



# ADDENDUM: FOSTERING PRODUCTIVE ENTREPRENEURSHIP COMMUNITIES

INDIVIDUAL CITY OVERVIEWS

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## **ABOUT ENDEAVOR INSIGHT:**

Endeavor Insight is the research division of Endeavor, a non-profit organization that supports high impact entrepreneurs across the world.

Its work seeks to answer three questions:

- 1 How do entrepreneurs reach scale at their companies?
- 2 How do entrepreneurs reach scale in local networks or ecosystems?
- 3 What can policymakers, philanthropic leaders, investors, support organizations, and other stakeholders do to empower more entrepreneurs to reach scale in their communities?

The methodology utilized in this study builds on previous Endeavor Insight research supported by the Omidyar Network, the Kauffman Foundation, the Inter-American Development Bank, the Heron Foundation, and the Ralph Wilson Foundation, as well as partners in the Global Entrepreneurship Research Network.



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## INTRODUCTION

This document is a supplement to the main report titled “Fostering Productive Entrepreneurship Communities: Key Lessons on Generating Jobs, Economic Growth, and Innovation.” The purpose of this document is to demonstrate how the principles uncovered in the main report and the recommendations derived from its analysis can be applied to each of the six cities studied in the project individually.

This research project was conducted by Endeavor Insight over 18 months and funded by the Bill & Melinda Gates Foundation in order to answer a specific question:

**How can decision makers such as policymakers, leaders of philanthropic organizations, corporate executives, and others empower local entrepreneurship communities to become more productive?**

Productive entrepreneurship communities drive economic growth in their cities and regions as their founders create new jobs, generate economic value, and spread the development of new innovations.\* When they struggle with low productivity, their cities and regions can become trapped in decline.

The findings summarized in this report are based on interviews with more than 2,000 technology entrepreneurs as well as secondary data on over 5,000 tech founders and their companies.† Additional data was gathered on more than 500 investment firms and local entrepreneurship support organizations.

This study is also one of the first research projects to use network analyses to assess the collective impact of founders, investors, and other actors in entrepreneurship communities.

The following pages include a summary of the findings and recommendations of the main report. They also share individual city overviews made up of more detailed analyses of each community and a discussion of how the project’s recommendations can be tailored to that specific entrepreneurship community’s needs. The cities, listed in order, are Bangalore, Dar es Salaam, Dhaka, Kampala, Lagos, and Nairobi. In order to best understand the lessons and recommendations presented in this document, these sections should be read in conjunction with the main report.

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\* Endeavor Insight defines an entrepreneurship community as the collection of stakeholders whose primary activities involve operating, supporting, or investing in entrepreneurial companies within a single metropolitan area or region, and a single industry or group of highly related industries.

† For the purposes of this research, “entrepreneurial companies” are defined as businesses that are started by individuals who possess ownership and control of the firm. This excludes businesses that began as either government entities or subsidiaries of larger companies. “Software companies” are defined as firms where the primary business activity is either software development, fintech, or e-commerce. To avoid excess repetition, the terms “software company” and “tech company” are used synonymously in this document. Companies in this study are considered “local” if they were founded or are currently headquartered in a metropolitan area. The six cities included in this study are Bangalore, India; Dar es Salaam, Tanzania; Dhaka, Bangladesh; Kampala, Uganda; Lagos, Nigeria; and Nairobi, Kenya.

## SUMMARY:

# DECISION MAKERS SHOULD SUPPORT AND ELEVATE THE INFLUENCE OF PEOPLE WHO HAVE LED COMPANIES THAT SCALED AND INCENTIVIZE THEM TO ASSIST UPCOMING FOUNDERS.

The results of Endeavor Insight's 18-month study on entrepreneurship communities revealed five key lessons. Taken together, these five lessons show that elevating the influence of entrepreneurs who have led companies of significant scale, i.e., 100 or more employees, promotes productivity and development within an entrepreneurship community.

Each lesson is summarized to the right along with an explanation of how these lessons are incorporated in the individual overviews of each city.

