced mentors from internationally recognized firms, such as Ernst & Young and PricewaterhouseCoopers. Such mentors not only contribute to the growth of participating enterprises, they learn from the entrepreneurs and con-

tribute to the development of the sector. Furthermore, once the enterprises graduate from the acceleration process, they become members of NVM's portfolio, where they remain connected to the social and environmental entrepreneur community, collaborate on projects, share information, and continue to receive support and guidance from NVM through workshops, notification of relevant opportunities in the sector, follow-up sessions with mentors, and networking events.

LATIN AMERICAN IMPACT INVESTMENT FORUM

At the beginning of 2010, everything was going well in terms of our project development and public image, yet we were going through our most difficult time. We were highly dependent on government funds and only received a portion (roughly 20 percent) of what we were expecting. Things got so bad that I went six months without pay, we gave no bonuses, and we began to lose some of our most committed employees. It is extremely difficult to direct an organization when uncertainty is permeating all its projects and discussions. When things are going well, everyone is motivated and happy; when things get rough, you can feel it in the air, as creativity is stumped and nothing seems to flow. Watching our limited funds dwindle away, I thought, "We either die slowly or we tackle the problem head on." Then we decided to host the Latin American Impact Investment Forum (Foro Latino Americano de Inversion de Impacto, or FLII). It not only salvaged our financing, it changed the entire paradigm and reenergized the team.

Recognizing showcasing as a key component of our original concept, we decided to broaden the themes and activities beyond matchmaking to include a wider audience, to convene and catalyze varied stakeholders in the impact investing sector, to continue building the New Ventures brand, to generate revenues, and to showcase the most successful environmental and social enterprises in Latin America. The initial FLII 2011 was a resounding success, garnering media coverage and generating approximately $200,000 in revenues and $90,000 in profits for NVM, which represented approximately one-third of our accelerator budget for that year. We managed to recover and to thrive, as we always had, full of energy and an insatiable desire to innovate. The FLII also positioned us as opinion leaders in the sector and allowed us to know and understand the actors in the ecosystem better than we had before. NVM hosted the second forum the following year and every year thereafter, including the upcoming 2014 FLII.

The idea behind the FLII was to bring together key stakeholders in the sector to increase collaboration and strengthen the ecosystem, and the

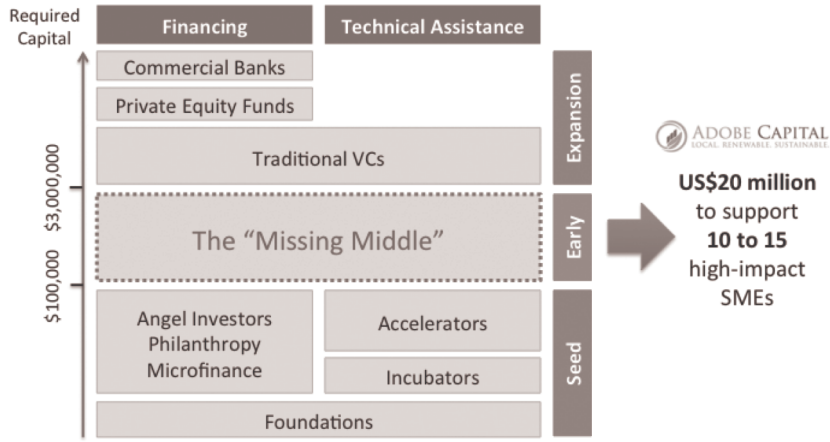


Figure 1. The "missing middle"

experience was invaluable. It allowed us to understand the impact of our work more fully and identify critical areas that needed development. We began to recognize that the next step companies needed help with was funding, thus we decided to develop an impact investment fund. We launched Adobe Capital in 2011. I knew the timing was right, but I was not sure we could make it happen. I had never worked within an investment fund, though I knew how they work, and our team was relatively small and already spread thin. Nevertheless, we were enthusiastic about the fund's potential to change the sector in Mexico significantly, so we decided to move forward. The Kellogg Foundation gave us a grant to work out the logistics of establishing the fund and, more importantly, to define the investment thesis to which we would commit.

Adobe Capital

Developing Adobe Capital was one of the most challenging projects I have ever worked on because of both logistics and the harsh realization that we would not be able to invest in the majority of companies we had accelerated. If I truly wanted NVM to pioneer Mexico's impact investment sector, I knew we had to take the precautions necessary to make successful investments. There is a thin line between high- and low-risk companies, and it is tricky to identify those that are truly prepared to leverage the capital and serve as role models for other social and/or environmental enterprises. This continues to be our greatest challenge, for better or worse, one that we share

with accelerators and impact investment funds around the world. Companies have a hard time finding funding, and funds have a hard time finding companies. As an accelerator and a fund, we are in the perfect position to understand this disconnect and enable both parties to make the necessary improvements and strategic compromises, which eventually will narrow the gap and increase the number of investments made.

From the dynamic projects and initiatives we pioneered, I learned one critical lesson: do what you do best and create a team of individuals who also are doing what they do best. With this in mind, I began searching for *the* investment manager who would share our passion for social and environmental issues while operating the fund with the same discipline and rigidity of a classic private equity fund. After a long interview process and numerous dinners and drinks with people interested in the idea of creating a new fund, I got a call from Erik Wallsten. I had met Erik in my early years with New Ventures, when he was the principal of a private equity fund and I was trying to interest him in the New Ventures portfolio companies. He expressed interest in starting an impact investing fund with principles much like the one we were framing. After a few months of back and forth, he came back to my office with the news that he had just quit his extremely well-paid position at a large real estate private equity fund to venture into our spinoff, for which he suggested the name Adobe Capital.

Erik Wallsten was born and raised in Mexico City and later moved to Chicago, where he completed his MBA at the University of Chicago Booth School of Business. After graduation, Erik—unlike myself—actually dove into the investment sector, working for six years as a venture capital and private equity professional who worked his way into a senior position. I fortunately met Erik when he had decided to get out of the traditional investment sector and into impact-driven investments. It didn't take long before he and I realized we had the perfect combination of skills and attributes needed to work as partners in the creation of Adobe Capital. We now are often referred to as the company's yin and yang, I being more spontaneous entrepreneurial and Erik being more structured and disciplined.

Working together was a real success, and we launched Adobe Capital at the 2011 FLII. Adobe Capital's investment thesis is in some way "walking the talk" of NVM. The objective is to demonstrate that small investments in social and environmental enterprises can be made viably and profitably. Adobe Capital aims to fill in the "missing middle" faced by companies that are too large for angel investors and too small for traditional venture capital and private equity funds (roughly $100,000 to $3 million; see figure 1). The idea is to create a demonstration effect and promote the entrance into the

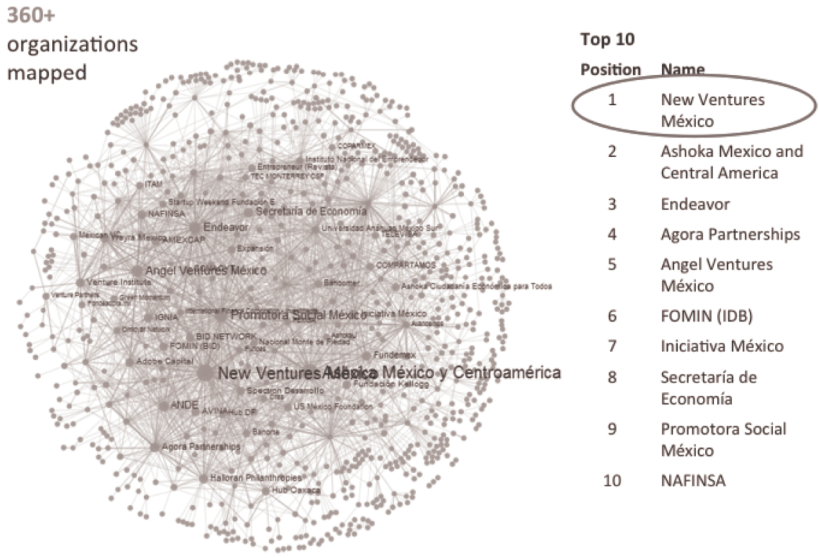


Figure 2. Ashoka's ecosystem map of the impact investing sector in Mexico and Latin America

sector of more mainstream investors to strengthen the impact investing ecosystem.

Adobe Capital and IGNIA—a venture capital firm based in Monterrey, Mexico that supports the founding and expansion of high-growth social enterprises that serve the base of the socio-economic pyramid in Mexico—were the first impact investing funds in Mexico and Latin America. Adobe's thesis is unique, however, in that it focuses on an overlooked niche: smaller companies that need less than $3 million in funding and for whom straight equity is often not the best solution. Mezzanine funding, on the other hand, gives the entrepreneur almost the same flexibility as equity and a clear way to exit the fund; what's more, the entrepreneur is not forced to sell his or her stake in the company. In November 2012, Adobe completed a first closing of $15 million with 100 percent institutional investors and is aiming for $30 million by 2014, which would exceed our original commitments goal by 50 percent. By 2013 we had made our first investment in a company named FINAE, which is a financial company that offers student loans to the more than 700,000 students who cannot get into public universities and cannot afford private ones. FINAE was part of the portfolio of companies that graduated from our acceleration process. It gave me great satisfaction to be able to support FINAE full circle, and it opened my eyes to the work a com-

pany has to do to become investment ready. As a result, we are now taking a different approach throughout our acceleration process, focusing heavily on preparing companies to take those next steps and to have everything that is expected of them once they decide to receive an investment.

Despite the relationship between NVM and Adobe Capital, we had many conversations about whether the fund should operate independently, enter a strategic alliance with NVM, or merge with it completely. We decided that the greatest synergy would result from merging the fund with NVM. By incorporating Adobe Capital into our platform, NVM began a process of professionalization and institutionalization. We also started attracting higher level talent than we had access to before, even though we pay less than traditional industries or funds. NVM reaps direct benefits from its presence in the sector, including our outreach, communications, and knowledge.

EVOLUTION OF AN ECOSYSTEM

Thanks to work and perseverance, NVM and I have been able to accomplish a great deal. The ecosystem is clearly much stronger today than 10 years ago. In 2004, the market was just awakening to the power of environmental and social entrepreneurship for sustainable development. When NVM was founded, it was among the first business accelerators in Mexico. People talked about green businesses only in a purist, academic way. We were the first to start applying the green component to business strategies, to create a space in the government's small and medium-size enterprise agenda for green entrepreneurs, and to reach out to the media and other private-sector actors. By 2006, the Mexican Ministry of Economy had recognized six accelerators; today there are 40 that have been selected from more than a hundred. In 2012, a high percentage of the companies that were finalists for the business magazine *Expansion*'s Mexican Entrepreneur of the Year were social and environmental, and NVM had accelerated a high percentage of them. Endeavor and Ashoka have been the other main catalyzers of Mexico's social, environmental, and entrepreneurial sector.

DIFFERENTIATING FACTORS

Our model has been successful for several reasons. Traditional accelerators are full of good intentions, but they have difficulty scaling or at least being sustainable with a small scale. The people leading these accelerators often become permanent fundraisers, but I knew that if we became dependent on it, we would soon fail. Instead we developed projects and initiatives that would produce a revenue stream we could rely on, such as LPV, FLII,

Adobe Capital, and other temporary projects. We are constantly questioning, fine-tuning, and redefining our model, but we believe we've found a model that works, that can sustain itself, is aligned with our overarching mission, and has had an important role in developing the entrepreneurial ecosystem in Mexico and Latin America. We understood our mission clearly, and from our perspective the companies we serve are a tool to communicate what is embedded in that mission: that investing in social and environmental enterprises is viable and profitable. The success of our companies is our own success, therefore we have concentrated all our energy on supporting our companies in a variety of ways, which allows us to spread the word about it and thus strengthen the ecosystem as more talent, resources, and relevant players are drawn into it (see figure 2).

Our accelerator still is not sustainable on a standalone basis. However, when integrated into the entrepreneurial platform we've created, it becomes one of the essential pillars that allows us to develop other initiatives around it. The accelerator on its own cannot scale and have a great impact, but the combined platform can. Our model, which has made the market more understandable, combines the accelerator with the fund. However, the beauty of it is that the accelerator does not depend on the fund alone, and the fund does not depend entirely on the accelerator. We seek the best way to support great companies and showcase their success, and in so doing we stick to our expertise. This overarching mission has allowed us to define a set of values that distinguish us, motivate employees, and make our people proud. We are able to attract talented MBAs and other professionals who recognize the impact we've had on developing the ecosystem in Mexico and Latin America, and who believe in the our platform's potential to keep growing.

REFLECTIONS

Through our experiences with NVM, I learned that, regardless of what conditions we were operating under, we always would manage to accelerate companies successfully and stay loyal to our core mission. The greatest challenge we faced as a nonprofit was the uncertainty of our incoming revenue stream, and we learned that the only way to survive was through constant adaptation. Our structure has changed in terms of both methodology and logistics over the past 10 years, and we have always made the most of the available resources and leveraged our economic and human capital to produce the desired outcome: to help social and environmental entrepreneurs strengthen their business models and structures, to understand their finances, become a part of the ecosystem, and thus successfully tackle their

social or environmental issues of interest.

My story would not be complete if I failed to mention my wife Geli, and our twin boys. I returned to Mexico in December 2003 and met Geli in April 2004. In that month, both my personal and professional life took a new direction. My relationship with Geli has been fundamental to all the work I have accomplished. I come home every night to the most determined and hard-working person I've ever known, which helps me persevere.

CONCLUSION

It is important to know what you want to accomplish and build on that. This sector attracts a lot of enthusiasts, but people with specific backgrounds are needed to make ideas materialize. I've always believed that people are the most valuable resource, and I have built a strong organization by surrounding myself with smart people who can respond to my spurts of creativity by making amazing things happen. I have played up their abilities, keeping a hands-off attitude and empowering their initiatives. We have managed to understand and stick with our mission and do what we know we do best. We have always thought about NVM as a platform with potential to innovate, scale, and function in an integrated way that has a significant impact on the ecosystem and, more directly, on the social and environmental issues we are tackling.

Looking forward, we want to stay focused on innovation, but always within our original mission. We believe we have achieved a great part of our original mission to find, help build, and showcase social and environmental entrepreneurs; to demonstrate that they are viable and profitable investments; to create a demonstration effect; and to catalyze the formation of a new industry. Today, many business accelerators help entrepreneurs in this early stage, there are more funds available, there is more awareness in general, and the ecosystem exists. It's time to take the next big step.

Iqbal Z. Quadir

Inclusive Prosperity in Low-Income Countries

Innovations Case Narrative:
The Legatum Center for Development and Entrepreneurship, MIT

The world is awash with ideas for helping the poor. Generally these involve some combination of aid, charity, and volunteer work. This makes intuitive sense but ignores an important part of reality. The needsseen as business opportunities—of those without wealth can spur spectacular innovation. Johannes Gutenberg's printing press slashed the cost of book production by a factor of close to 100. To reach the masses, Benjamin Day sold newspapers at one-sixth the price his predecessors had charged. Henry Ford cut the price of the automobile by a factor of ten. Ray Kroc had low-income people in mind when he developed McDonald's.

These entrepreneurs did not invent books, newspapers, cars, or hamburgers. These entrepreneurs were driven to reach a much wider population; they conceptualized and executed business models that have revolutionized how we live, while at the same time generating great profits. Generally speaking, entrepreneurs do not necessarily invent things; the entrepreneurial function itself lies in providing "only the will and the action,"[1] in order to assemble the ingredients, possibly from others, to implement a vision for reaching a market.

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The ideas and opinions expressed here are those of the author. They have been gathered through his experience in founding the Legatum Center and establishing its programs, which has involved learning from others in the MIT community. They are not necessarily those of MIT, the Sloan School of Management, or the sponsors of the Legatum Center, or of professors who supported the Center.

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Perhaps unwittingly, the entrepreneurs and countless innovators like them were demonstrating a universal pattern: innovations move toward those with lower incomes. Every innovation spurs a complex chain of reactions, but entrepreneurs push consistently toward lower costs and larger markets. This saves known resources or creates new ones, puts price pressures on existing products, and engages more people in the economy. Moreover, if the new products are tools that increase productivity—bicycles, sewing machines, cell phones—they give people greater purchasing power for new goods and services. As the innovation process cycles forward, more and more low-income people gain access to goods and jobs. At the same time, higher productivity, more choices, and a more rational economy emerge.

Every innovation spurs a complex chain of reactions, but entrepreneurs push consistently toward lower costs and larger markets. This saves known resources or creates new ones, puts price pressures on existing products, and engages more people in the economy.

Today's innovations may show up in unexpected ways and places, but they follow the same pattern and are no less spectacular than they were in Henry Ford's day. Organizations such as Bridge International (children's education, Kenya), bKash Limited (money transfer, Bangladesh), M-Kopa (equipment leasing, Kenya), and Narayana Hospitals (cardiac surgery, India) are prime examples. A 2009 *Wall Street Journal* article called Narayana's founder, Dr. Devi Shetty, "the Henry Ford of Heart Surgery" for offering cutting-edge medical care in India at a fraction of its cost elsewhere.[2]

The Legatum Center at MIT was founded on the belief that low-income people have enormous potential to offer the world and can stimulate serious innovation. The Center thus supports and trains entrepreneurial students who head out from MIT to launch businesses in low-income countries. In so doing, the Center also brings the realities of low-income countries, where a majority of the world's population lives, to MIT's doorstep, thus adding to MIT's innovation ecology.

THE CENTER'S INCLUSIVE PHILOSOPHY AND THE FOUNDERS OF MODERN ECONOMICS

About 125 years ago, Alfred Marshall, in his *Principles of Economics,* wrote about "the steady progress of the working classes during the nineteenth century," a time of great innovation in England. He then "question[ed] whether it is really impossible that all should start in the world with a fair chance of . . . life, free from the pains of poverty." "The answer," he continued, "depends in a great measure upon the facts and inferences, which are with the province of economics; and this it is which gives to economic studies their chief and their highest interest."[3]

The Legatum Center at MIT was founded on the belief that low-income people have enormous potential to offer the world and can stimulate serious innovation.

Marshall was fully aware of the work of Adam Smith, who sat down to write *The Wealth of Nations* 125 years earlier, in the 1760s, when England was just approaching the Industrial Revolution. Having observed the improving economic conditions in eighteenth-century England and Scotland, Smith advanced a profound thesis about political economies, a model for creating "universal opulence which extends itself to the lowest ranks of the people."[4] For this purpose, Smith championed the division of labor, which he found to be most effective in increasing the "wealth" of nations—that is, the capacity of the average person to purchase goods and services.

Smith envisioned a "commercial society" in which individuals specialize in the niches most suited to them, maximizing their income and allowing them to satisfy all of their other needs (for goods and services) through purchases in the marketplace. At the heart of Smith's thinking is "competition," which compels market participants to push toward ever-greater specialization and increased participation. Smith believed that individuals, as they increase their specialization, are compelled to relinquish other activities to their fellow citizens, creating an ever-expanding economic mesh of exchanges. By focusing on individuals' areas of strength, this inclusive process helps both rich and poor make gains.

David Ricardo later demonstrated that this point is valid even when the rich are more adept at tasks done by the poor. This competition-driven inclusion process can give rise to inclusive prosperity. For this reason, the

term "competitive commerce" better represents Smith's process of expanding specialization and exchange than do "capitalism" or "capitalist system," terms that have come to be loosely used and may not represent competitive commerce.[5]

For Smith, each tiny step toward greater specialization is an innovation (although he used the term "improvement"). Each step is a "new" advancement of the economy as a whole. Smith also believed that these progressive specializations led to a complex piece of work being broken into smaller bits, making each bit potentially easier to mechanize or automate, leading to further innovations. When the watermill was invented, for instance, it allowed an improved method of milling; the inventor's neighbors brought him more milling jobs; and he was able to do each job better, or at a lower cost, or both. Further specialization was encouraged by another set of innovations, accumulated over a long period of time, that made physical exchanges easier (e.g., money facilitating exchanges; clocks facilitating coordination and appointments; canals and steamboats facilitating movement of goods and people).

Therefore, the drive to specialize and enjoy an increase in wealth is intricately interwoven with the drive to innovate and enjoy the corresponding increase in wealth.