### ① ENTREPRENEURSHIP COMMUNITIES ARE NOT PREDESTINED TO FOLLOW A SINGLE DEVELOPMENT PATH.

Entrepreneurship communities do not develop along the same linear path, and it is misleading to consider tech communities of different sizes and patterns as older or younger versions of each other. Instead, patterns of development are strongly shaped by the different approaches used by decision makers working to support entrepreneurs.

In each of the individual city overviews, the local patterns of development are analyzed by looking at the traits of the largest companies and most influential actors, the reasons why founders choose to start their companies in each city, and the major challenges they face when operating there.

### ② ENTREPRENEURSHIP COMMUNITIES BECOME PRODUCTIVE BY GENERATING A RELATIVELY SMALL NUMBER OF COMPANIES THAT REACH SCALE.

Companies that reach significant scale generate a disproportionately large share of productivity in their communities. These companies also show very high levels of growth in their startup years. As a result, more productive entrepreneurship communities are those that generate more firms that reach scale. However, the majority of entrepreneurial companies in any sector are low-productivity microbusinesses that have fewer than three employees and have raised no venture capital. These companies exhibit minimal growth in their first years.

Each city overview will look at the productivity generated by the largest 10 percent of companies compared to the rest of the companies. The ages of larger companies are also analyzed in order to understand the dynamism of each city's software entrepreneurship community. Tech communities with high levels of dynamism have higher percentages of scaled companies that were founded in the previous five or ten years. In other communities, productivity may remain dominated by older firms despite a rapid increase in the overall number of newer companies.



### ③ FOUNDERS OF THE FASTEST-GROWING COMPANIES ARE MUCH MORE LIKELY TO HAVE RECEIVED EXPERIENCE, SUPPORT, AND INVESTMENT FROM LEADERS OF COMPANIES THAT REACHED SCALE.

The founders of the fastest-growing companies observed in this project were much more likely to have built connections with people who had led companies that reached significant scale, i.e., 100 or more employees. These high-value connections came in three forms: experience via previous employment, support through mentorship, or investment.

In each of the individual city overviews, there is a network analysis that shows which of these connection types are more common and how many of them typically come from each founder. In many entrepreneurship communities, founders of companies at scale only support one or two other founders or none at all, which is a strong indicator that there is room for further engagement.

### ④ PATTERNS OF INFLUENCE SHAPE THE DEVELOPMENT OF ENTREPRENEURSHIP COMMUNITIES.

A number of common principles of network systems can be applied to entrepreneurship communities and help illuminate the ways in which they develop. For example, the principle of like-attracts-like helps to explain the pattern of specific types of members attracting others like themselves to each community as they become influential. Another principle illustrates how influential network members transmit value signals to others that can shape their behavior and establish norms. Founders who wish to earn status and influence among their peers respond to signals from influencers that indicate the best behaviors for reaching this goal.

Each city overview identifies examples of highly influential founders who have led companies to scale. The influence of these founders is then analyzed in the context of the entire entrepreneurship community.

### ⑤ WHEN PEOPLE WHO HAVE LED FIRMS THAT SCALED ARE MORE INFLUENTIAL, IT EMPOWERS ENTREPRENEURSHIP COMMUNITIES TO BE MORE PRODUCTIVE.

Greater influence coming from leaders who have scaled is associated with better performance among individual companies and greater productivity within entrepreneurship communities. As a result, the prevalence of connectivity in terms of experience, support, and investment coming from leaders of firms that reached scale can explain why some tech entrepreneurship communities become so much more productive than others.

Patterns of influence like these are especially critical since influence in network systems tends to function in a relative fashion and persist over time. When leaders elevate the influence of specific types of actors in a local entrepreneurship community, they reduce the comparative influence of others. This can have long-term benefits or consequences — analyses of many different networks have shown that once an entity becomes a major influencer, or hub, in a network, it will almost always remain very influential.

Each of the individual city overviews looks at what percentage of each type of connection between entrepreneurs and support organizations comes from people who have led companies to significant scale. The overviews also outline the proportion of the most influential actors overall who are founders of companies at scale.