About 100 years ago, Joseph Schumpeter went further and championed entrepreneurs, those who implemented innovations—often radical—in their search for greater profits. He clarified the mindsets and motivations that might set innovation in motion and concluded, as Smith had earlier with his "universal opulence," that affluence would spread and include everyone:

> Queen Elizabeth [I] owned silk stockings. The capitalist achievement does not typically consist in providing more silk stockings for queens but in bringing them within the reach of factory girls in return for steadily decreasing amounts of effort. . . . The capitalist process, not by coincidence but by virtue of its mechanism, progressively raises the standard of life of the masses.[6]

Schumpeter used the term "capitalist process"; however, "competitive commerce" probably better describes what he meant. Schumpeter observed that "capitalism" is moved forward not necessarily by capitalists but by entrepreneurs, another reason why the term "capitalism" can be misleading. That is, the entrepreneurial function is distinct from the provision of capital.

Schumpeter's conception of entrepreneurial action is inherent in competitive commerce as discussed here. According to Smith, profit-seeking

entrepreneurs, unprotected by the public sector, are forced to provide the best possible products at the lowest possible prices. To do so, they either fight (i.e., compete)—by seeking further divisions of labor and achieving gains in productivity in order to offset declining profits—or they take flight—by adopting radical innovations and taking off in entirely new directions. Either way, in competitive commerce, the innovation process moves forward, eating into the profits of existing businesses, compelling entrepreneurs to set new innovations in motion, and engaging more and more participants.

As participants become increasingly dispersed, the economy gets an additional boost because, as F. A. Hayek wrote some 70 years ago, "knowledge of the circumstances of which we must make use never exists in concentrated or integrated form, but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess. The economic problem of society . . . is a problem of the utilization of knowledge not given to anyone in its totality."[7] Each participant brings into play information about his or her particular location and needs. The more inclusive the economy, the more information flows into it.

Therefore, if competitive commerce is allowed to advance, it will expand productivity, purchasing power, inclusiveness, the flow of information, and the innovation process—all at the same time. Competitive commerce unleashes an innovation process that generally extends ever outward to those with lower and lower incomes. While the competitive commerce model is rarely realized in its pure form—indeed, the deviations from it are far more pervasive, especially in low-income countries—the model helps us understand those deviations and their severity, pointing to potential remedies. In recent decades in China, hundreds of millions of people have risen out of poverty as a process with meaningful semblance to competitive commerce got going, even with the limitations imposed by the Communist state.

ACHIEVEMENTS SO FAR: SMALL BUT SIGNIFICANT

The Legatum Center takes seriously the notion that competitive commerce is a viable model for low-income countries—even if the ideal of competitive commerce is unlikely ever to be fully realized. The Center's position is that every new entrepreneurial venture disperses power, however small the amount, and contributes to the cause of advancing competitive commerce.

Elements of the idea behind the Center had been gathering in the author's mind since the early 1990s when he struggled to put together Grameenphone in Bangladesh. He realized that a radical drop in costs (not

The Legatum Center's Contribution to MIT's Innovation Ecology

MIT is known worldwide for its unmatched innovation ecology. However, good innovations require meaningful engagement with realities on the ground—a point completely consistent with MIT's founding motto, *Mens et manus*. To this end, the Legatum Center strives to bring low-income countries to MIT's doorstep: to connect the campus with the realities of developing countries and enable a deep understanding of these countries' needs, particularly their entrepreneurship needs. The Center's connections to the developing world can also serve to stimulate the innovative minds of MIT students and faculty members. These connections are the Center's greatest strength and potentially its most significant contribution to MIT. Recent developments at the Center, strengthening its connection to ground realities, are:

- *Case Studies*. Since 2012, the Center has produced case studies of entrepreneurial trajectories in low-income countries. By telling the stories of successful entrepreneurs and the challenges each faced and overcame, the cases seek to provide students with new ideas and a sense of the efforts made by more experienced practitioners. Each of the Center's cases includes a story of about 15 pages, a teaching note, and, where possible, a video interview. As the Center builds up its library of cases, it is compiling both a roster of the problems entrepreneurs may encounter in low-income countries and an extensive, in-depth collection of possible ways to overcome these problems. Some of the Center's cases are already being used at Harvard and Tufts.
- *Catalysts*. The Center has recruited a set of volunteers to act as its eyes and ears in low-income countries. This program's initial focus has been on sub-Saharan Africa, but it could expand to other parts of the world, subject to resource availability. The Catalysts are generally entrepreneurs or otherwise accomplished individuals. They identify potential Fellows, spread the word about the Center's programs, act as on-the-ground mentors for the Center's Fellows and alumni, and identify entrepreneurs from their regions who might be potential speakers at the

unlike the impact of Gutenberg's printing machines) was taking place in digital technologies, including mobile phones. In addition, these mobiles could be tremendous productivity tools, boosting the users' incomes almost immediately and enabling them to pay for services and improve their eco-

Center or subjects for case studies. The Catalysts visit the Center once a year and share opportunities emerging in their regions.

- *Recruitment*. The Center now has a recruitment manager to run a "mini admissions office" within the Center. Although the Center's Fellows must meet the prerequisite of admission to an MIT graduate program, the Center has strived to go beyond simply recruiting from MIT's current students. In order to become and sustain itself as the premier center in the West for entrepreneurship in low-income countries, the Center searches globally for students who are both strong candidates for MIT and dedicated to entrepreneurship in low-income countries. Because the fundamental entrepreneurial drive generally comes from within, the selection of Fellows is an enormously important component of the Center's programs. An active recruitment process can expand the pool of applicants and afford greater selectivity to the Center.
- *Competition*: The Center has just launched a competition, the Zambezi Prize, for entrepreneurs in sub-Saharan Africa who have launched ventures promoting financial inclusion (e.g., microfinance, leasing, mobile payment systems, saving schemes, micro-insurance). Competition semifinalists will be able to tap into the Center's and MIT's innovation ecologies and refine their offerings. At the same time, the competition is expected to bring a wealth of knowledge to the Center concerning the kinds of innovations that are actually taking hold in sub-Saharan Africa.

Over the last 153 years, MIT has contributed countless innovations to the American and global economies. But the various entrepreneurial drives in these economies have also contributed to MIT's innovation ecology. MIT could not have become the giant that it is in isolation. The biotechnology companies in MIT's neighborhood contribute to its ecology, just as MIT contributes to their successes. By the same logic, low-income countries, where more than three billion people live, can contribute to MIT's innovation ecology. The Legatum Center plays a distinct role in helping connect MIT to a global network of entrepreneurs in these countries.

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nomic lives. This led him to work on innovative distribution schemes. Through his experience, he realized that young men and women attending Western universities could introduce new innovations from the West to low-income countries. Armed with the knowledge and training gained at

these universities, potential entrepreneurs could custom-tailor products and services in low-income countries, devise new distribution schemes, and establish commercial enterprises that allowed them to make serious economic gains in tandem with the citizenry of these countries. The Legatum Group, with a similar philosophy, decided in 2007 to make generous and significant donations to MIT in order to back the idea, and the Center came into being with the support and guidance of MIT leadership and many senior faculty members.[8] The Center was inaugurated in October 2008 through a conference that, among other prominent speakers, included five Nobel laureates in economics,[9] endorsing the vision of the Center. Four years later, observing the early performance of the Center and its students, The MasterCard Foundation committed to another significant donation. A few smaller donors also came forward. Since then, the Center has benefited from a number of prominent individuals worldwide who have served on its advisory board.[10]

The Center started with only 12 Fellows in its inaugural, fall 2008 class. By the fall of 2014, more than 200 Fellowships had been offered, and 160 Fellows had completed the program. Admission is competitive; approximately 150 MIT graduate students apply each year, from which about 30 are selected.

Fellows usually enter with their ideas only "half-baked" the program helps them complete the "baking process." The program itself is geared toward preparing students for entrepreneurial careers and includes an individual needs assessment, individualized coaching on venture preparation, mentorship guidance from successful business practitioners in the Boston area, a course titled Entrepreneurship in Large Markets with Low Income, and networking opportunities with successful entrepreneurs and potential funders.

Legatum Center Fellows have explored ideas as varied as fog harvesting (using a nanotechnology-based mesh to extract water from the air); drone-based imaging of agricultural lands in order to create maps of fertilizer needs; the production of nutritious food from moringa leaves, which are widely available in Africa and Asia; enabling entrepreneurs to transform non-recyclable waste streams into high-quality building materials and durable goods; and employing environmentally sustainable production techniques to grow agricultural products used in high-end cosmetics and foods.

Implementing these ideas in low-income countries is difficult, and it is too early to tell how many of the 160 Fellows will eventually create successful ventures. Among other things, young men and women have many other

life priorities in the immediate years after they graduate. Various bureaucratic hurdles in low-income countries also create serious impediments. However, about 30 of the Fellows have already started companies. Most of these are in the earliest stages, but a few, including the following examples, have advanced to the point where they are serving customers:

- In Nigeria, Bilikiss Adebiyi cofounded WeCyclers to recycle urban scrap metal. The project is designed to solve the urban waste challenge for households and recyclers in densely populated low-income neighborhoods by motivating families to recycle through an SMS-based incentive program. Families are rewarded with points for recycling, and they can redeem those points for items of value, like cell phone minutes and basic household items.
- In Kenya, David Auerbach and Ani Vallabhaneni founded Sanergy. Encompassing the full life cycle of waste, Sanergy designs its own toilets, sells them to consumers, and then collects the waste, which is converted into electricity for sale to the national grid or into organic fertilizer for sale to commercial farms.
- In Tanzania, Norikazu Ogawa founded SeedAfrica to provide agricultural machinery leasing and logistics services. SeedAfrica's target customers are the poorest farmers in Tanzania, those for whom increased productivity can maximize earning potential, thus lifting them out of poverty. SeedAfrica currently serves 30–40 farmers per month.
- In India, Akash Bhatia cofounded Infinite Analytics, which serves clients in India and the United States. His company uses neuro-linguistic programming, machine learning, and other techniques to analyze "big data" to help predict user behavior for a variety of businesses, including enterprise business, e-commerce, and travel.

> The Western approach to help low-income countries through aid to governments and charity to NGOs has became the new legacy—which this paper calls "neo-legacy"—is in contrast to the Western commercial legacy that predates it by several centuries.

- In Pakistan, Adnan Shahid founded Ideogeny, which helps startups as well as small and medium-size companies turn ideas into business opportunities.
- In India, Sidhant Pai and Katie Spies cofounded Protoprint. Based in Pune, the company empowers urban waste pickers with the technology to ethically produce fair-trade 3D printer filament from the waste plastics they collect. Protoprint markets the filament globally, providing consumers with a price-competitive, recycled alternative to virgin plastic.
- In Mexico, Javier Lozano founded Clinicas del Azucar, which provides affordable diabetes care. Using cutting-edge technology and a comprehensive redesign of how patients are cared for and interacted with, the company has reduced the annual cost of care by 70 percent. By lowering costs, it makes effective care more accessible to more people in Mexico and helps to prevent many of the complications that arise from diabetes.
- Also in Mexico, Enrique Bay founded Kiwi, an online platform that helps users make big-ticket purchases of products in advance through affordable payment plans, while allowing merchants to widen their customer base and increase sales.

IN TRAINING ENTREPRENEURS, THE CENTER STANDS APART FROM THE "NEO-LEGACY"

For several centuries, commerce has been the central force in economic, social, and political progress in the West. That is the real Western "legacy," as reflected by such Western thinkers as Smith, Schumpeter, and Hayek. In contrast, the approach taken toward the advancement of low-income countries has been distinctly noncommercial. Since World War II, the West has generally encouraged high-income countries to help low-income ones by providing aid to their governments and charity to nongovernmental organizations (NGOs). Given the power, influence, and resources of the Western countries, this approach has had a great impact on thinking worldwide, including on the thinking of business leaders and other professionals in the West. In fact, most people in the West, if asked, cannot immediately explain why nontaxable charitable organizations are called "nonprofits" in the West but "nongovernmental organizations" in low-income countries. The distinction is instructive: it highlights the fact that in the West first attempts to solve society's problems involve commerce, with the fallback being nonprofit organizations; in contrast, in low-income countries the first attempts to solve problems involve governments, with the fallback being NGOs. This pattern is etched so deeply that people generally take it for granted as part

of the natural landscape of how the world works. The Western approach to help low-income countries through aid to governments and charity to NGOs has become the new legacy—which this paper calls "neo-legacy"—and it contrasts with the Western commercial legacy that predates it by several centuries. The Legatum Center's theory of change stands in stark contrast to this neo-legacy.

Neo-legacy represents an entrenched, pervasive mode of thought that is both self-fulfilling and self-perpetuating. Aristotle, who emphasized the need to incorporate data and observations into thinking, observed that slavery existed everywhere during his time and concluded from this that slavery was a natural fact of life. In the last seven decades, widespread aid to governments in low-income countries has led even business professionals and academics to accept another "fact of life": that the road to progress for poor countries is paved with charity and aid.

This automatically leads to a clear distinction in how training programs in entrepreneurship are structured in high- and low-income countries. In the West, the question of whether leadership or entrepreneurship can be taught is commonly debated. An implicit (and rarely acknowledged) assumption of such debates is that entrepreneurship is both necessary and feasible. In low-income countries, these are not assumptions but actively debated issues in and of themselves. Such questions arise in people's minds because (so the thinking goes) state-based efforts must be dominant for some good reason.

Another effect of the neo-legacy on innovation cannot be ignored in the context of the training of entrepreneurs: The neo-legacy has contributed to the creation of overbearing bureaucracies that stifle innovation and initiative. If innovations provide a tailwind to economic and social progress, then the neo-legacy counters with a headwind. From this, additional questions emerge. For instance, how can entrepreneurship be made feasible given the forces that oppose it?

The neo-legacy has given rise to many complex problems in low-income countries. While those problems are beyond the scope of this article, those in the West who support entrepreneurship in low-income countries generally follow one of three strategies to avoid them:

1. They simply ignore the problems and instead train entrepreneurs for low-income countries in much the same way they train entrepreneurs for ventures in the United States and other high-income countries. Perceptive students, such as those at MIT, are not content with this solution. They want to understand how their work fits into the larger political economies. And because they want to contribute to progress in low-

income countries, they need to understand how entrepreneurship, more so than nonprofit efforts or aid, contributes to this goal.

2. Many Western academics recognize the value of entrepreneurship and commercial progress in low-income countries but place responsibility for it on the governments of those countries. Entrepreneurship, the argument goes, requires an appropriate environment that should be created by prudent governments. But this approach fails to recognize the interactive nature of the different sectors of a political economy and how governance improves through the blossoming of entrepreneurship in the private sector. Further, it ignores the limiting consequences of entrenched and overwhelming state power in low-income countries—and how those interests themselves may fundamentally oppose entrepreneurship.

The lure of profits encourages entrepreneurs to offer themselves as stepping-stones, allowing society to march forward.

3. Finally, some proponents of entrepreneurship in low-income countries choose to focus on countries that are relatively developed, such as Malaysia, Turkey, and Costa Rica. These countries have already experienced sufficient growth to enable ideas from high-income countries to be applied. The choice to focus on relatively more-developed countries thus leaves out more difficult places where effective entrepreneurial interventions may have a more fundamental impact.

The Legatum Center takes a more direct approach, attempting to deal with the neo-legacy head on. The Center aims not only to adequately prepare entrepreneurs for the unique conditions in the most challenging low-income countries but also to promote (including in publications such as the *Wall Street Journal*, *Harvard Business Review*, *Nature*, and *Science*) the idea that entrepreneurship is a more effective means of progress than aid.

Concurrently, the Center has developed a curriculum that taps into (1) the mainstream Western intellectual tradition that is generally consistent with entrepreneurial and bottom-up progress; (2) lessons from Western entrepreneurs—such as Josiah Wedgwood, Isaac Singer, and Henry Ford—who operated in low-income environments; (3) case studies of successful entrepreneurs working in contemporary low-income countries; (4) current technological phenomena that are unleashing new possibilities; and (5) the

knowledge of contemporary practitioners, both entrepreneurs and their funders.

PROFITS, COMPETITION, AND INCLUSIVENESS

The question of profits not surprisingly arises in the minds of the Center's Fellows; it is counterintuitive to think that an entrepreneur trying to make profits can be helpful to low-income people, especially in countries with widespread poverty. This partly explains the wave of rising interest in "social entrepreneurship," a term that, although it generally encompasses both nonprofit and for-profit enterprises, manages to imply that entrepreneurship, on its own, is not necessarily social. Social entrepreneurship is thus conceived as using the strengths of entrepreneurship to address social issues.

Because the Center is associated with low-income countries, and those countries are generally perceived to have social problems, the Center is often assumed to be promoting social entrepreneurship and to be focused on ventures that focus only on these problems. In fact, the Center simply promotes for-profit ventures that provide goods and services to "the average person" in a low-income country. The Center has nothing against nonprofit organizations or non-governmental organizations. Rather, it tries to emphasize that the powerful roles played by for-profit ventures should not be sidestepped. Young men and women who are inspired to create effective business ventures can have a profound impact on the process of development. The belief that regular entrepreneurship does not generate social progress may, as a result, prejudice potential entrepreneurs against for-profit ventures. That is an unfortunate outcome, because so long as such ventures do not enjoy a monopoly or other kinds of unfair protection from governments (i.e., so long as they participate in competitive commerce), they are likely to promote a great deal of social progress by promoting greater inclusivity, as explained before.

Most people expect that the poor and the weak will, almost by definition, fare poorly in competition and commerce. On the surface, then, competitive commerce does not sound like something that will benefit them. However, the word "competitive" here describes what can exist among businesses as they compete for customers and other resources, including workers. Competitive commerce puts a check on powerful business owners and empowers the weak: that is customers and employees. Furthermore, those who are concerned about the weak usually worry that private-sector activities will leave them behind. However, private-sector activities are not necessarily coequal with competitive commerce. The latter involves compe-

Possible Future Pathways for the Legatum Center

Entrepreneurship in low-income countries can rejuvenate the innovation process there, a point completely consistent with the missions of the Sloan School of Management and MIT at large, and with the cause of creating prosperity in low-income countries. Here are five reasons why the future of the Center can be bright.

First, articulating and advancing a purely business-oriented theory and practice of development can distinguish the Center and the Sloan School in which it is housed from other business schools or universities that may be mired in the neo-legacy. This is why an appreciation of the consequences of the neo-legacy is so important. Academic institutions in the West have backed—both intellectually and financially—the theory of state-based progress in low-income countries since its emergence 70 years ago, even though the theory is inconsistent with the history of economic progress in the West and the Western mainstream intellectual tradition. Sloan can potentially assert itself on the more solid idea that commercial innovation, energized by competition, is an inclusive process that can lift up billions of people. Given the magnitude of the developing world, the global importance of which is being increasingly recognized, the Center can help differentiate Sloan from other business schools in America.

Second, progress has been made in the last decade toward an appreciation of individual initiatives and away from state-based efforts, and toward for-profit ventures and away from nonprofit projects.[14] Many "impact" investment funds have emerged in recent years that are funding entrepreneurs in low-income countries. The Legatum Group, supporting the Center's vision, and subsequently The MasterCard Foundation and other donors and partners coming forward, represent an emerging wave. The Gates Foundation, originally started as a charity in the fields of health and medicine, has now begun to make equity investments in inclusive and innovative businesses. At least two reasons account for this shift. One is the continued poverty of at least three billion people. Another is the actual innovations that are blossoming in low-income countries. Bridge International, bKash Limited, Narayana Hospitals, and M-Kopa were all mentioned earlier in this article, and all but Narayana were founded within the short lifetime of the Center. In other words, a momentum is building that the Center can capitalize on.

Third, the Center potentially could create revenue-generating programs to supplement funds raised through grants and donations. American corporations are already interested in learning from and possi-

bly partnering with Fellows who have successfully created new ventures. For instance, one alumnus Fellow is creating a chain of low-cost diabetes clinics in Mexico that is ripe with lessons of interest to large health-related American companies. What succeeds on the ground can educate not just researchers and students at MIT but also corporations, which might well pay annual fees in order to engage with the Center and its Fellows. In addition, the Center could organize two- or three-week training programs for entrepreneurs in low-income countries during the summers. The Center has received indications that the demand for such programs is already large and continuing to grow.

Fourth, given adequate funds and faculty endorsement, the Center has the potential to significantly expand its program at MIT. The academic program, currently consisting of one course, could be expanded to include four to six courses on innovative venture creation in low-income countries, possibly leading to a concentration within the MBA program. For instance, one course could explore contemporary cases in low-income countries, while another could examine new technologies from MIT labs or elsewhere that have the potential to solve pressing problems in low-income countries. A course could be offered on the ways in which entrepreneurship alters political economies—albeit gradually—and leads to better governance. Another could provide an economic history of the West with a special focus on the roles entrepreneurs have played. Exposure to Western entrepreneurial history opens the eyes of students from low-income countries and boosts their confidence that they, too, can bring positive change. In addition to new course offerings, a research unit could be launched to explore what advances and what impedes the innovation process in specific counties in the low-income world.

Finally, because low-income countries comprise 80 percent of the world's population and MIT is, and aspires to remain, the premier innovation-intensive global university, the Legatum Center can be an important part of Sloan and MIT at large. The fact that low-income countries and other universities are mired in the neo-legacy only enlarges the possibilities for Sloan and MIT.

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tition that pushes the inclusive process forward. Private-sector activities that manage to avoid competition may not be compelled to seek efficiency and may not be an inclusive force.

Since profits accrue to the owners of a successful business, an easy (if intellectually dubious) jump is to conclude that others do not benefit from

those profits. Far from it. Potential profits lure investors into new ventures. Actual profits help businesses scale up and attract imitators, leading to competition. Once competition sets in—and the state does not step in to protect businesses from this competition—a great many social benefits ensue, with inclusiveness prominent among them.

Under competitive commerce, the need to produce profits requires that companies pay attention to consumers and address their genuine needs. This creates price pressures on the competing companies, and consumers save money that, in turn, creates demand for other goods and services. Pressure on price (1) helps to contain inflation; (2) enlarges markets—more people can afford the goods at a lower price; and (3) forces business owners and managers to find more efficient ways to produce goods, thus generating innovation, advancing technologies, and freeing resources to be used for other purposes.

Within a company, competition provides at least three benefits for workers. First, it forces a company to treat its workers better and pay them well so they do not leave to work for competing companies. As recent experience in China demonstrates, wages will rise even when the labor supply is large if the force of competitive commerce is powerful enough. According to an *Economist* article in 2012, "[labor] costs in China have recently been growing by around 20% a year."[11] Second, profit pressure leads to an upgraded labor force as companies try to make the most of their employees and so provide them with training. Third, under profit pressure, a company cannot discriminate among workers, other than according to their job performance, contributing to a culture of meritocracy.

Competitive commerce also pushes businesses to spend money on advertising. This, in turn, helps sustain media and promote transparency. Commercial progress is also an antidote to the demagoguery that plagues low-income countries. James Madison, "father" of the U.S. Constitution and thus no stranger to the idea of checks and balances, saw that commercial progress gave rise to various interest groups—"[a] landed interest, a manufacturing interest, a mercantile interest, a moneyed interest, with many lesser interests"—whose very existence complicates the demagogue's interest in coalescing people into a common mass. The Founding Fathers saw commerce as not just an end but also a means toward good governance. In many low-income countries, whose governments do not have the checks and balances established by the U.S. Constitution, commerce is even more crucial to preventing demagoguery.

If entrepreneurs pursue profits through competitive commerce, social progress ensues as an unintended and less visible consequence. In other

words, with competitive commerce, entrepreneurs make economic gains in tandem with consumers, some of whom may be poor. The entrepreneurial gains, are potentially only temporary; another entrepreneur comes along and offers something better, leading to the decline of the first entrepreneur while consumers move forward with the second. The lure of profits encourages entrepreneurs to offer themselves as stepping-stones, allowing society to march forward.

THE IMPACT OF THE NEO-LEGACY ON LOW-INCOME COUNTRIES

Although the complex and vexing issues associated with the neo-legacy are beyond the scope of this article and lie outside the Center's purview, one of its adverse consequences directly impacts the work of the Center's Fellows: a key limiting factor on starting or sustaining ventures in low-income countries, as anyone traveling through or working in these countries will experience, is overbearing bureaucracy. Western intellectuals have been aware of this for a long time. In the context of theorizing about rent-seeking societies, economist Anne Krueger, for instance, noted 40 years ago that in these countries, "government interventions are frequently all-embracing."[12] People tend to think of this bureaucratic dominance as part of "Third World culture." However, these problems have tangible and systemic reasons, and the culture is the effect, not the cause. Colonization, largely dedicated to administration, hardened precolonial structures. Aid to governments, part of the neo-legacy, was initiated to manage the Cold War between the Soviet Union and the West, then expanded the colonial-era bureaucracies.

Many economists who study the effectiveness of "aid" have difficulty finding any positive effect. For example, a recent study that looked at data on middle- and low-income countries for the period 1970–1999 found that "aid represents an important determinant of government expansion." The author, Karen Remmer, further found that "aid promotes not only increased spending but also reduced revenue generation."[13] A couple of hundred years ago, similar conclusions were reached by the Founding Fathers of the United States, who possessed extensive historical knowledge about how a political economy hangs together. In "Federalist #30," Alexander Hamilton emphasized that "the necessities of a nation, in every stage of its existence, will be found at least equal to its resources." Hamilton did not say that resources needed to be found according to the necessities. He emphatically meant the reverse as a fact of life. On the other hand, a nation may have necessities that require more than its existing resources,

but in that case the government would have the right incentives to make people more productive and collect more revenues, something that gives rise to an interlocking relationship between people and governments and greater accountability.

The Founding Fathers offer other lessons that help explain the predicament of low-income countries. The Framers, deeply motivated to "oblige [the government] to control itself" (Federalist #51), expected that "one department may commit encroachment on the chartered authorities of others" (Federalist #49). In the Federalist Papers, Madison and Hamilton repeatedly expressed fears of "encroachments from the federal government" (Federalist #26 and #46), "enterprises of ambitious rulers in national councils" (Federalist #28), and "aggrandizement of the legislative at the expense of other departments" (Federalist #49), and they used words such as "invasion" and "usurpation" to describe behaviors they expected from government departments; for example, "invasion of public liberty by the national government" (Federalist #28), "to invade the rights of the individual States" (Federalist #46), "invaded the rights of the less numerous parts" (Federalist #46), and "schemes of usurpation" (Federalist #46).

Who is to say that there are no new ideas brewing in the young minds now attending MIT and other universities? There must be new Gutenbergs, Days, Fords, Singers, and Krocs—hailing from low-income countries—who can unleash new possibilities in their home countries. They simply need to be nurtured, inspired, and exposed to the entrepreneurial possibilities that exist.

Madison and Hamilton were worried about interdepartmental behavior in the U.S. government, but the logic of their argument is as cogent when applied to governments in low-income countries, where the lack of restraining mechanisms only eases government's outward expansion. That low-income countries experience excessive government should thus come as no surprise; it is in the nature of governments to encroach, invade, and

usurp, and those behaviors have been further enabled by inherited colonial machinery expanded with outside aid. No matter what good rationale may have given rise to the neo-legacy, aid to governments had this unfortunate effect.

STATE ACCOUNTABILITY AND THE ROLE OF COMPETITIVE COMMERCE

The arguments made prior to this point should not be misconstrued as implying blind faith in commerce, in the path of which governments in low-income countries stand as an impediment. Rather, the purpose of the article and the Center is to show that entrepreneurship constitutes a path of progress for these countries that potentially leads to a healthy balance between the state and commerce. At the moment, a great imbalance exists between the two because of the neo-legacy.

The state *does* perform critical functions, including those related to defense, the police force, public health, environmental protection, and, yes, the protection of property rights (without which commerce in the long term is not feasible in any meaningful way). Many problems in human societies need to be addressed collectively. A society in which the state fails to perform its critical functions may somehow survive but is unlikely to prosper. Thus, although the importance of commerce and its possible role in improving governance should not be understated, neither should one conclude that commerce alone is a viable alternative to government or a panacea for other social ills.

Likewise, we must acknowledge that commercial forces are potentially capable of corrupting governments. Adam Smith warned of the possible pernicious effects of a private sector that, out of self-interest, colludes with the public sector to block competitive commerce. That is why he advised governments not to intervene in commercial matters. He was worried that government interventions would end up protecting businesses at the expense of competitive commerce and, in effect, consumers. At the same time, he argued, profits set off their own self-correcting forces (i.e., through competition), unleashing a host of social benefits and eventually eliminating unreasonable profits. If governments protect businesses and businesses manage to avoid competition, then businesses preserve their profits while sacrificing the social benefits that ensue from competition.

What determines whether a state performs its critically necessary functions without being swayed into potentially abusive roles? Some people argue that political leadership determines whether the state is able to walk the fine line between doing the right things and avoiding the wrong things.

But when the issue is considered systematically, one sees that a state's behavior cannot exclusively depend on the specific personalities of those who may be heading it at any given time. The more space competitive commerce has to take hold, the more advanced the innovation process, the greater the dispersion of power, the bigger the spread of inclusive prosperity, and the more likely the state will do the right things and restrain itself from wrong ones. Special interests (i.e., where inclusivity is low) push governments to adopt policies that are damaging to societies as a whole. The problem is mitigated as special interest groups broaden through greater inclusivity.[15]

Almost every country in the world today has an economy that is a combination of state-run and privately run enterprises. In addition, privately run enterprises are subject to state regulations, some of which may reflect and benefit vested economic interests. In all cases the state exerts significant influence over its own economy. Nonetheless, the economies of the world can reasonably be divided between those that are "excessively state-influenced" (the "statist world") and those that are "not so excessively state-influenced."

Once we conceive of such a division, we realize two things. First, the statist world is, in reality, likely to be the one with poverty and great inequality. Second, and more important, competitive commerce, which is naturally aligned with the human desire for uplift and continually seeks ways to emerge, will struggle most persistently even where the forces of bureaucratic power and vested economic interest are stacked against it. Understanding this struggle is important for identifying correctly the sources of the headwinds and tailwinds that fledgling competitive commerce may encounter.

But the persistent struggle belies the notion that commerce and entrepreneurship must hold back until governments do the right things. The drive to advance in life is always trying to plant the seeds of competitive commerce. Sometimes competitive commerce advances, and sometimes it does not, depending on which side is gaining greater strength, whether the innovation process is freely bubbling up from below or the bureaucracies and associated vested interests are succeeding in suppressing it.

Commercial forces can get going wherever they find enough economic traction for one reason or another. Archeologists have uncovered evidence of commercial enterprise in ancient Mycenia and Mesopotamia.[16] Godric of Finchale established himself soon after the Norman Conquest in 1066, before property rights were recognized, yet still became one of Britain's most successful merchants.[17] In China in the 1980s, some enterprising entrepreneurs from the mainland went to Hong Kong to use Hong Kong's

legal institutions and sources of capital; they then did business in the mainland as foreign companies.[18] Once entrepreneurial efforts find traction, they will grow as large as the environment allows.

In the statist world of South Asia, Africa, and Latin America, for instance, innovation from below has gotten a boost in the last two decades from the Internet and other information technologies, including cell phones. The consequent economic expansion in these regions has necessarily shrunk the fraction of the economies under the statist hold. The spread of these technologies and the associated entrepreneurial efforts were by and large not organized, planned, or even facilitated by states. The net effects are the expansion of economies, more state accountability, and further impetus to the process of bottom-up innovation. The good news lies in the fact that the innovation side generally enjoys far greater growth than the bureaucracy side that is holding it back. Thus the bureaucratic side may eventually switch from a predatory to a supportive role with the innovating and growing side, making the society as a whole more productive.

The growth of entrepreneurship in South Asia, Africa, and Latin America in recent years, the growth that has occurred largely in opposition to state bureaucracies, parallels the way commerce once grew in medieval Europe in opposition to the state and the church. European history shows that a potential long-term effect of the struggle between innovation and bureaucracy is that governance can improve through commercial progress. Authorities and other powerful individuals in pre-modern Europe put up barriers to commercial progress that kept people poor. But these obstructions were small. European rulers were weak and fragmented, especially outside France. In the struggle between competitive commerce and the restraining means of the rulers, competitive commerce generally won out. Barriers gradually fell as people increased their incomes largely through entrepreneurial initiatives, enticing authorities to align themselves with citizens and thus creating mutually beneficial economic arrangements.[19]

Many would say that low-income countries are plagued by apparent cultural impediments to their economic and social progress. From this follows the argument that, for a productive, commercial society to take form, governments must first take steps to produce good governance and alter the mindsets of the citizenry. Among Western societies, however, progress in governance and culture was an effect of commerce, not a precondition for it. Western intellectuals from Adam Smith to Georg Simmel to Max Weber have recognized that commerce has positively transformed governments, cultures, and behavior by making people more rational and mutually accountable.

Unsurprisingly, a process as complex as commerce can give rise to problems. However, commerce has many self-correcting features. The problems engendered by commerce generally can be addressed by competition among businesses and government supervision, with the latter rooted in citizens' empowerment, which itself arises through the jobs, training, products, and services that come about through commercial progress.

CONCLUSION

The Legatum Center can have a huge impact worldwide by contributing to the unleashing of competitive commerce in low-income countries. Even if the ideal is never achieved anywhere, the right forces, embodied in innovations and entrepreneurs, can be released. Mobile phones, for instance, have brought countless benefits to low-income people and added at least a trillion dollars to their annual GDP. Who is to say that there are no new ideas brewing in the young minds now attending MIT and other universities? There must be new Gutenbergs, Days, Fords, Singers, and Krocs—hailing from low-income countries—who can unleash new possibilities in their home countries. They simply need to be nurtured, inspired, and exposed to the entrepreneurial possibilities that exist.

Under a narrow lens, the Legatum Center trains entrepreneurial students seeking to launch businesses in low-income countries. A somewhat broader viewpoint reveals that the Center serves to bring the realities of low-income countries to MIT's doorstep, enriching MIT's innovation ecology, through which new and relevant innovations can emerge. At the same time, the Center exists to impart a clear message on the important and distinct role of entrepreneurship in low-income countries as the most effective way to progress and, in turn, contribute to global peace and growth.

MIT now has a good head start in this area of global need and possibility. At the same time, a Center properly grounded in actually solving problems will command attention from the emerging global community, exemplified by The Legatum Group and The MasterCard Foundation, in the old American philosophy: individual initiatives, appropriately harnessed, can achieve great things.

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1. Joseph Schumpeter, *The Theory of Economic Development.* New Brunswick: Transaction Publishers, 1997, p. 132. (The original was published in German in 1911.)
2. Geeta Anand, "The Henry Ford of Heart Surgery, *Wall Street Journal,* November 25, 2009.
3. Alfred Marshall, *Principles of Economics,* 8th ed., London: Macmillan, 1920, Bk. 1, pp. 3–4.

4. Smith wrote, "It is the great multiplication of the productions of all the different arts, in consequence of the division of labour, which occasions, in a well-governed society, that universal opulence which extends itself to the lowest ranks of the people." Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations,* ed. Robert M. Hutchins, Chicago: Encyclopedia Britannica, 1952, Bk. 1, p. 6.
5. The terms "capitalist system" and "capitalism" were first used by critics such as Werner Sombart and Karl Marx. Over time, Joseph Schumpeter and others who celebrated "capitalism" began to use these terms in a positive tone, bringing them into a more neutral understanding. "Competitive commerce" correctly describes the system envisioned by Smith. Rooted in competition, competitive commerce, unlike "private-sector activities," gives rise to inclusive prosperity.
6. Joseph Schumpeter, *Capitalism, Socialism, and Democracy*. New York: HarperCollins Publishers, 1942, pp. 67–68.
7. F. A. Hayek, "The Use of Knowledge in Society," *American Economic Review,* September 1945, pp. 519–520.
8. Notably from MIT president Susan Hockfield and senior MIT professors Philip Clay, Charles Cooney, Michael Cusumano, Merton Flemings, Eric Grimson, Wesley Harris, Bengt Holmstrom, Edward Roberts, Adele Santos, Bishwapryia Sanyal, and Antoinette Schoar.
9. Professors Lawrence R. Klein, Eric S. Maskin, Robert C. Merton, Edmund S. Phelps, and Paul A. Samuelson.
10. Individuals who have served as members of the Legatum Center Advisory Board: Thomas Barry, Joseph Bartlett, Tim Berners-Lee, Alpheus Bingham, Richard Broyd, Rick Burnes, Michael Chu, John Hennessy, Bernard R. Horn, Hadeel Ibrahim, Mo Ibrahim, Ira Jackson, Karim Khoja, Phillippa Malmgren, Kiran Mazumdar-Shaw, Julie Meyer, Jacqueline Novogratz, Arthur Obermayer, Robert Pattillo, Edmund Phelps, Hanadi al Thani, Joseph Turner, Judi Wakhungu, and Shoshana Zuboff.
11. "Comparative Advantage: The Boomerang Effect," *The Economist,* April 21, 2012. Available at http://www.economist.com/node/21552898
12. Anne O. Krueger, "The Political Economy of the Rent-Seeking Society," *American Economic Review,* 64, no. 3 (1974): 291.
13. Karen L. Remmer, "Does Foreign Aid Promote the Expansion of Government?" *American Journal of Political Science,* 48, no. 1 (2004): 77–92. Productivity data seem to bear this out. According to William Easterly, "the growth of output per worker [in poor countries] was three percent in the 1960s, 2.5 percent in the 1970s, 0.5 percent in the 1980s and 0 percent in the 1990s." William Easterly, *The Elusive Quest for Growth*, Cambridge, MA: MIT Press, 2001, p. 74.
14. The author makes this observation through eight years of experience in cofounding and coediting this MIT Press journal, *Innovations*, with Professor Philip Auerswald of George Mason University.
15. Mancur Olson explains this issue well. Among Olson's works, see pp. 95-96 in his book *Power and Prosperity: Outgrowing Communist and Capitalist Dictatorships*, New York: Basic Books, Inc., 2000.
16. Michael Hudson, "Entrepreneurs: From the Near Eastern Takeoff to the Roman Collapse," in *Invention of Enterprise*, ed. David Landes, Joel Mokyr, and William Baumol, Princeton, NJ: Princeton University Press, 2010, p. 8.
17. Ronald Shillingford, *The History of the World's Greatest . . . Entrepreneurs,* London: History of the World's Greatest…, 2010, pp. 2–8.

18. Yasheng Huang, *Capitalism with Chinese Characteristics: Entrepreneurship and the State*, New York: Cambridge University Press, 2008. pp. 5-7.
19. For example, members of the British Parliament in the 13th–16th centuries, knowing that the monarch required their approval to levy taxes, succeeded in extracting various liberties in exchange for higher taxes—money that was generated from commercial progress—and the monarch's power consequently declined. Although the contemporary barriers to commerce are strong in low-income countries, their larger possible markets can potentially counter these barriers.

Victor Mulas, Michael Minges, and Hallie Applebaum,

Boosting Tech Innovation Ecosystems in Cities

A Framework for Growth and Sustainability of Urban Tech Innovation Ecosystems

Cities are increasingly emerging as the new centers of technological innovation. A shift is under way from technology parks in suburban areas, where universities, research labs, and the private sector are located together, to entrepreneurial activity within cities. Studies on venture capital (VC) investment in the United States reveal that innovation is moving from suburbs to downtown cities (MPI, 2014). Today, San Francisco hosts more VC investment than Silicon Valley and New York City, where the innovation startup scene was nascent a decade ago, has become the second-largest tech startup ecosystem in the United States, with over $3.1 billion in VC investment in 2013 (Endeavor Insight 2014). This trend is not unique to the United States. Startups are burgeoning in major cities around the world, including London, Berlin, Madrid, Moscow, Istanbul, Tel Aviv, Cape Town, Mumbai, Buenos Aires, and Rio de Janeiro, to name a few (see Figure 1.1).