## RECOMMENDATION:

# ENTREPRENEURSHIP COMMUNITIES SHOULD BE SUPPORTED USING BOTTOM-UP APPROACHES THAT PROMOTE PRODUCTIVITY AND MERITOCRACY.

Endeavor Insight's review of entrepreneurship support programs found that approaches to development within an entrepreneurship community can generally be categorized into two groups based on the type of individuals they empower to set their agendas.

► **A "top-down" approach** to entrepreneurship community development is one in which objectives and ongoing decision-making is primarily made by individuals from outside the entrepreneurship community who have no experience leading entrepreneurial companies. These individuals are often foreign "experts" and "technical advisors" or local professionals drawn from non-profit sectors, such as NGOs, government, or academia. These advisors and non-profit professionals place themselves above the community by excluding local entrepreneurial leaders from decision-making processes.

► **A "bottom-up" approach** is one in which program objectives are set primarily by local entrepreneurial leaders. In practice, bottom-up initiatives are almost always run by the leaders of local companies that have reached scale, since they tend to have the most innate credibility and possess the financial resources required to launch new programs. Bottom-up approaches support meritocracy by reinforcing the influence of local entrepreneurial leaders who have reached scale and signaling that status in the community comes from doing the same. These practices should help to increase productivity in entrepreneurship communities.

Endeavor Insight has compiled a set of practical steps decision makers can use to implement a bottom-up approach for supporting local founders. These actions make up a collective program of "Entrepreneur-Led Economic Development" that uses existing strengths of local entrepreneurial companies to increase the productivity of the community. A summary of the program's components is included on the following page.

This program is based on the lessons in this study as well as research in more than 100 other cities across the world. Each individual city overview in this document includes a brief discussion of how these recommendations apply for the specific patterns of that entrepreneurship community, and which recommendations should be the highest priority.

### **AVOID THE “MYTHS OF QUANTITY.”**

Key questions: Who will this be elevating in the local community? What are we telling local founders to value if we support this?

Many decision makers assume that increasing the quantity of startups, support organizations, or connectivity will automatically generate greater productivity in an entrepreneurship community. These assumptions are not supported by the data in this project. Most startups are low-productivity microbusinesses, and increasing the number of support organizations usually involves funding for organizations run by people with no entrepreneurship experience. Similarly, simply increasing connectivity in a local network would likely decrease the relative influence of leaders at companies that reached scale.

### **FOLLOW LOCAL FOUNDERS WHO HAVE REACHED SCALE.**

Key question: What evidence is there that local entrepreneurs can succeed in reaching scale in the targeted industry?

Decision makers should make sure that there is evidence that local entrepreneurs can succeed in a targeted industry before moving forward with programs in new industries or geographies. Many of these programs are designed without input from local founders and often waste large amounts of money as a result by trying to build clusters in industries where no local founder has demonstrated “proof of scale.”

### **LISTEN TO LEADERS OF THE FASTEST-GROWING FIRMS TO IDENTIFY THE CRITICAL CONSTRAINTS IN THE LOCAL COMMUNITY.**

Key question: What challenges have the leaders of the fastest-growing local companies identified as major obstacles and are those challenges targeted in this initiative?

Since the fastest-growing companies are responsible for a very large share of productivity, addressing the obstacles they face will arguably have the greatest impact on the community. These obstacles also tend to be different from those faced by other founders. In the cities studied in this project, the founders of the fastest-growing firms frequently reported that their greatest challenge was access to talent, while the majority of other entrepreneurs tended to struggle with access to finance.

The challenges identified by these founders are also useful because they are the best indicator of the systemic constraints in the local community — they are most likely to be due to the constraints of the broader environment for all entrepreneurs rather than constraints of the founders’ personal talents.

### **EXPAND EXISTING MECHANISMS THAT LEADERS OF COMPANIES AT SCALE USE TO INFLUENCE UPCOMING FOUNDERS.**

Key question: How can leaders of entrepreneurial companies at scale be encouraged to be more active influencers of upcoming founders?