Factors such as proximity, density, and variety of people and firms contribute to this phenomenon (Athey et al 2007). New technology trends have lowered the cost of innovation and allowed entrepreneurs to enjoy the benefits from agglomeration economies. Cloud computing, open software and hardware, social networks, and global payment platforms, among other things, have made it easier to create a startup with fewer physical resources and personnel. If in the 1990s an entrepreneur needed $2 million and

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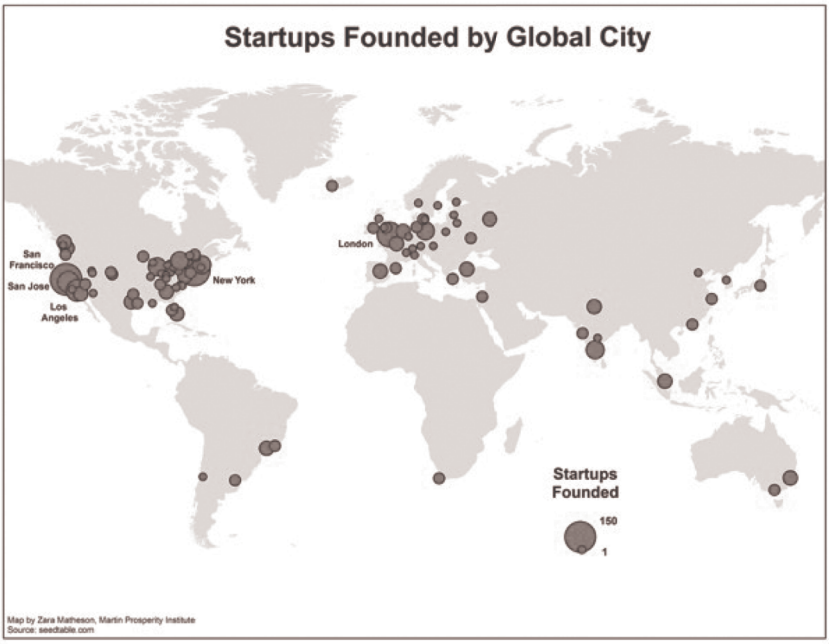


Figure 1.1. Startups Founded by Global City

Source: Florida, 2013.

months of work to develop a minimum viable prototype, today an entrepreneur would typically need less than $50,000 and six weeks of work (Center for an Urban Future 2012) and, in some cases, these costs can be as low as $3,000 (Mytton 2009). This trend is allowing entrepreneurs to take advantage of city agglomeration effects to a greater extent than before.

Entrepreneurs "want to live where the action is" – that is, in places where other young people, social activities, peers, and entrepreneurs are located (Florida 2013). Entrepreneurs look for conventional startup support, such as mentor networks or role models, as well as nightlife, meetups, social activities, and other potential "collision" points, a combination best provided by cities (Satell 2013). Innovation is becoming urban; what was previously the preserve of "innovation parks" is now growing organically within cities. In this paper, urban technology innovation ecosystems are defined as the collection of stakeholders, assets, and their interactions in city environments resulting in technology (in particular ICT)-based innovation and entrepreneurship. The unit of study of this research is the city area of influence, understood as the core metropolitan area. The terms "urban" and "city" are used interchangeably to refer to the ecosystem.

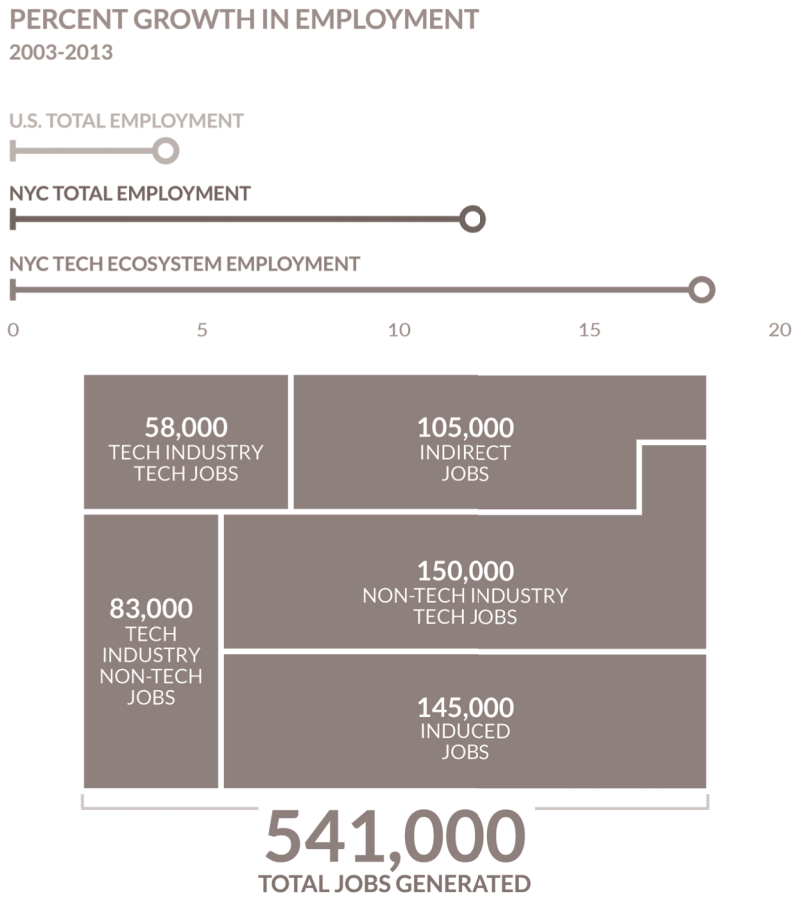


Figure 1.2. Technology Employment Impacts in New York City

Source: Adapted from HR&A Advisors, 2014.

URBAN TECHNOLOGY INNOVATION ECOSYSTEMS RESULT IN NEW SOURCES OF EMPLOYMENT AND GROWTH

Urban technology innovation ecosystems not only increase the number of technology startups in cities but also result in new employment and economic growth by creation of new businesses and employment categories. In New York City, the technology sector has increased jobs faster than in other sectors and accounts for 12 percent of city tax revenue (HR & A Advisors 2014). From 2006 to 2013, the technology innovation ecosystem in New York City created over 500,000 new jobs (see Figure 1.2). The positive cor-

Project/Activity	City (Country)	Launched (Year) and Status
Mobile Internet Ecosystem Project	Beirut and others (Lebanon)	Prepared 2012, supporting activities started 2014
Colombia Open Innovation for Municipal Services	Barranquilla, Cali, and Manizales (Colombia)	Launched 2012, completed 2013
Smart City Gran Concepcion	Gran Concepcion (Chile)	Launched 2013, completed 2014

Figure 2.1. World Bank activities relating to technology innovation ecosystems

relation between growth in the ICT industry of a city and job creation is being observed in other cities as well. Bangkok has been adding over 3,000 jobs a year to its ICT industry (National Statistical Office of Thailand). In Barcelona, ICT is recognized as a key industry with 29 percent of all companies and 48 percent of employees involved in the knowledge economy (Barcelona City Council 2012). Medellin generates over $100 million a year from Business Process Outsourcing (BPO) and has attracted a number of multinationals to establish BPO centers in the city (Keshetri et al 2012).

As the economy evolves into what many think is a "third industrial revolution" (*The Economist* 2012) that may erode traditional manufacturing jobs and those requiring routine cognitive skills, the creation of new sources of employment and growth is paramount to maintaining competitiveness, reducing poverty, and increasing shared prosperity.

THE OPPORTUNITY FOR DEVELOPED AND DEVELOPING COUNTRIES

The emergence of technology innovation ecosystems in cities presents an opportunity for developed and developing countries alike. Globally, over half of the population lives in cities (United Nations 2014), and this percentage approaches 80 percent in regions such as Latin America. The fastest urbanization rates in the world are in Africa and Asia (Phillips 2014; United Nations 2013; and United Nations 2014). Developing countries can tap into the growing resource of human capital and talent to produce innovation centers within their own countries that generate growth, entrepreneurship, and employability while addressing local problems. Tech and entrepreneurship skills have become easier to develop for unskilled and unemployed populations, especially young people. For instance, coding and open hardware skills that previously took years to learn can now be trained in months or even weeks. There is anecdotal evidence that these programs are increasing employability and entrepreneurship in these ecosystems (Meng 2013; and Amirtha 2014).

However, technology innovation ecosystems are not growing equally in all cities. Some cities are experiencing higher, faster, and more sustainable growth of these ecosystems than others, resulting in a higher number of startups, investment, employment, and economic growth. It is as yet unclear what factors cause different growth rates and how this growth can be supported with policy actions. Research suggests that density of people and firms and agglomeration effects play a critical role (Carlino and Kerr 2014; and Pan et al 2013). There seems to be a positive correlation between the size and density of the city and the organic growth of urban tech innovation ecosystems, as the ecosystems tend to emerge first in the largest cities, such as New York, London, Mumbai, Sao Paolo, or Shanghai (Pan et al 2013). However, it is unclear why some of the largest and densest cities grow their ecosystems at different rates, or why some smaller cities, such as Manchester or Helsinki, have strong technology innovation ecosystems.

Inputs from Field Experience: Connections and Communities Play a Key Role

The World Bank has been involved in a number of activities with client countries to build ecosystems of technology-led innovation. Through these activities, we have observed factors that support the growth and sustainability of urban technology innovation ecosystems. We find that creating and supporting a community of tech entrepreneurs, coupled with incentives for kickstarting the ecosystem, for example through competitions and challenges, and provision of rapid skills programs, often provides a formula to grow and sustain technology innovation ecosystems. Table 1.1 lists some of the World Bank activities related to technology innovation ecosystems that follow this formula. Appendix B provides more details on these activities.

Through these activities, we have observed how urban tech innovation ecosystems develop and grow in cities with different population sizes and wealth characteristics, ranging from three hundred thousand inhabitants in Manizales to two million in Beirut. Anecdotally, we have found that connections and communities play a key role in the surge and sustainability of these innovation ecosystems. Partners in these activities, including city governments and entities supporting urban innovation from Amsterdam, Barcelona, Helsinki, New York, and the Republic of Korea, have arrived at the same conclusions (see Appendix A for details of these partners).

This finding implies that the emergence and sustainability of urban technology ecosystems can be supported with policy actions, and that those policy actions can obtain results in the short term (that is, one to three years). Some cities, such as New York, are already creating technology innovation ecosystems with this hypothesis in mind (see text box).

New York City Policies to Create a Sustainable and Vibrant Tech Innovation Ecosystem

The growth of New York City's tech innovation ecosystem is not entirely random. It has received active support from Government of New York City, with targeted and strategic policy actions. New York consciously followed this strategy to create new sources of income and competitiveness during the financial crisis. Despite the size and importance of New York, the challenges faced by the city to develop a technology-based innovation ecosystem were similar to those facing many other cities. This included: (i) lack of technology-specialized talent, (ii) insufficient sources of seed capital for startups, (iii) lack of physical space for entrepreneurs, and (iv) a limited and uncoordinated community of tech-led innovators and entrepreneurs.

New York addressed these challenges through a strategic program with targeted policies. Specific actions included (i) promoting collaborator spaces linked to mentor networks and incubators, (ii) fostering entrepreneurial funds to attract VCs into New York startups, (iii) attracting engineering schools to develop programs in the city and providing basic skills training and access to open hardware tools in public spaces (for example, libraries), and (iv) energizing the community through competitions and challenges (based on city problems). This last strategy is accomplished by the city opening data, developing mentorship networks for tech entrepreneurs, and promoting the tech community, including promotion campaigns, support of high-ranking city officials, and public awards. These actions were conducted in partnership with the community and private sector, thereby providing incentives to the latter. The focus on commu-

A FRAMEWORK TO ANALYZE URBAN TECHNOLOGY INNOVATION ECOSYSTEMS

Research Objective and Approach

Given that connections and communities play a key role in the growth and sustainability of innovation ecosystems, which can be supported with policy actions, a research project was developed to **identify the key success factors to grow, develop, and sustain technology innovation ecosystems in cities in order to inform policy actions.**

Research began by identifying and reviewing existing studies applicable to urban technology innovation ecosystems. Following this review, and tak-

nity development, collaboration spaces, and mentorship networks proved to be a success, attracting a community that is self-sustainable and continues to grow.

New York City's success in developing a sustainable technology-led innovation ecosystem presents lessons for cities around the world, in both developed and developing countries. As its ecosystem grew, New York also actively engaged poor neighborhoods through training and integration into new employment opportunities generated by the ecosystem. Almost half of the jobs generated in the New York tech ecosystem do not require a bachelor's degree (HR & A Advisors 2014). Pilot initiatives targeting poor and unskilled population from neighborhoods, such as the Coalition for Queens, confirm that rapid skills training with mentorship results in direct employability. From the first batch of this program, 20 graduates, 70 percent obtained full-time employment, 15 percent became entrepreneurs, and the rest entered formal education programs (Hsu 2014). Further, almost a quarter of New York tech startup founders do not have any technical background, and most of these startups focus on non-tech sectors, introducing technology-driven innovation to existing industries and businesses (HR & A Advisors 2014).

New York has been able to develop one of the largest tech-innovation ecosystems with limited tech talent, which is a constraint many cities face. New York is not the only city applying these policies and support. Other cities—including Amsterdam, Barcelona, Helsinki, and London, to name a few—are also actively supporting the growth and sustainability of their innovation ecosystems with similar policies and areas of focus targeted to their local needs.

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ing into account experiences with working with client countries and partners, a framework was developed to test the following hypothesis: **Connections and communities are key success factors for the growth and sustainability of urban technology innovation ecosystems.** This hypothesis was tested for New York City and initial results are presented in this working paper.

The framework identifies and categorizes key success factors for the growth of an urban technology innovation ecosystem and compares the impact of such factors to different ecosystems across cities. Ultimately, it is expected that the framework can be used to assess the impact of policies to grow and sustain urban technology innovation ecosystems.

LITERATURE REVIEW

A review of the literature on innovation ecosystems in cities was conducted, first examining innovation and ecosystems and then considering the applicability of these concepts in the urban context. There are a limited number of studies and frameworks that specifically address urban technology innovation ecosystems, so the review also included studies on innovation and cities, primarily indexes of city innovation and competitiveness to identify key factors for innovation in cities that could apply to the technology innovation ecosystems. The key findings from this review are that:

- There is only a limited consensus on the how urban innovation ecosystems develop and grow, and
- A measurable framework is lacking that enables urban innovation ecosystems to be compared across cities.

However, there is consensus on the critical factors that impact innovation in cities. Building upon these factors, operations experience, and the experiences of partners, a framework was developed.

INNOVATION AND ECOSYSTEMS

The OECD (2005) defines two forms of innovation:

1. **Technological *product* innovation:** "the implementation/commercialization of a *product* with improved performance characteristics such as to deliver objectively new or improved services to the consumer."
2. **Technological *process* innovation:** "the implementation/adoption of new or significantly improved *production or delivery methods*. It may involve changes in equipment, human resources, working methods or a combination of these."

This report is concerned with both of these aspects and in their translation through entrepreneurship into startups. The literature is ripe with studies relating innovation to ecosystems (Durst and Poutanen 2013). An innovation ecosystem parallels the environmental concept where interrelated elements strive for equilibrium. The ecosystem is modeled as an economic equilibrium resulting from the interaction between various innovation actors (for example, business, universities, government) (Jackson 2011). There are several definitions of innovation ecosystems in the literature. Mercan and Göktaş (2011) define an innovation ecosystem as consisting of "economic agents and economic relations as well as the non-economic parts such as technology, institutions, sociological interactions and the culture." The Brookings Institution, applying this concept to urban environments, but limiting it to districts, defines an innovation ecosystem as "a

synergistic relationship between people, firms, and place (the physical geography of the district) that facilitates idea generation and accelerates commercialization" (Katz and Wagner 2014).

FACTORS FOR INNOVATION AND COMPETITIVENESS IN CITIES

This section begins with a review of indexes and studies that include factors of innovation in cities. This is followed by a review of studies of models for innovation ecosystems in cities. These elements are analyzed to develop an urban tech innovation ecosystem framework.

Several institutions compile city rankings based on various measures of competitiveness, a number of which are related to innovation aspects. These indexes can help identify factors to develop innovation within cities and were used as a starting point in developing our framework:

- *Hot Spots 2025: Benchmarking the future competitiveness of cities* (EIU 2013) notes, "Global business is beginning to plan strategy from a city, rather than a country perspective." It defines a city's competitiveness as the ability to attract capital, businesses, talent, and visitors, also important criteria for city innovation ecosystems. The index ranks 120 cities across the world using 32 mainly qualitative indicators grouped into eight categories: economic strength, physical capital, financial maturity, institutional character, human capital, global appeal, social and cultural character, and environment and natural hazards.
- The *Global Cities Index (GCI)* (A.T. Kearney 2014) states, "By creating an environment that spawns, attracts, and retains top talent, businesses, ideas, and capital, a global city can generate benefits that extend far beyond municipal boundaries." The GCI measures the level of city global engagement covering 84 cities using 26 metrics in five categories: business activity, human capital, information exchange, cultural experience, and political engagement.
- A study ranking cities by GDP per capita (OECD 2006) finds that labor productivity is the main factor in explaining differences. Innovation is intimately tied to productivity; cities with high value-added activities such as high-tech and advanced services are closely linked to R&D activities and the generation of innovation. The study notes that applicants located in cities file over 80% of patents in the countries studied.
- *The Most Innovative Cities in Asia Pacific* (Solidance 2013) uses six categories to measure the level of innovativeness in 16 cities in the region: human talent, knowledge creation, technology, society, government, and global integration. The findings are aimed at informing companies about the "most attractive places" in terms of an effective innovation ecosystem.

Hot Spots 2025	Global Cities Index	Most Innovative Cities in Asia Pacific	New York Innovation Index
Economic strength	Business activity		Entrepreneurship and employment dynamics / high-tech gross city product
Physical capital		Technology	
Financial maturity			Finance
Institutional character	Political character	Government	
Human capital	Human capital	Human talent	Human capital
Global appeal		Global integration	
Social and cultural character	Cultural experience	Society	
Environment & natural hazards			
	Information exchange	Knowledge creation	Intellectual property / R&D

Table 2.1. Comparison of Indexes Related to Competitiveness and Innovation in Cities

Key factors include availability of educated and skilled people attracted by diversity and amenities; ability of universities, enterprises and government to produce knowledge; the livability of a city and its ability to sustain culture; the level of technology in the city; a favorable regulatory environment; and global integration and future orientation.

- The New York Economic Development Corporation has created a New York innovation index. The index tracks progress in six dimensions related to resources directed towards innovation and the results of such innovation in the city's economy. Inputs to innovation include R&D, Finance, Human Capital; outputs include Intellectual Property, High-tech Gross City Product, and Entrepreneurship and Employment Dynamics (NYEDC 2011).

A review of the indexes in Table 2.1 shows that similar factors are used in the reviewed indexes to determine innovation within cities. The factors that are most common in these indexes are:

- Human capital
- Business activity
- Government
- Information/knowledge
- Infrastructure
- Finance
- Social/cultural Aspects
- Existing Frameworks to Understand Urban Innovation Ecosystems

Few studies have proposed frameworks to explain innovation ecosystems in urban environments. From the review, six approaches were identi-

fied. These frameworks and their key factors were compared with those identified from the city indexes review. This analysis formed the basis for the proposed framework. This section describes the six framework approaches that were reviewed:

Winden et al (2007) in a first approach looking at the knowledge economy in cities finds that the quality of city foundations and successful organizing capacity are important for generating human capital and knowledge-based industries that then generate innovation. This framework focuses on factors to develop the knowledge economy in cities, including the knowledge base (human capital), the industrial structure, quality of life and amenities, accessibility (infrastructure), diversity, scale, and social equity.

Schaffers et al (2011), taking the perspective of smart cities, propose a framework where all city economic activities and utilities form the innovation ecosystem, with citizens and organizations participating in its development via supply and consumption of goods and services.

Crowley (2011) proposes a framework with three main elements: urban firms and entrepreneurs, institutions, and human capital (see Figure 2.1). Firms and entrepreneurs are at the core, driving the supply and demand for innovation. Institutions, including governments, universities, research centers, business organizations and others, create and spread knowledge, a key driver of innovation. The third component in this framework is human capital. Crowley (2011) argues, "The concentration of highly skilled people in one place promotes the exchange of ideas and learning, facilitating the process of innovation." Cities need to attract talent by providing the adequate environment. Three key drivers of innovation are proposed: networks, markets, and wider conditions. Firms and entrepreneurs connect with institutions and people through networks. These networks promote collaboration, and help generate ideas and disseminate knowledge. Markets, including consumer markets and public procurement, drive the demand for new products and services. People's mobility within the labor market contributes to knowledge dissemination. Finally, Crowley finds that the wider conditions, such as good schools, availability of financial resources, well-maintained infrastructure, and adequate housing available, also contribute to the success of an innovation ecosystem.

The European Commission (EC) (2013) considers a city innovation ecosystem to consist of the processes linking citizens (People) with a built environment (Place) and public organizations and policymakers (Public) through business (Private) (see Figure 2.2). With over two thirds of Europeans living in urban areas, the EC recognizes the importance of promoting innovation to enhance economic growth and increase citizen wel-

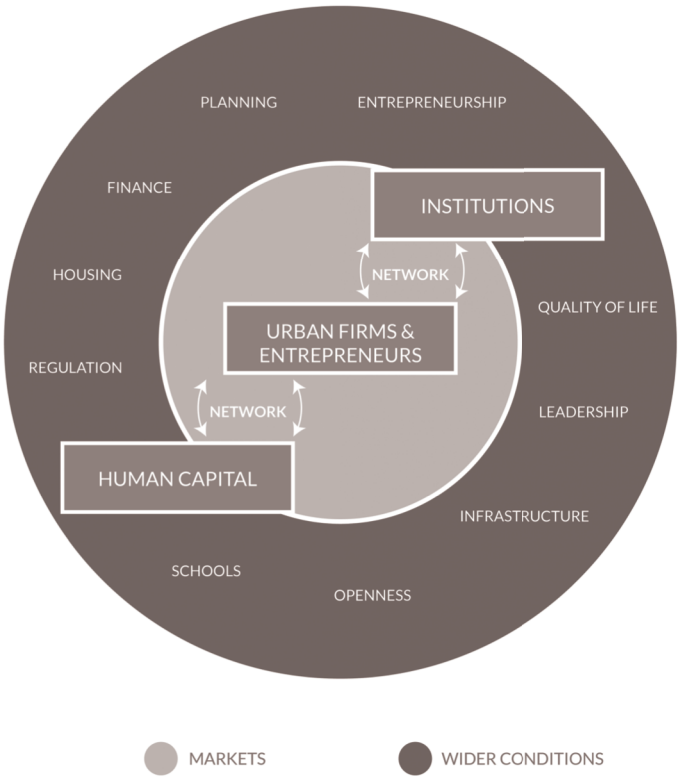


Figure 2.1. Crowley's Innovation Ecosystem Framework

Source: Crowley 2011

fare.

Bell (2014) proposes nine elements that make innovation ecosystems succeed in cities:

- **Talent:** people with the right skills and passion;
- **Customers:** although clients can be found around the globe thanks to the use of internet, some product sales depend on the local market;
- **Capital:** financing available for new product developments;
- **Academic institutions:** supply skilled labor and promote the development of new ideas;
- **Heroes:** examples of successful startups;
- **Guides:** provide advice and help;
- **Support services:** include lawyers, government officials, public relations firms, advertising firms, etc.;
- **Gathering places:** promote "collisions" and the generation of ideas; and

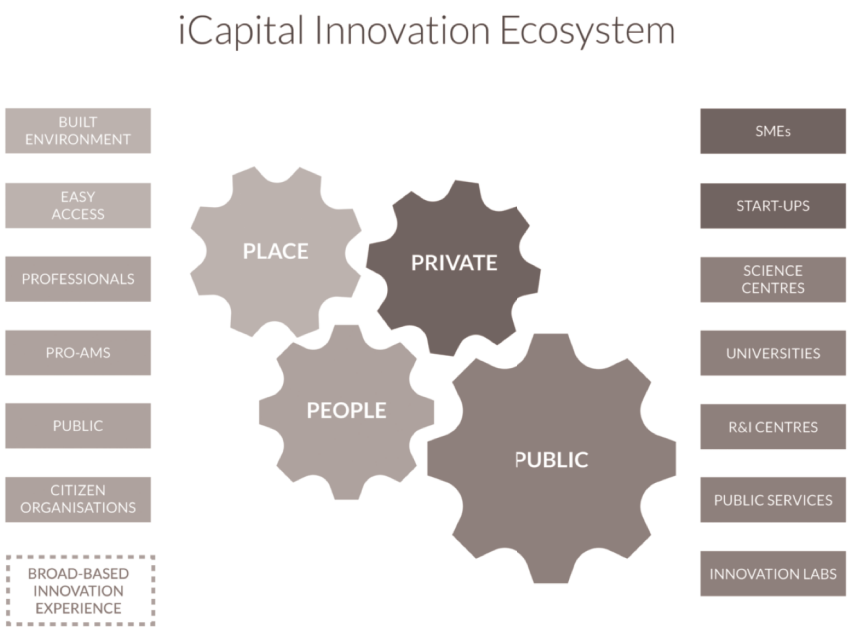


Figure 2.2. European Commission Innovation Ecosystem Framework
Source: European Commission 2013

• **Comparative advantages:** unique characteristics of the city.

The Brookings Institution focuses on innovation districts (Katz and Wagner 2014). This focus is limiting as it reduces the scope of innovation across a city and ignores the social connections generated beyond geography. However, some of the concepts and factors identified can be applicable to the city as a whole and inform a wider approach of the city as the innovation ecosystem. The Brookings Institution's framework finds that economic, physical, and networking assets are present in all innovation districts (see Figure 2.3). These three assets classes are described as follows:

Economic assets refer to institutions, organizations and enterprises that drive, cultivate or support innovation. Thus, economic assets are categorized in three types: (i) Innovation drivers, focused on developing cutting-edge products and services (for example research institutions); (ii) Innovation cultivators, support the growth of entrepreneurs (for example incubators, accelerators, coworking spaces, community colleges); and, (iii) Neighborhood-building amenities, provide support to workers and residents (for example, coffee shops, retail stores).

Physical assets refer to private and public buildings and infrastructure

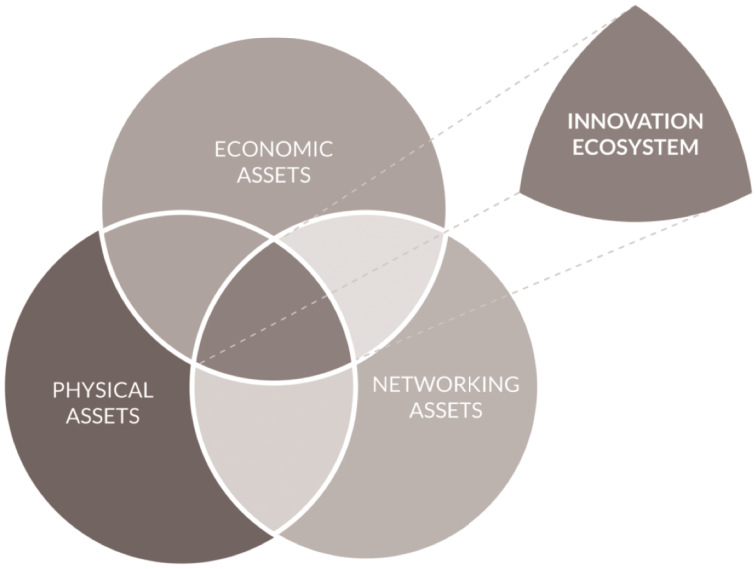


Figure 2.3. Brookings Innovation Ecosystem Framework
Source: Katz and Wagner 2014.

that allow collaboration and connectivity. Public assets include parks and streets. Public spaces not only bring people together, but they also can serve as labs to test new products. Private assets include private spaces and buildings, such as office affordable office spaces for startups. There are also physical assets that help "knit the district together", such as sidewalks, bike lanes and public spaces, and others that connect the district to the city and the world, such as transportation and broadband.

Networking assets refer to the relationship between the ecosystem's actors. These networks and cultivate and accelerate innovation through the exchange of information and ideas, and the increased collaboration. Networking assets can build strong ties (for example, workshops and conferences) or weak ties (for example, networking events and hackathons).

A NEW APPROACH TO URBAN TECHNOLOGY INNOVATION ECOSYSTEMS

Through the literature review on indexes and frameworks related to innovation in cities and innovation ecosystems in urban environments, four main categories to grow and sustain innovation ecosystems emerge:

Winden et. al. (2007)	Schaffers (2011)	Crowley (2011)	European Commission (2013)	Bell (2014)	Brookings Institution (2014)
Human capital / scale / diversity	Citizens	Human capital	People	Talent	
Quality of life / amenities (infrastructure)	Utilities	Wider conditions (infrastructure)	Place (infrastructure)	Gathering places / competitive advantage	Physical assets (infrastructure)
		Institutions / government	Policymakers		
Industrial science	Organizations / economic activities	Research centers / businesses / universities / urban entrepreneurs	Private (businesses)	Academic institutions / capital / support services	Economic assets
		Networks		Guides / heroes	Networking assets
	Supply of goods and services (markets)	Markets		Customers	

Table 2.2. Comparison of Categories Related to Innovation Ecosystems in Cities

- Human capital or people
- Physical assets or infrastructure
- Economic assets, and
- Government and policy or enabling environment

These four categories are connected through networks and markets. This last element finds traction in the most recent two frameworks proposed (Bell and The Brookings Institution). The Brookings Institution framework expands the concept to networking assets, which include events that create community, such as meetups or challenges and collaboration spaces, such as coworking spaces, accelerators, or incubators.

Work with country clients on activities related to developing and strengthening urban innovation ecosystems corroborates these categories. Several urban innovation ecosystems have been mapped by the World Bank and the Research Partners (see Appendix A for World Bank activities and Appendix B for Research Partners). Through these mapping efforts, these four categories have been identified as the main components of city innovation ecosystems. As urban innovation ecosystem growth and development relies increasingly on community building and sustainability, networking assets have become more relevant and central. This importance is also experienced by city partners, which are focusing on developing and sustaining these communities (see Appendix B).

The first four elements result from agglomeration effects and provide a picture of the ingredients that the city must possess in order to develop and grow its innovation ecosystem. The networking element acts as a multiplier



Figure 3.1. Networking Assets as Multipliers of Random Collisions
Source: Minges, 2014, adapted from Roberts, 2014.

of these factors that can boost the size and rate of growth of the ecosystem. As creators and sustainers of communities, the networking element can increase the number of "collisions" that result in innovation within cities. Collisions are random encounters with people one would normally not meet. The theory of collisions argues that these encounters bring new ideas, perspectives, and value for creating opportunities and innovation (Kaplan 2012). The more collisions individuals have with people with different ideas, the more creative and innovative these individuals may become (Satell 2013). Hence, the potential for collisions stimulates innovation and entrepreneurial opportunities (Roberts 2014). Networking assets (as defined in the following section) increase the potential for collisions, acting as a multiplier of the existing elements produced by the agglomeration effects in the city innovation ecosystem (see Figure 3.1).

Based on this premise and borrowing concepts from the literature review, a holistic framework to map and diagnose city innovation ecosys-

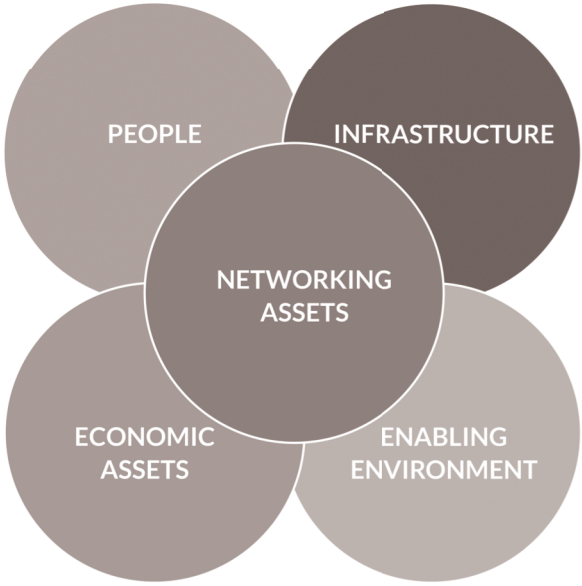


Figure 3.2. City Innovation Ecosystem Framework

tems in developed and developing countries was proposed. The following section describes this framework and its elements.

A HOLISTIC FRAMEWORK TO MAP AND DIAGNOSE CITY INNOVATION ECOSYSTEMS

The framework to map and diagnose urban innovation ecosystems comprises two layers. The first introduces the four categories that result from agglomeration effects and that are common in the literature. The second layer, which is a multiplier of the agglomeration effects, is networking assets. All these elements interact with each other, but only networking assets function as multiplier for the ecosystem growth. This framework is presented visually in Figure 3.2.

People are the basic element for innovation to happen. Innovation results from the interactions and the work of people. A survey of tech entrepreneurs in the United States highlighted the talent pool of employees as being the most important business-related resource that cities offered (Endeavour Insight 2013). The "creative class" has been cited as an important factor for generating economic output in cities (Florida 2002). A number of characteristics of a city's population have a bearing on innovation

and growth. One of the most important is that growing populations generate an increase in productivity (Hardesty 2013). Other people-related factors affecting innovation include the share of immigrants, number of residents with a college degree, the labor force and its characteristics, the number of patent holders, and so on. People also form part of the innovation support network by serving as mentors and guides and are a testing ground for innovative products and services. Within the proposed framework, this category maps the characteristics of people that increase the potential for innovation, including their diversity, in terms of background and education, their level of education, and the education and training capacity of the city, including provision of technology-related training.

Economic Assets include the elements that: (i) interact with people to increase the number of ideas resulting in innovation and, (ii) allow for implementing these ideas into practical innovation. This category maps elements such as the variety of industries, business and sectors; the size, amount, and diversity of companies and businesses; the universities and research and development facilities; the maturity and size of the technology and creative industries; and the availability and size of innovation-oriented investment firms, particularly for providing seed financing.

Infrastructure facilitates interactions among people and economic assets. This category maps the infrastructure in the city that: (i) provides basic living conditions, (ii) facilitates access to people and knowledge, or (iii) facilitates random collisions. This includes transportation infrastructure, broadband access, parks and venues for events, festivals, cafes, restaurants, theaters, and so on. Green spaces attract talent to live in the city and provide a venue for collisions, in the same way as the amenity sector. Offices are needed to house tech firms; startups need inexpensive and adaptable venues (that is, flexible office space). Physical and digital connectivity—transport and communications networks—bind city neighborhoods "together and/or tie it to the broader metro area" (Katz and Wagner 2014).

Enabling Environment refers to public policies and the government commitment to promote innovation. This category identifies: (i) the enabling environment provided by the government for innovation to occur, and (ii) the degree of commitment, promotion and facilitation by the government for development of the innovation ecosystem. This category maps policies such as doing business, property and IP protection, business associations, as well as specific policies to promote the innovation ecosystem, such as open data, challenges, innovation promotion, and so on.

Networking assets increase the number of collisions in the ecosystem, multiplying the effect provided by agglomeration. Innovation ecosystems

Community building events	Skills training events	Collaboration spaces	Collaboration spaces / networks of mentors	Network of mentors
Meetups	Bootcamps and technology training linked to community building	Collaboration and community building spaces e.g. coworking spaces, maker spaces, fablabs	Accelerators (network value)	Angel investors (network value)
Tech community events / conferences	Rapid technical and entrepreneurial skills training programs		Incubators (network value)	Venture capital (network value)
				Networks of mentors and startup "alumni" networks (if different from accelerators, incubators, angel investors, and venture capital)

Table 3.1. Networking Assets

will produce higher results in terms of, for instance, (i) increased number of startups, (ii) increased value of startup exits, (iii) increased employment in tech innovation related activities, if the number of random collisions increases. This category maps the main networking assets, including meetups, tech community events, bootcamps and skill training programs, collaboration spaces, accelerators, incubators, angel investors, venture capital, and networks of mentors.

Accelerators, incubators, angel investors, and venture capital are hybrid assets with economic assets but the impact of their network of mentors and entrepreneurs makes them more valuable for the growth and sustainability of the ecosystem; therefore, they are categorized as networking assets. The financing functions of these assets are included in economic assets under seed capital and financing. Table 3.1 presents an indicative list of networking assets.

Findings from Networking Assets Analysis

If networking assets are multipliers of the agglomeration effects in urban innovation ecosystems this means that networking assets are central to the ecosystem and that connections among stakeholders are central to the growth and sustainability of such ecosystems. This rationale supports the understanding of urban technology innovation ecosystems as a community (or a combination of communities) (see Appendix B).

This hypothesis was tested through a combination of qualitative (interviews) and quantitative (data analytics) approaches in New York City's ecosystem. To familiarize itself with the city ecosystem and its main actors—government agencies, entrepreneurs, coworking spaces, and accelerator spaces—the team conducted 21 interviews with actors to learn about

the development of New York City's tech innovation ecosystem. From these discussions, the team began to identify sources of data in New York City that describe the tech innovation ecosystem. The interviews also provided insights on New York City's ecosystem, its growth, and the role of networking assets, such as meetups, competitions and collaboration spaces. The interviews also allowed the team to learn about the policies of New York City, its impact, its successes and failures, and how it evolved to support the growth and sustainability of the ecosystem.

For the data analysis, the team used available data sources to quantify the value of networking assets via their centrality in the ecosystem as well as the impact of geography on the ecosystem and how geographical and social connectivity centrality affected the performance of startups (in terms of capital raising). Because it used mainly CrunchBase and Angel List data, the team focused the analysis on accelerators and incubators. These are collaboration spaces providing investment along with (and sometimes as primary function to) their networking functions. This phase of the research did not analyze community building events or skills training programs and events because insufficient sources of data were available. In addition, because this phase of research focused on testing the effectiveness of the proposed social network analysis methodologies against publicly available data sources, research focused on exploring the dataset at a static point in time and did not explore impacts over time. These additional perspectives can be addressed in future research (see Chapter 4).

The findings from the analysis of four research questions in relation to New York City's urban innovation ecosystem are summarized below. As mentioned above, the results presented here, and in more detail in Appendix E, are interim findings resulting from the data sources and limitations of this research. Final outputs will be produced as a result of forthcoming research and analysis. Data sources and methodologies are also described in detail in Appendix E.

In order to measure the value of networking assets in urban innovation ecosystems, research explored the impact of connections on ecosystem success outcomes. Following this, the value of incremental connections was quantified, enabling us to rank and value individual networking assets by multiplying their success in creating new connections by the value of incremental connections.

Connections are defined as either social or geographic. While there are multiple metrics that can be used to define success, this analysis considers the raising of a round of funding as a successful outcome for startups and by extension the ecosystem as a whole. As such, the analysis focuses on

examining the interplay between the geographic, social, and funding dynamics within New York City's urban innovation ecosystem.

The findings of this analysis (see Appendix E) support the hypothesis that the social dimension, or the connections and communities, of the ecosystem is critical for the growth and sustainability of the ecosystem and that networking assets, defined as community building events, skills training events, collaboration spaces, and networking of mentors, are central to this social dimension. First, networking assets (using accelerators and incubators as a proxy) are central to the ecosystem's social dimension, being nodes of connection for startups and other stakeholders. Second, social momentum of startups has a direct impact in their success (in terms of funding). However, there is not such impact with the geographic dimension of startups. Finally, the social dimension of startups expands and provides diversity to the ecosystem beyond geographical clustering or technology districts' boundaries.

Networking Assets are Central to the Ecosystem

These initial findings support the hypothesis that networking assets are central to urban technology innovation ecosystems. This implies that networking assets are the connectors which: (i) sustain the social network of the ecosystem, and (ii) have the potential to boost the ecosystem's growth by increasing the collisions that result from social connections. By being central to the ecosystem and these connections, networking assets would play a critical role in the growth and success of urban technology innovation ecosystems. Either the social dimension of startups determines their success (in terms of capital raising) or success determines the of startups centrality for the ecosystem (in its social dimension).

Compared to this social dimension, the geographic dimension or clustering of startups does not seem to play a critical role in their success (in terms of capital raising) or centrality within technology urban innovation ecosystems. This seems to imply that the geographic dimension of startups is just one of many mechanisms to contribute to the social dimension of startups. In urban environments, the geographic dimension becomes less relevant. In particular, in New York City, with an extensive, affordable and fluid transportation network, the geographic contribution seems to be rather small compared to that of networking assets.