Data from this study shows that the leaders of entrepreneurial companies that reached scale can improve the performance of local founders by acting as mentors and investors. These mechanisms are often underutilized — the typical entrepreneurs at scale in the cities in this study are only mentoring or investing in a single entrepreneur in their communities, if they are providing this type of support at all.

Previous studies indicate that entrepreneurial leaders can mentor founders of two to three companies at a time and have five or more companies in their investment portfolios. A small increase in the number of companies supported by each of these local founders has the potential to make a large impact .

### **INVITE LEADERS OF COMPANIES AT SCALE TO POSITIONS OF INFLUENCE AT EXISTING SUPPORT ORGANIZATIONS.**

Key question: Where can leaders of companies at scale take on executive or board-level roles at support organizations?

Once an entity becomes a hub in a local network, it is very likely to remain one. If established hubs are influential organizations led by people with no entrepreneurial experience, stakeholders who wish to pursue bottom-up approaches should look at this as an opportunity for positive transformation. If founders and executives at local companies that have reached scale can be invited to join the leadership of these organizations, they may be able to provide benefits similar to those seen at organizations already run by leaders of companies that reached scale. These leadership positions could include day-to-day roles or positions on an organization’s board of directors.

# INDIVIDUAL CITY OVERVIEWS





# BANGALORE

## CITY OVERVIEW

**BANGALORE**'s software entrepreneurship community includes around 3,000 companies working in software development, e-commerce, or fintech.\* Five to 10 percent of these companies work in fintech, one of the lowest percentages among the cities in this study. Most of Bangalore's largest companies are either massive business-to-business IT and software solutions firms, or e-commerce platforms.

Infosys is one of Bangalore's largest software companies and is a key driver of productivity in the sector with over 200,000 employees. Established in 1981, the company delivers a wide range of IT and digital services as well as its own software platforms in fields including artificial intelligence software, blockchain, and data analytics. Infosys went public in 1999 and raised US\$200 million in a post-IPO equity round in 2008.<sup>1</sup>

Flipkart, founded in 2007, is another major success story. The company operates an online shopping website for products including electronics, fashion, and furniture, and has over 100 million customers. Flipkart received considerable attention after its acquisition by Walmart for US\$16 billion in 2018, prior to which it had already raised over US\$7 billion in funding.<sup>2</sup>

Novopay is a notable company operating primarily in business-to-business fintech, although their app also allows money transfers and bank withdrawals among consumers. Novopay's other main operations target retailers, distributors, and banks. The company was founded in 2014 and already had nearly 200 employees by the end of 2016, when data for this report was collected.<sup>3</sup>

Bangalore's tech firms have a median of four employees, although the mean is much higher due to massive firms such as Wipro and Infosys, which have over 100,000 employees each.<sup>4</sup> Bangalore's entrepreneurial software companies are also comparatively older than those of the other cities in this study — roughly four to six years old on average. Their most distinctive feature is that their founders gain nearly twice as much work experience as founders in any of the other cities in this study prior to starting their companies. On average, these founders have seven to eight years of work experience compared to roughly three to four years in the other cities. The average founding team, however, is approximately the same size as teams in the other cities, typically with one or two founders.

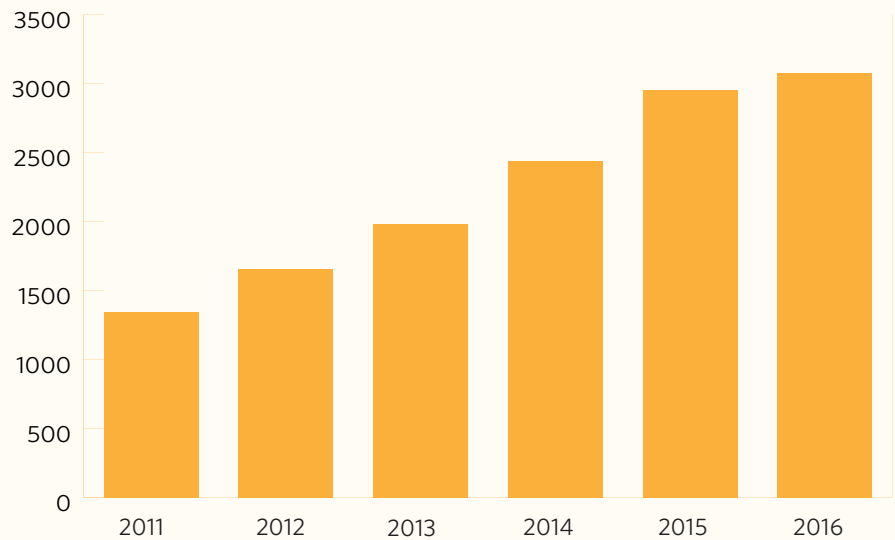
Between 15 and 20 percent of software companies in Bangalore have received some form of angel or venture capital investment — the highest rate among the cities in this study. Bangalore's software firms have also received funding in higher amounts by far than firms in the other cities in this study — most have received a total of more than US\$1 million in funding, and about 10 to 15 companies have raised more than US\$100 million. Some of the highest-funded companies include Flipkart, the e-commerce firm BigBasket which has raised over US\$800 million, and food delivery app Swiggy, which has raised over US\$400 million.<sup>5</sup>

\* Unless otherwise noted, all figures in this document reflect year-end totals for 2016. Endeavor Insight interviewed or surveyed 714 local software entrepreneurs in Bangalore in the process of its research. Endeavor Insight defines an entrepreneurship community as the collection of stakeholders whose primary activities involve operating, supporting, or investing in entrepreneurial companies within a single metropolitan area or region, and a single industry or group of highly related industries. For the purposes of this research, "entrepreneurial companies" are defined as businesses that are started by individuals who possess ownership and control of the firm. This excludes businesses that began as either government entities or subsidiaries of larger companies. "Software companies" are defined as firms where the primary business activity is either software development, fintech, or e-commerce. To avoid excess repetition, the terms "software company" and "tech company" are used synonymously in this document.

## BANGALORE'S TECH SECTOR EXHIBITS THE HIGHEST LEVELS OF DYNAMISM AND PRODUCTIVITY OF ANY CITY IN THIS STUDY, AND IT IS STILL RAPIDLY GROWING.

Over 80 percent of Bangalore's software companies were founded in the previous ten years, and nearly 60 percent were founded in the previous five years. The number of companies has increased at a slower rate than in Lagos or Nairobi, but the percentage of these newer companies that have reached scale in Bangalore is much higher.\* Over half of Bangalore's companies with 100 or more employees were founded in the previous ten years, and over 20 percent were founded in the past five years. The software sector in Bangalore therefore has the highest level of dynamism out of all the cities in this study, and there is room for the sector to continue to contribute significantly to economic growth.

### NUMBER OF ENTREPRENEURIAL TECH COMPANIES IN BANGALORE



Source: Endeavor Insight.

## TECH FOUNDERS CHOOSE BANGALORE FOR ITS ESTABLISHED IDENTITY AS A MASSIVE TECH HUB.

Endeavor Insight asked local tech founders why they chose to start their companies in Bangalore. The most common reason cited, aside from founders living in the area, was not surprising — Bangalore is a massive, well-established tech hub with the network and resources they needed. As one founder stated, "Bangalore has a vibrant community of investors, critical users, fellow entrepreneurs, the best engineers and good weather that works as a catalyst to start a business."

Talent was an especially frequent theme in these responses, mostly mentioned in combination with other factors rather than as the primary reason itself. According to a founder of one of the larger companies in the sector, "I happened to be in Bangalore when I wanted to start my company. Having said that, even if I were in some other city, I would have considered Bangalore... Bangalore was known to be a cool place even in 2004. There were lot of interesting people and a great talent pool."