These initial findings have important implications because they position networking assets as significant factors of technology innovation ecosystems in cities. The significance of these assets combined with the importance of a startup's social dimension compared with its geographic dimen-

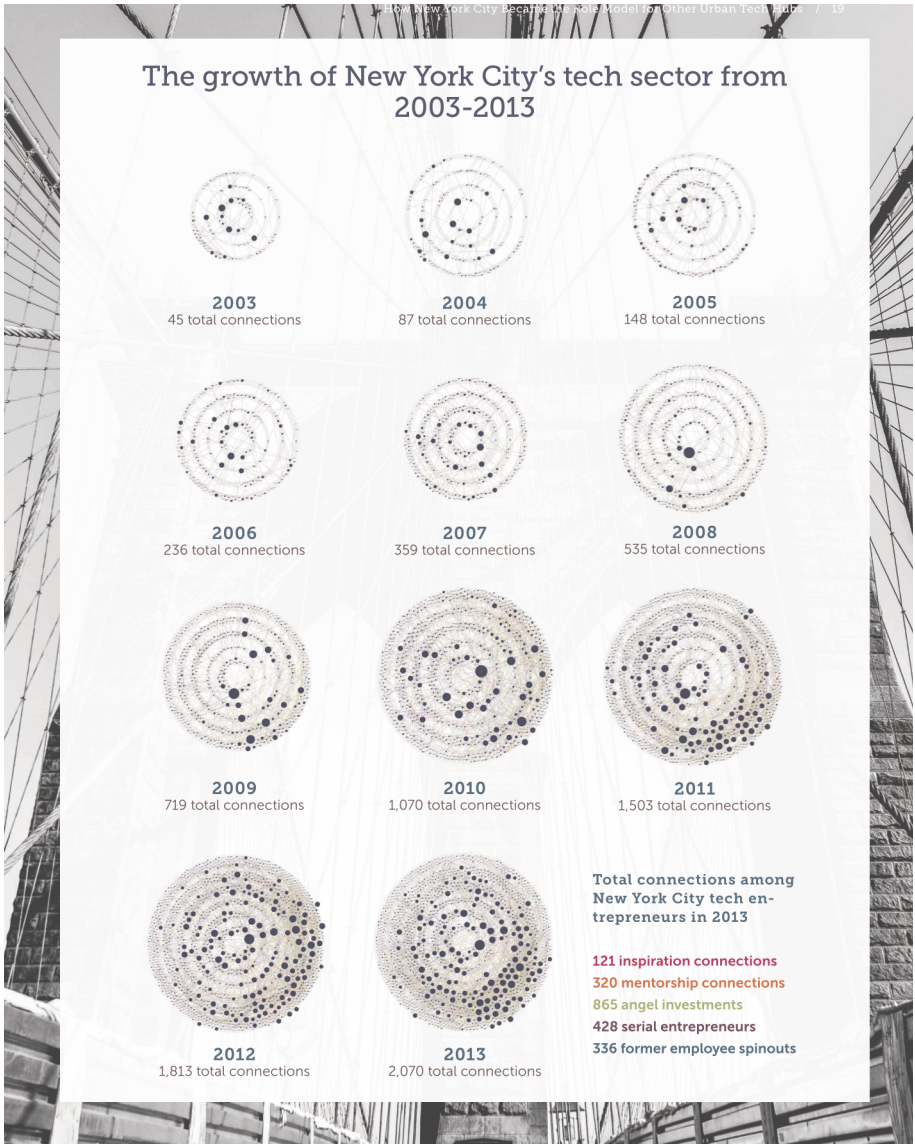


Figure 3.3. The Growth of New York City's Tech Sector from 2003-2013
Source: Endeavor Insight, 2014.

sion are important considerations that should inform the policy of cities that support the growth and sustainability of these types of ecosystems (see section 3.4).

These findings are preliminary and based on limited sources of data.

However, in combination, they provide support to the hypothesis that: (i) fostering the increase of connections, and building a community are critical actions to grow and sustain technology innovation ecosystems, and (ii) that networking assets play a key role in creating both of them. These findings are reinforced by the insights from the interviews the team conducted and the recent research produced in New York City's technology innovation ecosystem by Endeavor Insight. This research (Endeavor Insight 2014) found that connections have been critical in the growth and sustainability of the ecosystem and that they provide a virtuous cycle for growth. Endeavor Insight mapped the connections of over 650 entrepreneurs and key actors in the ecosystem, showing the growth in size (about 25 per cent CAGR from 2003 to 2013) and complexity (see Figure 3.3) as the ecosystem grew exponentially to become the largest in the United States during that period of time.

These findings are limited by the characteristics of the city object of this research (New York City), the limitations of data sources (see Appendix E) and scope of analysis (limited types of networking assets). Transportation and connectivity (for example, broadband) infrastructure in New York City provides easy physical and digital transit within the city, and may reinforce the importance of social connectivity compared with geographic connectivity. In other cities, different transportation and connectivity infrastructure (for example, long daily commute, poor public transport, limited broadband access), may impact this result. Data from voluntary reporting by members of the ecosystem may not provide a complete or unbiased picture of reality. Finally, networking assets, such as community building events and skill training programs, are critical in the hypothesis of ecosystems as a community (or combination of communities). This research did not analyze the impact of these events and programs. For these reasons, the findings presented in this paper should be considered as interim and further research and analysis is planned in a subsequent phase of the study (see Chapter 4).

Policy Implications

The significance of networking assets for the growth and sustainability of technology innovation ecosystems in cities and the importance of startups' social dimension compared with their geographic dimension have policy implications for cities and other policy actors that want to support the growth and sustainability of technology urban innovation ecosystems.

The most relevant implications for policy design and implementation are that: (i) technology innovation ecosystems in cities need to be under-

stood as a community or combination of communities, and (ii) the focus of policies to support these ecosystems is the community (defined by its social dimension) and not a geographic area (for example, a district or technology park) within the city.

Addressing ecosystems as a community

By understanding the innovation ecosystem as a community, where social connections play a critical role, policies can better target the bottlenecks and market failures precluding or slowing the growth of the ecosystem.

Policy to support the ecosystem should focus on fostering the development of networking assets that kickstart communities (for example, challenges, hackathons or competitions), build networks (for example, meetups, networks of mentors), or provide platforms for community building (for example, collaboration spaces). Bringing legitimacy to the community can play a critical role in its initial growth and further expansion. Promotion campaigns and support that produce role models and highlights the community of entrepreneurs help to support this goal. Additionally, providing rapid skills training programs enlarges the potential members of the community and expands the sense of belonging by providing cohorts of new members.

This is one of the approaches pursued by New York City, and many other cities with growing ecosystems are now following their lead (see Box 1.1). Furthermore, this approach is also shaping the World Bank's innovation ecosystem-related activities (see Appendix B). The research team will review policies adopted by cities and other relevant actors as well as case studies and lessons learnt in the following phase of this research in collaboration with city partners to expand the diagnosis tool (see chapter 4).

The focus of policies should be the community and not a limited geographic area

If the focus of policies to support the growth and sustainability of the ecosystem is the community, these cannot be limited to a geographic area (that is, a district or technology park). Policies that focus on the geographic will have less impact and may completely ignore the key factors that make an ecosystem sustainable.

This, of course, does not mean that policies that target specific geographic areas (for example, neighborhoods or districts) cannot be effective. However, if the objective of such policies is to support the technology innovation ecosystem, their target should be the features of the ecosystem's social dimension. Geographically targeted policies should only complement

this broader objective.

NEXT STEPS AND FUTURE WORK

The findings presented in this working paper are the outcome of the beginning of a larger research. Some of the findings are based on initial analysis and need further work, largely because of limited data and because research was mainly restricted to New York City.

For future research, the sources of data will need to be expanded, additional cities will need to be researched (including those in both developed and developing countries), and the analysis of networking assets will need to include the remaining assets that could not be covered in the initial phase. This research will need to be carried out with research and city partners (see Appendix A).

The scope of future research can be expanded to investigate issues such as:

- how technology innovation ecosystems impact employment and economic growth, with a particular focus on generation of new sources of jobs in both developed and developing country cities, and
- how city governments can build effective policies to support the growth and sustainability of urban technology ecosystems.

The first topic will provide insights into the potential for employability and growth in the current environment of economic transformation where traditional sources of employment are changing. Existing policies and their impact on ecosystem's growth and sustainability will be analyzed as well as the results in producing employability.

Additional resources and partnerships will be required in order to undertake some of this additional research. The next steps and future work that the research team envisions undertaking is described below.

Further research on the role of networking assets

The team will plan to continue its research on networking assets and their role and impact on the growth and sustainability of urban technology innovation ecosystems. The team will need to access more data sources (including enriched data from survey and interviews and social network data) and will need to work in more cities as it conducts data gathering with its city partners (see below). The team will then explore the role of community building networking assets (for example, events to kickstart and sustain communities, collaboration spaces and mentors of networks) and analyze impacts over time.

Expanding scope to more cities and refining the diagnosis tool

The scope of research will need to be expanded to include more cities. This includes working with partner cities to collect data through a common methodology agreed with the research partners. For the data collection process, cities will be prioritized based on those in the Working Group that have shown interest in participating in this process. The list of city members of the Working Group is shown in Appendix A.

Impact of technology innovation ecosystems on employment and economic growth

Research on the impact of urban technology innovation ecosystems on employment and economic growth will be expanded. This will include exploring the relationship between ecosystems and the creation of new jobs, the role of the ecosystem as an ad hoc skills training program, and the impact of networking assets and rapid technical training programs on employability, with a particular focus on the poor and uneducated population. It will also explore the impact of the ecosystem on economic growth and economic transformation within cities, and in poverty reduction. Research will be focused on developing country cities to explore the potential of these ecosystems for providing additional sources of inclusive growth.

Compilation of policies and analysis of impact

The team will also work with its city partners to compile and analyze policies applied to support urban technology innovation ecosystems. This compilation will provide additional resources for policymakers to understand approaches to: (i) support the growth and sustainability of urban technology innovation ecosystems, and (ii) increase the impact of the ecosystem for employment and growth. Case studies to highlight best practice will be provided.

APPENDIX A. RESEARCH PARTNERS

Computation Institute, Harris School of Public of Policy, University of Chicago

The Computation Institute (CI) was established in 2000 as a joint initiative between The University of Chicago and Argonne National Laboratory to advance science through innovative computational approaches. Scholarship in the sciences, arts, and medicine depends increasingly on col-

lection and analysis of large quantities of data and detailed numerical simulations of complex phenomena. Progress is gated by researchers' ability to construct complex software systems, to harness large-scale computing, and to federate distributed resources. The CI is both an intellectual nexus and resource center for those building and applying such computational platforms for science. As an intellectual nexus, it brings together researchers from different disciplines with common interests in advancing the state-of-the-art in computing and its applications. As a resource center, it provides expert assistance to scholars whose work requires the most advanced computational methods.

Endeavor Insight

Endeavor Insight is the research arm of Endeavor, which seeks to deepen understanding of how high-impact entrepreneurs contribute to job creation and long-term economic growth in order to educate key constituencies, such as policy makers. Endeavor Insight seeks to serve as a knowledge center for high-impact entrepreneurs, VCs and others in order to provide useful information and tools that assist high-impact entrepreneurs as they grow their business.

Global Entrepreneurship Research Network (GERN)

"A collaboration of research organizations around the world whose goals are to generate useful and actionable knowledge for entrepreneurs, policymakers, and others; fill gaps in what we know about entrepreneurship; standardize data, especially longitudinal survey work; conduct experiments and evaluation of entrepreneurship education and training programs; and, gain a better understanding of policy barriers and what the right policies are for fostering entrepreneurship. The organizations participating in this network commit to collecting and sharing research results so they are accessible, usable, and open. Key founding partners, along with Kauffman, are Endeavor Insight and the World Bank."

MaRS Innovation and NESTA are also participating in similar research on urban innovation ecosystems as part of GERN.

City Partners

City partners include agencies and departments from local city governments as well as innovation hubs and collaboration spaces. The list of city partners includes the members of the Working Group on urban innovation ecosystems from the Community of Practice of Open Innovation in Cities. In addition, a ministry and a national agency also participate. The list of city

partners is as follows:
- Economic Affairs Department, CTO Office, Amsterdam, Netherlands
- Economic Promotion Department, Barcelona, Spain
- Fukuoka Directive Council, Fukuoka, Japan

Forum Virium, Helsinki, Finland
- iHub, Nairobi, Kenya
- Ruta N, Medellin, Colombia
- Laboratorio para la Ciudad, Mexico City, Mexico
- New York City Economic Development Corporation (NYCEDC), New York, United States
- Metropolitan Region Government, Santiago, Chile

National Entities

The list of national entity partners is as follows:
- Enterprise team, Ministry of Economy, Lebanon
- National IT Promotion Agency (NIPA), Republic of Korea

APPENDIX B. WORLD BANK OPERATIONS AND ACTIVITIES

Innovation ecosystem-related projects the team has been working with include, but are not limited to:

Lebanon Mobile Internet Ecosystem Project (MIEP)

MIEP's objective is to strengthen technology-led innovation ecosystem and foster entrepreneurship and employability in Lebanon. The project focus is to grow and sustain the ecosystem community, expand technical and entrepreneurial skills and to expand the technology ecosystem throughout the economic sectors in Lebanon.

The project is a 4-year program with a budget of USD 12.8 MM with four main activities:

1. Skills training for youth and entrepreneurs. The activity will develop a series of crowdsourcing competitions, which will include intense hand-on training (for example, bootcamp style) with a light acceleration phase. The result of this competition will be a series of startup projects (that is, minimum viable prototype beta tested, a business plan and a pitch). The competitions will also include an international mentorship program and exchange to connect the Lebanese ecosystem to others. In addition, this activity will create a university-industry platform for industry project training and a series of technology skills activities for schools. The university-industry platform will provide final-year students to team up with industry

to solve real challenges from companies through a start-up or product projects in a 6-month timeframe.

2. Growth and sustainability of the tech-innovation community. The activity will develop network of mentors, links among entrepreneurs and networking events (for example, meetups) to support existing community. The activity will also complement existing collaboration spaces and provide technology tools (for example, maker space), labs (for example, living labs), and a space for community networking. This space will be managed by an innovation hub (the Mobile Innovation Hub, MiHub), which will serve to coordinate the community and the community-building activities. The MiHub will also take the role of promoting the community and its exemplary members.

3. Innovation for legacy industry and other sector of the economy. The activity will develop a series of hands-on workshops and activities between technology startups and entrepreneurs, and legacy industries that have not integrated widely technology in their production processes. This activity will also develop exchange activities with experts from other innovation ecosystems globally. This project is supported by a Trust Fund of the Korean-World Bank partnership.

Smart City Gran Concepcion

Smart City Gran Concepción activity objectives are: (i) to introduce open innovation in municipal government, (ii) to use the government as a platform to kickstart the local technology innovation ecosystem, and (iii) create the mechanisms to develop a sustainable technology innovation ecosystem to solve city challenges and create entrepreneurship and employability.

The activity focused on the transport sector and follows four consecutive components that result in the above-mentioned goals:

- Hands-on skills training on open innovation methodologies to city officials.
- Cocreation of a vision for technology support for urban transport with the city ecosystem (for example, government, academia, private sector, civil society, technology hubs, citizens).
- Challenge competition of city challenges to kickstart the technology innovation ecosystem and develop solutions to city problems.
- Cocreation of local innovation hub with the stakeholders of the city ecosystem (for example, government, academia, private sector, civil society, technology hubs, citizens).

This activity was funded by the Spanish Trust Fund for Latin America and the Caribbean.

Colombia Open innovation for Municipal Services

The objectives of this activity are to promote local government transparency, efficiency and e-services delivery to improve public service delivery and ultimately the quality of life of the population. To achieve this goal, the activity introduced open innovation in three cities in Colombia: Barranquilla, Cali and Manizales.

The activity worked in the sectors that each city selected and followed a sequential approach comprised of the following components:

Cocreation of e-services (for example, mobile apps) with city officials and rapid prototyping.

Cocreation of a roadmap for technology support to city services and eliminating departmental silos.

Challenge competition of city challenges as mechanism of open innovation for municipal governments and development of local entrepreneurship.

Development of strategic plan with local ecosystem stakeholders (for example, government, academia, private sector, civil society, technology hubs, citizens) to support government's open innovation and development of local entrepreneurship.

This activity was funded by the Information Communications Technologies (ICT) Korean Trust Fund.

Global: Barcelona Urban Technology and Innovation Hub

The objectives of this activity is the co-creation of new knowledge and the dissemination of good practices on urban technology and innovation that the city of Barcelona and its partners have developed over the years. The main areas of focus relates to bottom-up innovation and how city government can engage with the city ecosystem to develop innovation and entrepreneurship that addresses urban challenges. The activity organizes Citisense (an annual event on bottom-up approaches to urban innovation) together with Smart City Expo World Congress, and the City as a Laboratory training course (a practical program for policy-makers to introduce open innovation in city government) and develops common research on urban innovation and entrepreneurship

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Malik Fal

Accelerating Entrepreneurship in Africa

Despite the positive economic news and encouraging trends that have emerged from Africa over the past decade, the troubling reality remains that the everyday livelihoods of Africans have not kept pace with macroeconomic growth, and per-capita GDPs on the continent persistently lag behind the rest of the world. We submit that entrepreneurship can address this stubborn income gap in Africa if—and only if—it is able to evolve beyond its current state of necessity-based informality into one that is vibrant and robust enough to promote sustained economic growth and generate long-term, viable livelihoods across the continent.

To gain understanding of the state of entrepreneurship in Africa, Omidyar Network launched the Accelerating Entrepreneurship in Africa Initiative in 2012. To execute this multiphase research project, we partnered with Monitor Deloitte South Africa (formerly Monitor Group). We set out together to identify the challenges facing African entrepreneurs and to pinpoint the most trenchant barriers inhibiting high-impact entrepreneurship.

The first phase of the initiative began with a survey of 582 entrepreneurs in six sub-Saharan African countries: Ethiopia, Ghana, Kenya, Nigeria, South Africa, and Tanzania. The survey was augmented by 72 in-depth interviews and then benchmarked against 19 global peers.[1] The survey focused on four critical aspects of entrepreneurial environments:

- Entrepreneurship assets: financing, skills and talent, and infrastructure
- Business support: government programs and incubators
- Policy accelerators: legislation and administrative burdens
- Motivation and mindset: legitimacy, attitudes, and culture

The initiative's second phase brought together business, government, and thought leaders to analyze the survey findings and to examine the state of entrepreneurship in Africa more closely. The sessions were held in October 2012 at the inaugural Entrepreneurship in Africa Summit in Accra, Ghana. Convened by Omidyar Network in collaboration with the African

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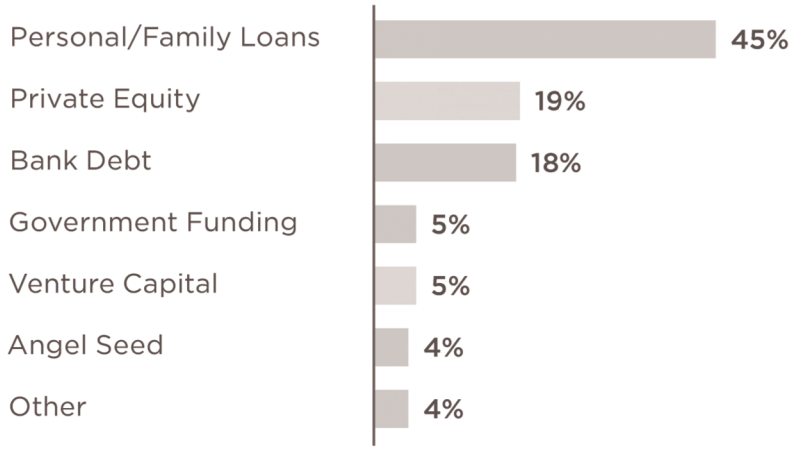


Figure 1. Self finance and family loans are the main sources of funding.

Leadership Network and Monitor Deloitte South Africa, the summit drew more than 300 relevant leaders from both private and public sectors to participate in a solutions-driven dialogue on fostering high-impact entrepreneurship across the continent. This article presents the findings of the entrepreneur survey, the outcomes of the workshops in Accra, and the conclusions of the third and final phase of the initiative: the recommended actions needed to accelerate entrepreneurship on the continent.

We are pleased to report that a culture of entrepreneurship is growing in sub-Saharan Africa, with indicators related to entrepreneurial motivation on par with or higher than global peers. However, despite these positive signs, the business landscape in the region presents a number of challenges that prospective entrepreneurs must transcend. We outline the opportunities and challenges Africa's entrepreneurial ecosystem is facing, and the key practices that we believe will spur the continent forward.