### RESPONSES: "WHY DID YOU CHOOSE TO START YOUR BUSINESS IN BANGALORE?"

#### Most Commonly Mentioned Words Among Tech Founders Listed from Most to Least Frequent

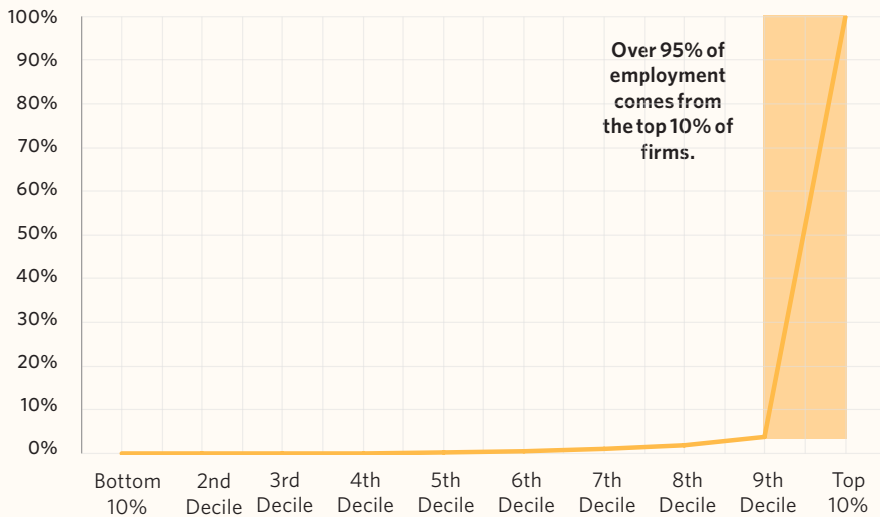
based	technology	availability
ecosystem	access	companies
talent	place	working
good	market	time
city	people	entrepreneurs
start	hub	resources
company	startups	pool
startup	started	easy
business	great	investors

Source: Endeavor Insight.

\* More information on the importance of companies that reach scale can be found on pages six to ten of the main report.

## THE TOP 10 PERCENT OF ENTREPRENEURIAL SOFTWARE FIRMS IN BANGALORE CREATED OVER 95 PERCENT OF THE JOBS IN THE LOCAL SOFTWARE SECTOR.

### BANGALORE TECH FIRMS: CUMULATIVE EMPLOYMENT SHARE BY DECILE



Source: Endeavor Insight.

As the findings of the main report noted, productivity in entrepreneurship communities is driven by a small number of companies that reach high levels of scale. This can be seen in Bangalore, where the entrepreneurial companies in the top 10 percent of employers created over 95 percent of the employment in the tech sector. Wipro and Infosys alone account for over 65 percent of employment in the sector.

A large share of companies in any tech sector are low productivity microbusinesses with fewer than three employees and no venture capital funding. As a result, the individual contribution of each of these companies is often very low and likely to decrease, since firms of this type also have a high rate of failure. In Bangalore, about 45 percent of all companies are microbusinesses.

## SIX PERCENT OF SOFTWARE FIRMS IN BANGALORE HAVE REACHED THE SCALE OF 100+ EMPLOYEES — AT LEAST TWICE THE RATE IN ANY OTHER CITY IN THIS STUDY.

### COMPARATIVE PRODUCTIVITY: BANGALORE VS. OTHER CITIES IN STUDY (APPROXIMATED RESULTS)

	Bangalore	Dhaka	Lagos	Nairobi	Kampala	Dar es Salaam
Total Firms	<b>3,100</b>	900	800	660	<200	<100
Total Jobs	<b>550,000</b>	22,000	9,500	7,400	<2,000	<1,000
Average Jobs per Firm	<b>180</b>	25	12	11	<10	<10
Firms with 100+ Employees	<b>6%</b>	3%	2%	1%	1%	0%

Source: Endeavor Insight.

Bangalore's software sector is incredibly productive. It has produced over 10 times as much employment as New York's with only about 1.2 times as many companies. The sector has produced close to 550,000 jobs and has collectively raised billions in venture capital funding.

At the time the data was collected for this study, 181 companies in Bangalore had reached the level of 100 or more employees — around 6 percent of all companies in the sector, by far the highest percentage among all cities studied.

There have also been several major exits among Bangalore's tech companies. Flipkart's acquisition by Walmart for US\$16 billion is the largest to date.<sup>6</sup> Other major acquisitions include the acquisition of Bitzer Mobile, an application allowing employees to access corporate data from their mobile phones, by Oracle in 2013.<sup>7</sup> Many major acquisitions have also taken place between local tech firms. For example, Flipkart acquired e-commerce site Myntra for US\$300 million in 2014.<sup>8</sup> Ride-sharing company Ola acquired TaxiforSure in 2015 for US\$200 million.<sup>9</sup>

## BANGALORE'S ENTREPRENEURSHIP NETWORK HAS THE HIGHEST PROPORTION OF INVESTMENT CONNECTIONS OUT OF ALL CITIES STUDIED.

As discussed in the main report, the influence of leaders who have scaled a company is associated with better performance among individual companies and greater productivity among the cities in this study.

The table below illustrates these patterns of influence in Bangalore. This influence is made up of connections observed

among founders of entrepreneurial companies as well as investors and leaders of support organizations. The three observed connection types are experience through former employment or serial entrepreneurship, support through mentorship or participation in a program, and investment, whether angel or venture capital.

In Bangalore, experience is the most common type of connection, followed by investment, and then support. This indicates the high levels of investment in Bangalore; investment is the least frequent connection type in all other cities, while in Bangalore, it comprises over a third of all connections.

### NETWORK ANALYSIS OF THE ENTREPRENEURIAL TECH SECTOR IN BANGALORE

	Bangalore	Dhaka	Lagos	Nairobi	Kampala	Dar es Salaam
Approximate Number of Observed Connections in Local Entrepreneurship Network per Firm	<b>0.9</b>	0.6	1.0	0.8	1.0	0.6
Percentage of Observed Connections Coming from Leaders of Firms that Reach the Scale of 100+ Employees	<b>41%</b>	11%	15%	6%	<5%	<5%
Approximate Number of Total Observed Connections	<b>2700</b>	510	750	500	200	60
<b>Percentage of Observed Connections by Type:</b>						
Support	<b>18%</b>	26%	34%	39%	55%	57%
Experience	<b>46%</b>	59%	43%	40%	42%	39%
Investment	<b>36%</b>	15%	23%	20%	4%	4%

Note: Percentages listed above may not add up to 100 due to rounding. Source: Endeavor Insight.



## THE FOUNDERS OF COMPANIES THAT REACHED SIGNIFICANT SCALE IN BANGALORE ARE ALSO THE MOST INFLUENTIAL FIGURES IN THE ENTREPRENEURSHIP COMMUNITY.

What truly makes the entrepreneurship community in Bangalore stand out is the fact that the most successful founders are also the most connected — they are the founders with the biggest influence on the sector. Over 40 percent of all connectivity comes from founders of companies with 100 or more employees. The top ten most influential companies are almost all companies at this level of scale.

This trend is especially prominent with experience — a higher percentage of experience connections comes from companies with 100 or more employees than in any other city. Most notably, three quarters of all former employee connections come from companies with 100 or more employees, more than three times the rate for the other

cities. This is largely driven by firms like Infosys and Wipro, where over two hundred tech founders have worked before starting their companies. What this demonstrates is that Bangalore's tech founders typically spend five to seven years working at the largest tech firms in the sector before they start their companies, a trend that has been shown to significantly improve their chances for success.

Bangalore's most successful founders are also active as angel investors. Over 40 percent of all investment, which is already high, comes from these founders. The average founder of a company with 100+ employees also has more investment connections on average than in the other cities. Finally, these founders are very active

as mentors. About 25 percent of mentorship in the entrepreneurship community comes from them.

Of all connection types, mentorship is where there is the most room for further growth. The most active mentors overall are companies and support organizations led by people with entrepreneurial experience at companies with fewer than 100 employees. Additionally, the majority of founders of companies with 100 or more employees only mentor one or two people at most. Given the vast number of these founders in the sector, a small increase in the mentorship they provide can have a significant collective impact on the sector. There is therefore a considerable gap between the level of mentorship they currently provide and the level it could reach.