ENTREPRENEURSHIP ASSETS: FINANCING, SKILLS AND TALENT, AND INFRASTRUCTURE

Financing

A supply of and access to capital are critical to stimulating entrepreneurship and economic growth. The International Finance Corporation estimates that up to 84 percent of small and midsize enterprises (SMEs) in Africa are either unserved or underserved, representing a value gap in credit financing of US$140-$170 billion.[2] In the Monitor survey, challenges related to

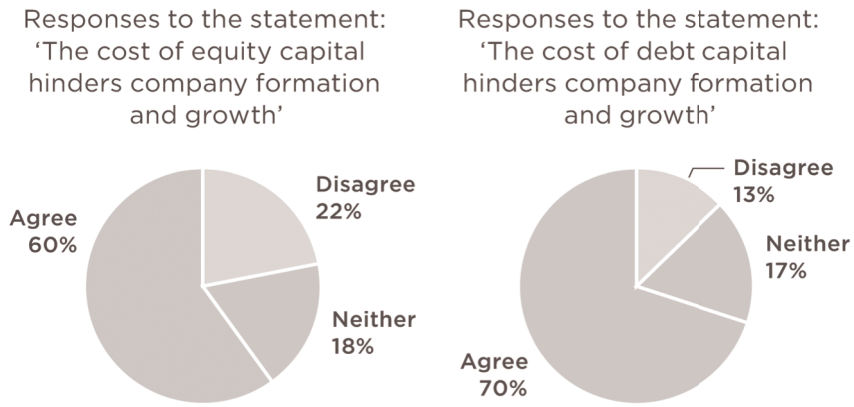


Figure 2. The cost of accessing capital is prohibitive.

accessing finance drew mixed perceptions from the demand and supply sides. Seventy-one percent of respondents believe that not enough equity capital exists to start new firms, but while many "Afro-entrepreneurs" bemoan a limited supply of capital, financiers point out that many projects simply are not fundable. Of the six countries surveyed, Kenya seems to fare the best in terms of capital supply, given that only 52 percent of Kenyan respondents highlight this as a challenge.

Currently, the main sources of capital for small and growing enterprises are retained earnings, credit cards, loan associations, and investments from family and friends. Forty-five percent of Afro-entrepreneurs report that they used family loans to finance their business, and 19 percent say they used private equity (see figure 1). However, once these sources are exhausted, entrepreneurs face the challenge of tapping other sources of capital. The following section explores the constraints facing funders and entrepreneurs, as well as various frameworks that banks, venture capitalists, angel investors, incubators, and large corporations could establish to increase the availability of financing to entrepreneurs.

The cost of funding is prohibitive. While the majority of Afro-entrepreneurs in five of the six countries indicate that they know of organizations and programs that can direct them to sources of capital, they cite the cost of funding as a primary reason they are reluctant to access, or even explore, different avenues of funding. As illustrated in figure 2, 70 percent of respondents believe that the cost of debt capital (and, for 60 percent, the cost of equity capital) hinders company formation and growth. The cost of capital

charged by banks and investors is often so high that it reduces the entrepreneur's profit.

In some cases, banks require 150 percent of the borrowed amount in collateral, thereby automatically disqualifying many from funding eligibility. Government funding is viewed as difficult to access due to bureaucracy and nepotism; only 5 percent of survey respondents used government funding. Many entrepreneurs admit to being unaware of alternative funding options available from government or private sources other than banks. There is also a lack of patient capital sources, leaving entrepreneurs heavily reliant on family and friends for capital to start and run their businesses.[3]

Access to finance remains a dilemma. Debt financing from banks is one of the most prevalent funding sources in Africa; however, it is viewed as unsuitable for entrepreneurs, given the structure of funding from banks. Paul Harris, founder of the First Rand Group in South Africa, states that the risk-reward structure of banks makes them reluctant to invest in startup ventures. If one considers the fact that banks' earnings are capped on loans made and that nine out of ten ventures fail within five years of operation, the risks are exceedingly high and do not offer a corresponding reward. Banks make loans using depositors' savings, which are put at considerable risk if they invest heavily in entrepreneurial ventures.

Venture capital, where investors share the risk but also the gain on the equity upside, provides a more appropriate source of financing. Equity markets for small and growing firms, however, are still in their infancy in Africa; only 33 percent of respondents in the Monitor survey believe enough venture capital is available.

For venture capital to succeed in Africa, entrepreneurs must demonstrate to investors that they are profit-driven, are interested in maximizing returns for themselves and their financiers, and have a potentially profitable business. Accessing financing is part of a composite of factors that require entrepreneurs to demonstrate intimate knowledge of their business models, as well as the operating environment of their industry as a whole. In the words of Paul Harris, the entrepreneurs must "know something about everything, and everything about something."[4] Entrepreneurs must also have a convincing story and be able to persuade potential investors that they are better than other entrepreneurs competing for the limited pool of finances.

Although capital supply may be limited, financiers note a lack of fundable business plans, pointing to issues ranging from the quality and feasibility of the business idea to the commitment of the entrepreneur and their team. The entrepreneur must focus on rigorous business planning and

demonstrate understanding of a particular sector. The central issue, according to the panelists who participated in the Entrepreneurship in Africa Summit, is that financing is not the determining cause of a venture's success or failure. Rather, the entrepreneur's ability to adapt to market changes and cope with uncertainty, as well as their level of tenacity, are greater determinants of business success. If these qualities are in place, capital will usually follow.

Communication plays a vital role in accessing capital. Entrepreneurs often view funders' investment requirements as onerous and difficult to meet. Sixty-four percent of Afro-entrepreneurs say that bank lending policies favor well-established firms over new companies, given their limited or nonexistent financial and bank records. Nearly the same percentage of respondents (57 percent) feels this is also true of financial assistance programs and government subsidies. Funders must perform a thorough due diligence on companies in which they invest. Their stringent requirements are designed to reveal the extent to which an entrepreneur understands their business model, industry, and external regulatory environment. Yet, while a financier may discredit an entrepreneur who does not meet a checklist of requirements, it is presumptuous to expect that many entrepreneurs understand these requirements. Entrepreneurs may not be thinking about their businesses along the same structured lines as financiers, thereby running the risk of discounting this type of funding as prohibitive or even impossible. Enhanced communication can mitigate many of these misperceptions and misunderstandings.

In some cases, entrepreneurs are aware of what is required but cannot meet those requirements, particularly when new businesses must submit bank and financial statements. To meet the financiers' requirements to provide capital to small enterprises, entrepreneurs are challenged with finding service providers who can prepare documents, analyses, and reports that will support their financing pitch.

With the exception of South Africa, business funders in Africa have limited exit options to recoup their investments. This challenge is most pronounced in Ghana, where 48 percent of respondents report that business owners rarely use buyouts to sell their firms. Respondents in Ethiopia (42 percent), Tanzania (41 percent), Nigeria (38 percent), and Kenya (37 percent) share the same concern. The lack of viable exit opportunities is a disincentive for making investments in the first place. The regulations for existing businesses to recoup their investment are also considered rigid, and few entrepreneurs realize that large multinational corporations or private equity funds can offer compelling buyout options.

Access to market is a greater challenge than access to funding. Although many entrepreneurs perceive a lack of funding as their greatest growth inhibitor, they often discredit the effects of a lack of access to markets for their products and the implications this has for getting funding to expand. Without multiple product channels, revenues and profits likely stall, and this lack of growth makes funders reluctant to invest.

The power of networks is critical to shaping an entrepreneur's horizon. The size of an idea is shaped by the resources—financial and otherwise—that an entrepreneur has to nurture the idea and bring it to life. If an entrepreneur believes they can raise $5,000, the business idea gets adjusted accordingly; if they have access to $500,000, however, the idea is likely to be larger. This poses difficulty for entrepreneurs who do not have a network of potential investors and mentors beyond their family and friends, as their ventures face a higher chance of stagnation.

Seed financing and angel networks should be more formalized in Africa because they are vital to boosting financing for small-scale ventures. Because the cost of making large-scale investments is equal to that of small-scale investments, seed financing can be professionalized to make investing in small-scale ventures more efficient and cost effective. Additionally, angel networks offer entrepreneurs access to business experience and capital. Successful examples, such as the Mo Ibrahim Foundation and the Tony Elumelu Foundation, highlight the trend toward angel and philanthropic investments by Africans. Hakeem Belo-Osagie, an angel investor from Nigeria and an Entrepreneurship in Africa Summit panelist, attests that, in Nigeria, successful angels attract funds from other wealthy individuals who are keen to invest in entrepreneurs.

Four percent of respondents report funding their businesses using corporate funding, lease or receivables financing, or stock options. Some South African entrepreneurs claim that their businesses are funded using multiple credit cards because most banks are reluctant to provide a loan to businesses but are willing to increase limits on the entrepreneurs' credit cards. This is a remarkably expensive way to fund a business, but some entrepreneurs prefer the ease of accessible funding.

Preparedness for funding is key. For entrepreneurs to successfully secure funding, they must identify the availability of capital sources and the suitability of capital, given their company's stage of growth. Entrepreneurs must be able to assess their funding requirements and identify the funders that are most likely to fund them. Due to many constraints and circumstances that limit funding options, entrepreneurs should be proactive in the fundraising process and/or access external support when needs arise.

Recommendations for Financing

Early-Stage Enterprise Financing in Africa

- Reduce bureaucracy for early-stage companies to access government funding in order to provide "softer" sources of financing for less-experienced entrepreneurs.
- Expand or initiate local angel investing ecosystems to ensure the availability of the most appropriate type of funding for startups, especially for entrepreneurs who lack the network of friends and family that traditionally plays this role.
- Provide tax and other incentives to formal, as well as informal (e.g., family and friends), angel investors to make it easier for people who have extra cash to invest in startup businesses and reduce their risk. For example, in Singapore, investors in startups receive tax deductions if the company fails or if its shares are sold at a loss, and new businesses receive tax exemptions for three years.
- Provide tax and other incentives for large clients of early-stage ventures to provide supplier credit to incentivize and reduce the risks suppliers take when providing generous payment terms or stock to new ventures. In South Africa, for instance, large businesses get Black Economic Empowerment procurement points by supporting small black-owned businesses on favorable terms.
- Educate entrepreneurs about possible sources of funding outside banking systems. Leverage website portals and other types of guides so that local entrepreneurs have a quick view of various sources of funding available in their locality.
- Train and assist early-stage entrepreneurs in the intricacies of raising capital. When necessary, extend the training to general business management so that fund seekers understand the language and requirements of fund providers and become better prepared for their fundraising searches. In the United States, for example, the Small Business Administration and regional or local governments offer educational programs and grants in areas of traditionally low entrepreneurial activity (e.g., North Carolina Institute for Rural Entrepreneurship). The Gauteng Investor Centre, established by the South African government, acts as a one-stop shop for investors, with the aim of removing barriers between entrepreneurs and funders and, therefore, facilitating investments in small businesses.
- Train the local financial community to evaluate investment opportunities on the basis of future prospects rather than historical cash flows. This will help ensure that people working at financing institutions are better able

to evaluate business prospects and risks inherent to the new ventures they are asked to evaluate.

Mid-Size Enterprise Financing in Africa

- Leverage indirect personal sources of funding, such as pension funds, to fund SMEs so that more resources are available to fund more-established enterprises, where the risks are lower. In Singapore, for example, foreign pension funds are a growing source of capital investment; in the United States, pension funds are the leading source of venture capital for minority-owned firms.
- Expand or initiate local venture capital-investing ecosystems to ensure that the most appropriate source of funding is available for companies at the mid-level stage of development. Typically, midsize companies need banking overdraft facilities to cover predictable working capital, debt to finance certain types of capital investments, and second rounds of equity to finance expansion. This kind of funding can be made available through venture capital firms and possibly private equity funds for the larger midsize companies (circa the $70 million threshold).
- Use local banking systems to disburse donor or government lines of credit to SMEs to reduce prohibitive interest rates and collateral requirements. This approach puts enterprise funding in the hands of commercial bankers who are trained to assess risk and evaluate potential but may lack the soft funds needed to take slightly less-secured credit-equity positions. Kenya's Equity Bank, for example, lends on preferential rate lines provided by multilateral institutions.
- Provide incentives and support to encourage midsize enterprises to practice sound financial management and maintain adequate records, including audited statements. This will help such enterprises be more funding ready, as investors invariably ask for reliable financial information.

Later-Stage Enterprise Financing in Africa

- Create capital-raising engagement programs with leaders of well-established private African enterprises to inform entrepreneurs about the benefits of private equity funding and of listing at local stock exchanges. This will help alleviate the concerns of many successful African entrepreneurs about giving up control of their enterprise brainchild. For instance, in 2012, India launched an SME stock exchange, which is expected to lower borrowing costs by 5 percent.[5]
- Create continent-wide regional champion programs to facilitate access to capital (both debt and equity) for independently vetted pan-African companies that are expanding across the continent.

SKILLS AND TALENT

The informal sector is pervasive in Africa, so the continent sees a significant amount of informal entrepreneurism. This reality often prevents SMEs from professionalizing and thus scaling their operations. Entrepreneurs with technical backgrounds, such as information technology or engineering, or those with little to no business management training have an even greater need for experienced managerial talent to complement their technical talent.

The challenge that entrepreneurs in Africa (and elsewhere) face is the ability to attract and retain such managerial talent, especially in light of severe competition with well-established corporate firms that have the means and security to hire that talent. Hence, most African education systems focus on preparing the workforce for employment by more-established firms. As highlighted in the Monitor survey, the existence (or lack) of entrepreneurship training in the education system plays a crucial role. Entrepreneurs in Africa require training and education to allow them to succeed in starting or growing a business. Furthermore, entrepreneurs need a skilled workforce to meet their business goals.

While 86 percent of colleges and universities in sub-Saharan Africa offer a course in entrepreneurship, Afro-entrepreneurs overwhelmingly respond that schools and tertiary institutions do not focus on the practical skills required to start, manage, or work in entrepreneurial ventures.[6] Only 14 percent of Afro-entrepreneurs believe that primary and secondary schools devote enough time to teaching entrepreneurship. Colleges and universities do better, but they still could offer more practical aspects of entrepreneurship in their curricula. In addition, just 25 percent of Afro-entrepreneurs agree that colleges and universities devote enough time to teaching entrepreneurship.

Key Points of Discussion

Schools are lacking in the culture of innovation. Stakeholders generally agree that the education system tends to focus on theoretical education and on harnessing skills most useful in corporate firms, failing to offer more practical curricula that can adequately prepare youth to work in entrepreneurial enterprises. Among colleges and universities in sub-Saharan Africa, only 7 percent have an entrepreneurship center dedicated to entrepreneurial development; 28 percent offer courses specializing in entrepreneurship; and 10 percent offer a course in innovation and technology.[7] Limited opportunities for hands-on learning and managing small projects mean

that students are not afforded clear paths for cultivating competencies related to practical thinking and creative problem-solving—skills needed to successfully build and manage a business. As a result, most Afro-entrepreneurs do not feel adequately trained to manage a new firm, which for many leads to the tendency to look for jobs in well-established firms and corporations. According to the Monitor survey, the percentage of Afro-entrepreneurs who believe they have the skills to manage new firms is quite low: 9 percent in South Africa, 14 percent in Ghana and Nigeria, 19 percent in Ethiopia, 22 percent in Tanzania, and 23 percent in Kenya.

Formal education, including attitudes and behaviors, plays a role in entrepreneurship. The lack of a basic business culture in most small-scale enterprises—evidenced by traits such as procrastination, poor client management, and missing deadlines—may be attributed to the fact that few formally educated employees have worked at entrepreneurial ventures. Such employee challenges in most small businesses reduce their ability to retain long-term clients or acquire new ones.

Many entrepreneurs do not see how the type of formal education provided in schools and the values and attitudes promoted at home relate to the skills they need to develop their businesses. Through efforts such as conducting continuous assessments and providing a strong ethical culture and system of values, at-home upbringing and learning institutions can help lay an important foundation for entrepreneurial behavior.

Developing an entrepreneurial skills base requires a shift in culture. One of the biggest limitations to developing an entrepreneurial skills base is the lack of support from society and formal institutions. Few avenues of support are available to help people identify their passion and build the confidence required to convert that passion into a business. Society fails to encourage students to recognize or take advantage of their inherent entrepreneurial potential, as society often values and respects professionals over entrepreneurs. Parents and guardians pressure their wards into studying more professional courses rather than entrepreneurial or creative ones, sometimes even tagging students as crazy when they make the decision to work in a startup company or develop their own businesses.

Entrepreneurial ventures need professional skills. Participants in the Accra workshops said that business owners find it difficult to recognize when their operations need the support of a professional with a different set of skills and expertise. Entrepreneurs often take on too much when trying to sustain their business, which can eventually stunt growth. For entrepreneurial organizations to grow, it is important to identify the professional skills needed for a particular task or stage of growth, to acknowledge the

team's existing strengths and gaps, and then to source the missing skills accordingly. Trust must also be established between businesses and service providers. Entrepreneurs fear that hired service providers may steal their business ideas.

Financial remuneration is not the only tool available for entrepreneurs to attract talent. The notion that remuneration always has to be monetary, and therefore that small enterprises cannot attract the most talented staff, should be revisited. It is true that in most cases entrepreneurs cannot compete with more structured companies for certain types of skilled talent; however, the skills that small ventures require may not be available in the regular job market. Providing opportunities for problem-solving in the work environment, which offers increased individual responsibility, is an effective means of attracting talented staff. Entrepreneurs have the option of investing in management skills training for their staff if they cannot afford to source outside skills. To grow their businesses, entrepreneurs should be willing to train and build the workforce available to them.

Talent management systems should attract, engage, and retain employees. The right employee value proposition provides an opportunity to attract talent to build staff and maintain the appropriate composition of skills required for a company to grow. A company's culture should excite and reward innovation among its staff. It should also challenge and reward creative abilities and the capacity to exercise independent judgment. A culture that promotes employee autonomy and flexibility is more likely to attract young talent. Entrepreneurs should promote the opportunities available to would-be employees for cross-functional work within the business. This can often be an alternative to attracting young talent because cross-functional work gives workers a better understanding of the operations of small enterprises. We make the following recommendations for skills and talent.

Recommendations for Skills and Talent

- Include entrepreneurial and vocational training in the education system in Africa so that learners are exposed to entrepreneurship from a young age. This will help future workers determine the possibility of having their own businesses, the financial rewards attached to ownership, and the challenges inherent to the journey.
- Create and deploy an entrepreneurship curriculum for primary and secondary schools with practical apprenticeship-like programs that supplement theoretical learning, collaborations between local schools and local stakeholders to provide internships, and training as a means to develop

the talent needed to support small enterprises. This will expose young learners to the full reality of entrepreneurship: the idea, the journey, the challenges, and the successes, both theoretically and practically. In Singapore, for example, students receive a year of mandatory entrepreneurship education in the primary school system. In Mexico, students are required to learn basic economics and business skills; beginning with basic classes at the pre-high school level, students progress to creating and managing their own business by the age of 18. The United States and many other countries have numerous examples of primary and secondary educational curricula that emphasize group learning and hands-on projects.

- Best practices such as these can be applied to increase entrepreneurial education in formal institutions in Africa. The school system in Mauritius provides entrepreneurship learning at the primary level. Real-world experience will also aid young people in developing critical skills such as integrity, adaptability, and having the wherewithal and constitution to do the right thing.
- Leverage Internet-based solutions that offer training in business skills and entrepreneurial management to provide assistance to entrepreneurs that is scalable and available at a relatively low cost. For instance, the International Finance Corporation has developed an SME toolkit—an online collection of training materials, translated into 15 languages—for SME managers in developing countries.
- Establish communication and career counseling programs that encourage and guide young people toward the creation of entrepreneurial ventures. Identifying one's passion is an important step in the path of entrepreneurship; developing the corresponding skill set and/or obtaining experience that can translate one's passion into a business that adds value to society requires access to the right support structures.
- Schools should help students by providing guidance and counseling services to help them choose between various career options. Entrepreneurs need training programs on how to promote the value of greater worker responsibility in entrepreneurial ventures than in the corporate world; this will prepare them to articulate the opportunities for professional advancement that their companies offer.
- Institute "secondment"—a temporary transfer to another job or post within the same organization—mentorship, and networking programs in which seasoned executives (previously or currently employed) support SMEs for limited periods by working alongside and training SME staff on key projects. By creating opportunities for practical, on-the-job training

and skills development, SME staff can engage in hands-on learning with experienced managers.
- Offer incentives (e.g., subsidies, tax advantages) to entrepreneurs who motivate prospective professional staff with advantages such as stock options or specialized training. This will help entrepreneurs to be creative in their compensation so they have better chances of attracting and retaining talent.

INFRASTRUCTURE

The poor state of infrastructure across sub-Saharan Africa is a significant obstacle to the growth of entrepreneurial enterprises, as it adversely affects entrepreneurs' costs, market access, and efficiencies.

Respondents to the Monitor survey pinpoint the lack of access to constant electrical power as the biggest challenge related to infrastructure. Unreliable electricity supply, poor-quality and limited breadth of road and rail networks, and poor communications infrastructure are all highlighted as having a significant impact on the cost of doing business. Influenced by additional costs, such as purchasing generators or grading rural roads, 52 percent of respondents in Tanzania believe that new and growing firms cannot afford the costs of physical infrastructure.

According to the survey of Africa's entrepreneurs, these are their worst infrastructure problems.
- *Infrastructure is inadequate and unreliable.* Only 38 percent of Afro-entrepreneurs agree that infrastructure provides sufficient support for new and growing firms.
- *Infrastructure is costly and inefficient.* Only 23 percent of Afro-entrepreneurs believe that new and growing firms could afford the costs of using infrastructure.
- *Electricity supply is inadequate and unreliable.* The issue is most prominent in Nigeria, where only 27 percent of respondents believe that the physical infrastructure provides sufficient support for new and growing firms.

The cost of dealing with unreliable infrastructure is prohibitive. With the exception of South Africa, all countries surveyed face electricity shortages, and most entrepreneurs must purchase diesel generators to supplement grid electricity. This increases the costs of doing business. While supply is less of an issue in South Africa, recent announcements regarding electricity tariff increases over the next few years will see the cost of electricity becoming a more significant proportion of small business costs.

There are, however, some perceived successes in Kenya, where the integration of mobile technology into everyday life has improved the way business is conducted and payments are processed. Fifty-three percent of Kenyan respondents believe that physical infrastructure in the country provides sufficient support for new and growing firms. The following are recommendations for improving infrastructure.

Recommendations for Improving Infrastructure

- Deploy and upgrade infrastructure first in selected productive areas with substantial business activity and strategically important local industries. Infrastructure deployment requires making significant capital investment where the prospects of good economic activity and returns exist.
- Favor public-private partnerships in the execution of infrastructure projects. Public agencies in Africa are often affected by capacity and resource constraints, and both the culture of urgency and types of skills that tend to reside in the private sector play a pivotal role in the completion of infrastructure projects.

BUSINESS SUPPORT: BUSINESS ADVISORY SERVICES, GOVERNMENT PROGRAMS, AND INCUBATORS

Business Advisory Services

Africa lacks widely-available, high-quality business support services. Existing services are primarily located in urban centers, which are out of reach for thousands of rural entrepreneurs. A number of other visible and invisible barriers, such as cost, gender discrimination, and poor-quality assistance, have prevented these centers from providing effective support to African entrepreneurs.

Access to professional and affordable business advisory services (e.g., lawyers, accountants, consultants) remains elusive for early-stage businesses. Only 30 percent of entrepreneurs in Kenya and less than 25 percent in the other five Monitor-survey countries believe that business support services are sufficient to meet the needs of new firms. Furthermore, fewer than 20 percent of entrepreneurs in five of the six African countries believe that business support services are available throughout the entire country. Where services are available, the Monitor survey indicates that fewer than one-third of respondents find the value of the services delivered worth the cost, particularly services received from banks (22 percent).

Access to the knowledge and tools required to formalize and sustain businesses is scarce. The majority of entrepreneurs and their employees do

not have the necessary expertise or the professional networks to address the breadth of their businesses' functional needs. Moreover, these services are not easily found in Africa, especially services required to raise capital.

Obtaining funding is a process that requires a business to conduct a rigorous analysis of its business model, its market potential, and its changing external environment. Entrepreneurs without access to information, or without access to the required expertise, are unable to present convincing applications for funding. The situation is quite dire for necessity-driven entrepreneurs in particular, because available services are targeted at more-established entrepreneurs rather than startups.

The supply, access, and affordability of business advisory services prohibit their uptake. Service providers such as accountants, lawyers, and third-party consultants are mostly clustered around key urban centers and thus are not easily accessible to entrepreneurs who operate in rural or less affluent areas. Although banks are found to be the most available source of advisory services, their ability to support businesses is rarely exploited due to the low perception of value. When the scarcity of services is coupled with high costs, the majority of entrepreneurs are unable to obtain the counsel and advice they need.

Government Programs

As a general observation, large government-assistance programs for SMEs have not worked for two reasons. First, mass-scale, factory-like business assistance doesn't work because in business, one size does *not* fit all: industry, stage of development, and management expertise present too many variables for a template approach to be effective. Second, government personnel lack the motivation and skills required to assist entrepreneurs. Entrepreneurs are best assisted either by other entrepreneurs or by established functional or industry experts who have appropriate and relevant expertise.

African governments have increased support for entrepreneurs by creating several initiatives to encourage small enterprises. However, the results of these initiatives have been limited. In the Monitor survey, a composite of survey questions related to the supply, accessibility, and coordination of government programs shows that Afro-entrepreneurs rate the efficacy of government programs lower than the peer average. Government programs can be more effective and some governments have made efforts to support entrepreneurs, including the following programs:

- Small and Medium Enterprise Project, Ghana
- Youth Enterprise Development Fund, Kenya

- Federal Government Youth Entrepreneurship Programme, Nigeria
- Small Enterprise Development Agency, South Africa
- Small Industries Development Organisation, Tanzania

Nevertheless, entrepreneurs on the whole do not believe that the programs are having the intended impact. Factors contributing to this may include invisible barriers, including gender and ethnicity, that affect small-enterprise owners' access to support programs. A general sense prevails that you need to know someone in government to get the support. Furthermore, government does not understand business well, so even when entrepreneurs can access these programs, they are not always particularly useful. Barriers in legislation and policies also make it difficult for African entrepreneurs to formalize their businesses, seek funding, or enter new markets.

Incubators

Incubators and accelerators can offer entrepreneurs vital support during the startup phase. It is widely held that, to be effective, incubators must focus on a limited number of companies to provide the high-touch support that entrepreneurs need to launch, find and serve new customers, and scale. The concept of mass incubation is, therefore, ill-suited for such requirements, although it has unfortunately been widely adopted in many African and non-African countries. The Monitor survey found that most Afro-entrepreneurs believe there are not enough incubators to support the launch of new firms in their respective countries: 92 percent of those in Ghana, 90 percent in South Africa, 87 percent in Tanzania, 78 percent in Nigeria, 77 percent in Ethiopia, and 76 percent in Kenya.

Incubators and accelerators, though in their infancy in Africa, have demonstrated some success. Incubators and accelerators give entrepreneurs the tools required to formalize and grow their businesses. Given the aforementioned lack of entrepreneurship training in schools, incubators play a particularly vital role in addressing the gap in entrepreneurial capability. Services range from physical incubation (setting up offices and structures required to function) to providing networks of advisory services and funding.

Africa has relatively few business incubators for startup and early-stage businesses because support organizations for such businesses are a new, but growing, trend. Cases of successfully incubated businesses do exist, however, and these support recognition of the need for incubators and accelerators.

Two examples—one for-profit business and one government program—demonstrate the potential of incubators. Privately owned and man-

aged NextZon in Lagos provides a range of services that include strategy and planning, office facilities, and human resource, legal, and accounting services. The Incubation Support Programme of the South African Department of Trade and Industry supports incubators via cost-sharing (40:60) between government and the private sector. Funding can be used to provide business development services, infrastructure such as building and furniture, information and communications technologies, feasibility studies, product or service development, and operational costs. The following are recommendations for improving business support.

Recommendations for Business Support

- Provide generous incentives and subsidies for private-sector players that offer business development services to set up companies providing business support services. Make vouchers and discounts available for SMEs to access specific professional advisory services, such as legal, accounting, and human resources services.
- Allow private and government-run business support organizations to leverage widespread government offices (e.g., post offices and city halls) for the provision of business services to reduce the capital costs of providing support. Document and disseminate the sources of business support services in a jurisdiction at both the national and local level, such as information portals in electronic and printed formats.
- Create networks of support services in which local business professionals are identified, documented, mobilized, and incentivized (e.g., via personal tax breaks) to provide mentoring and/or technical support to local entrepreneurs. As an example, the Endeavor VentureCorps is a global network of more than one thousand individuals who mentor entrepreneurs. Accountants, lawyers, and tax specialists could assist entrepreneurs on their own time and earn tax credits or cash while providing crucial support.
- Establish one-stop-shop setup and regulatory compliance agencies for SMEs, as has been done in Russia:
  - Create, if needed, dedicated access for women and ostracized minorities.
  - Create, if appropriate, dedicated access for nationals who have emigrated and want to invest back home, by having branches at relevant embassies.
- Provide incentives to corporate entities and their employees to start employee-created businesses or spinoff divisions. For example, the Enterprise Development Programme in South Africa awards companies

with more than five million South African Rand in turnover that spend 3 percent of profits for enterprise development (e.g., training, support, equity, and debt) with 15 points in the Black Economic Empowerment scorecard.[8] This in turn gives them preferential access to government business opportunities.

- Develop networking programs or platforms for young entrepreneurs; provide spaces where less experienced entrepreneurs learn from experienced business owners; and leverage large anchor firms, as well as university and business school networks, to provide entrepreneurs with physical access to groups of like-minded individuals and enterprises (e.g., technology driven, clean energy, and manufacturing) where incubation happens naturally. An example of this is the iHub, an innovation hub for the technology community in Nairobi.
- Where appropriate and feasible, create entrepreneurship hubs focused on the commercialization of locally developed intellectual property because tech entrepreneurs often lack the business skills to transform innovation into sustainable businesses. Examples of these types of hubs include Bangalore in India and the Silicon Cape Initiative in South Africa.

POLICY ACCELERATORS: LEGISLATION AND ADMINISTRATIVE BURDENS

Legislation

The Monitor survey found that laws governing business competition favor large, well-established firms, although markets remain relatively open, given the infancy of many industries on the continent. South African respondents in particular identified labor law as a barrier: 54 percent say that government labor regulations actively discourage the hiring of employees. By contrast, only 33 percent of respondents across sub-Saharan Africa share these views.

The complexity of legislation in South Africa, coupled with the harsh penalties imposed for noncompliance, is a significantly greater constraint for new entrepreneurial ventures than for those in peer countries. The requirements of the Consumer Protection Act, Labour Relations Act, and National Credit Act 73 are onerous and time consuming. Entrepreneurs who fail to comply face harsh penalties: for example, the penalty for failing to adhere to the procedures for dismissing employees, as set out in the Labour Relations Act, could be as high as 12 to 24 months of wages to the dismissed employee in question. The complexity of regulations places an unfair burden on entrepreneurs vis-à-vis large, well-established firms that

are better positioned to absorb the costs of compliance. The Strategic Business Partnership has estimated that the average cost of compliance for small businesses is approximately 8.3 percent of turnover, compared to only 0.2 percent for big businesses.[9]

Positive views on legislation in other African countries are driven in part by an ability to curtail poorly enforced regulations. The pervasive informality on the continent allows entrepreneurs to operate below the radar and outside the confines of formal laws. This informality excludes these businesses economically, but with limited access to financial and consumer markets, 60 percent of respondents believe that it is acceptable to launch a new venture by operating in the informal sector. Similarly, 62 percent of respondents personally know entrepreneurs who started in the informal sector, avoided paying taxes, operated without certified accounts, and hired employees informally.

From the state's perspective, this informality results in the forfeiting of potential tax revenues. However, if moves are made to formalize industries and processes, policymakers and other stakeholders may very well be confronted with the challenge of preparing entrepreneurs to operate more formally while simultaneously having to reduce potentially detrimental unintended consequences of significantly higher operating costs in a more regulated environment.

It is relatively easy for new and growing firms to enter new markets. With the exception of South Africa, most sectors are not typically dominated by large firms; entrepreneurs are therefore able to pursue market opportunities without being unfairly blocked by well-established firms. In Tanzania, for example, the economy is still heavily reliant on the agricultural sector, which employs approximately 80 percent of the workforce, thus many other sectors remain largely undeveloped.

Administrative Burdens

Despite recent improvements, administrative burdens still hold back businesses across the continent. Out of 183 countries ranked in terms of general ease of doing business, Kenya (109th), Nigeria (133rd), and Tanzania (127th) all rank in the bottom half. South Africa (35th) is in the top quintile. Similarly, all countries except South Africa fall in the bottom half for starting a business. In Ghana and Tanzania, entrepreneurs indicate particularly acute challenges when dealing with construction permits. In contrast, respondents in Ghana indicate relative ease in the process of registering a business.[10]

While Afro-entrepreneurs concede that reforms enacted to improve the

ease of doing business have been helpful, entrepreneurs continue to face many administrative challenges. Entrepreneurs repeatedly remark that the business environment has significantly improved over the past 10 to 20 years, particularly in East Africa, due to the implementation of various government initiatives aimed at reducing red tape. These include efforts to increase the ease with which new businesses can obtain licenses and permits, trade across borders, and enter new markets. Such efforts not only have helped to improve entrepreneurs' experiences but also have opened up new market opportunities. Nonetheless, there is room for additional intervention and, as previously discussed, the majority of entrepreneurs continue to operate in the informal sector, where they are not subject to bureaucracy and regulation. Below are our recommendations for policy accelerators.

Recommendations for Policy Accelerators

- Provide targeted incentives to entrepreneurs for the development of key sectors that are currently underserved.
- Develop more nuanced legislation that differentiates between big business and SME segments. Conduct impact assessments before enforcing new legislation to determine the potential consequences for entrepreneurs and proactively enact measures to minimize negative outcomes.
- Reduce the prohibitive costs, time, and bureaucracy associated with regulatory compliance to discourage the widespread informality of businesses. Governments should continue to implement reforms that can further decrease red tape and create a more enabling environment for new businesses. In Kenya, for instance, recent improvements to business registration processes have significantly decreased administrative burdens for new businesses. Additionally, the Kenyan Anti-Corruption Commission has been established to curb corruption.[11]

MOTIVATIONS AND MINDSET: THE CULTURE OF ENTREPRENEURSHIP IN AFRICA

The culture of entrepreneurship in Africa is largely driven by necessity—that is, entrepreneurship as a means of survival. Entrepreneurship is viewed as a last resort, rather than an opportunity or aspiration, although the Monitor survey suggests that the pursuit of entrepreneurship as a career has gained acceptance and legitimacy in Africa. Despite the fact that most African societies seem to approve of entrepreneurship, efforts must still be made to promote high-impact entrepreneurship based on opportunity rather than necessity.

It was noted during Omidyar Network's 2012 Entrepreneurship in Africa Summit that Africans at this juncture may not fully appreciate the entrepreneurial journey. Having a romanticized image of the smart, impetuous, bold, and rich entrepreneur who conquers markets and lives in luxury can be very misleading if it is not coupled with an awareness of the countless hours of work, the uncertainty of meeting payroll, struggles to keep operations going on razor-thin cash flows, and many other challenges that all entrepreneurs encounter at one time or another. This section covers the drivers of the culture of entrepreneurship, as well as the roles various institutions can play in fostering a better culture of entrepreneurship.

General views on entrepreneurship are improving. While formal employment is still highly prized, some encouraging trends are emerging. Opportunity-driven entrepreneurship, for example, is becoming respectable, and the Monitor study found that more than three-quarters of Kenyan and Ethiopian respondents now believe that most people consider becoming an entrepreneur a desirable career choice. The same holds true for 64 percent of respondents in Tanzania, 51 percent in Ghana, 49 percent in Nigeria, and 44 percent in South Africa .

Maybe even more important is the high number of Afro-entrepreneurs who agree with the statement, "People who successfully start new firms have a higher level of respect than a manager in a corporation": 78 percent in Ethiopia, 63 percent in Kenya, 55 percent in Tanzania, 55 percent in Nigeria, 54 percent in Ghana, and 47 percent in South Africa.

Stereotypical views of business success also adversely affect the culture of entrepreneurship. In Africa, the successful businessperson is often celebrated for their wealth and lifestyle, rather than their business acumen and entrepreneurial flair. As a result, many young people venture into entrepreneurship solely to attain wealth and emulate such lifestyles, embarking on the same lines of business as the successful businesspeople they are trying to emulate without any knowledge of that particular industry. This discourages innovation. This skewed view of success is exacerbated by the common belief that, to be celebrated, people must acquire material possessions and give the impression of success before actually attaining it. Thus some entrepreneurs buy expensive cars and rent luxurious and expensive office space. This culture poses many risks to businesses whose resources are redirected toward consumer expenses that are not necessary for the business.

To combat these stereotypes and offer an alternative model, the number of awards celebrating entrepreneurship is on the rise. Examples include the Africa Awards for Entrepreneurship, All Africa Business Leaders Award, Schwab Foundation for Social Entrepreneurship, and Tanzania

Entrepreneur of the Year Award. Complementing such awards is an increased number of media outlets focusing on entrepreneurship. Respondents to the Monitor study acknowledge the media's improving coverage: responding to the statement, "The media often publishes stories about people who successfully start new firms," 75 percent of those in Kenya, 63 percent in Ethiopia, 57 percent in Nigeria, 52 percent in South Africa, 46 percent in Tanzania, and 40 percent in Ghana agree.

Failure should be an option for success in business. Lack of knowledge—and the resulting fear—among existing and aspirant entrepreneurs keeps them from taking calculated risks to start and stretch their businesses. Entrepreneurs must be prepared to acknowledge that some of the most thorough and well-executed plans will not be successful. Entrepreneurs must be allowed to fail fast and fail often—and bounce back. Some investors actively seek individuals who have failed, learned from their failures, and are willing to try again. Fortunately, attitudes toward failure are becoming more accepting. Afro-entrepreneurs in the Monitor study recognize that failure is part of the entrepreneurship process and that it is common for failed entrepreneurs to try again by starting a new business. Rates of agreement with this concept are 68 percent in Kenya, 67 percent in South Africa, 63 percent in Tanzania, 56 percent in Ethiopia, and 54 percent in Nigeria.

The culture of entrepreneurship is also largely defined in the family unit. The litmus test for gauging the view of entrepreneurship is the dinner-table conversation, where one's closest supporters disclose their views of on the idea of entrepreneurship. Governments also play a role in fostering a culture of entrepreneurship; however, views are mixed about the extent of that role. Government by nature is not entrepreneurial, and opponents of government involvement say it is ill suited to lead. There also is concern that entrepreneurs could form dependencies on government, thereby stifling creativity and resourcefulness. Proponents, however, point to models where government has successfully improved the culture of entrepreneurship. In South Korea, before the 1997 economic crisis that led to high levels of unemployment, most people aspired to work for the government or large organizations. After the crisis, the government encouraged entrepreneurship by implementing creative policies that changed tax laws and bankruptcy codes. The government also introduced an Entrepreneur of the Month program to raise the profile and stature of entrepreneurs. We also make the following recommendations.

Recommendations for Motivations and Mindset

- Establish programs and media initiatives that celebrate entrepreneurs' successes, honor their journeys, and encourage those who have failed to rise again. For example, Singapore has established the Phoenix Award, which specifically awards entrepreneurs who have failed and then gone on to create another startup.
- Formulate and introduce income-insurance schemes for selected types of African entrepreneurs.

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1. The six sub-Saharan African countries are benchmarked to a peer group, including an additional 13 countries where Monitor Deloitte has previously undertaken the Entrepreneurship Benchmarking Initiative: Chile, China, Colombia, Denmark, Egypt, India, Jordan, Russia, Singapore, South Korea, United Arab Emirates, United Kingdom, and United States This peer group was chosen to allow the focus countries to be compared to a geographically and economically diverse group of countries.
2. "Barriers to Finance Africa's SMEs," *ABN Digital*, 2011, p. 3.
3. Patient capital is often defined as a long-term investment where an investor is willing to accept a longer-term horizon for return of capital or forgo maximum financial returns in return for social impact.
4. Paul Harris. Omidyar Network's Entrepreneurship in Africa Summit in Accra, Ghana, October 2012.
5. "NCR Based Small and Medium Enterprises Hail NSE SME Exchange," *The Economic Times*, September 2012.
6. Dr. Jean Kobongo, "The Status of Entrepreneurship Education in Colleges and Universities in Sub-Saharan Africa," Millersville University, 2010.
7. Kobongo, "The Status of Entrepreneurship."
8. More info on the Black Economic Empowerment Scorecard can be found here: http://en.wikipedia.org/wiki/Black_Economic_Empowerment
9. "Counting the Cost of Red Tape," Strategic Business Partnerships for Growth in Africa.
10. World Bank, *Ease of Doing Business Index*, 2012.
11. Kenya Overview, Trust Law website, 2012.

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