## BANGALORE'S SOFTWARE FOUNDERS STRUGGLED LESS WITH COMMON CHALLENGES SUCH AS ACCESS TO TALENT AND EQUITY THAN FOUNDERS IN OTHER CITIES.

Software founders were asked whether or not they considered three key elements — access to customers, access to talent, and access to equity financing — as serious or very serious challenges to operating their business. These challenges were evaluated separately for the founders of the fastest-growing companies and all other founders.\*

Overall, all three elements were rated significantly lower as challenges by both groups than they were in the other cities. Considering the massive amount of venture capital and angel investment in Bangalore's software

sector, it comes as little surprise that only 12 percent of entrepreneurs at the city's fastest-growing firms consider access to equity a major challenge — a percentage that is also lower than the average across previous studies by Endeavor Insight. Roughly twice as many of these successful entrepreneurs considered access to talent a challenge, but even this rate was quite low at about 22 percent of founders. Access to managerial talent was rated slightly higher than access to engineers and technical talent, but this was a very close split.

By contrast, the founders of companies that are not among the sector's fastest-growing firms rated access to equity as their most critical challenge, with 29 percent rating it as such and 26 percent rating access to talent as a challenge. For both groups, access to customers was the lowest-rated challenge. Only 5 percent of founders of the fastest-growing local firms and 12 percent of all other founders rated it as a challenge.

\* The fastest-growing local firms are defined as firms that are larger than 90 percent of peer companies that were founded in the same year, or age-cohort, and operate in the same city and industry. These fastest-growing firms are also referred to as "top-performers" in the main report.

## THE TECH SECTOR IN BANGALORE ALREADY SHOWS HIGH LEVELS OF DYNAMISM AND PRODUCTIVITY, BUT ITS SUCCESS CAN GO EVEN FURTHER.

Bangalore is a clear outlier in terms of the performance of its tech sector. However, there is room for the sector to reach even higher levels of productivity and dynamism if decision makers who wish to support software entrepreneurs follow the five recommendations that make up Entrepreneur-Led Economic Development. Out of these recommendations, two in particular are especially critical for Bangalore.

### **Listen to leaders of the fastest-growing firms to identify the most critical constraints in the local entrepreneurship community.**

The input of the founders of Bangalore's fastest-growing companies is critical to constantly evaluating what is and is not working in the sector as it continues to evolve. For example, Bangalore has a vast number of investment firms and entrepreneurship support programs that help their companies access funding. Access to talent, however,

does not seem to be addressed at the same level, even though entrepreneurs at Bangalore's fastest-growing firms were twice as likely to consider it a challenge. Understanding what particular challenges these founders are facing with talent and developing programs to address them can go a long way. Existing support organizations can also emphasize strategies for finding, developing, and retaining talent as part of their regular operations.

### **Expand existing mechanisms that leaders of companies at scale use to influence upcoming founders.**

A key feature of Bangalore is how much of the connectivity within the entrepreneurial tech community comes from people who built companies that have reached 100 or more employees. However, there is still room for this pattern to go significantly further. Many entrepreneurs at scale are not mentoring or investing in anyone, and those who are

mostly support only one entrepreneur. In fact, given the number of companies that have reached scale in Bangalore, a small increase in engagement from each of these founders could easily double the overall number of mentoring and angel investing connections they provide.

For more information on these recommendations and the analyses in this study, please contact the authors of this report.

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### **SPECIAL THANKS**

The authors would like to thank the following individuals who participated in expert interviews and focus groups in Bangalore: Kunal Kashyap, Devyani Singh, and Samridhi Singh.



# DAR ES SALAAM

## CITY OVERVIEW

**DAR ES SALAAM'S** software entrepreneurship community includes fewer than 100 companies working in software development and related industries.\* Roughly 10 percent of these companies in Dar es Salaam operate in fintech. The vast majority of Dar es Salaam's largest firms are in the business-to-business space, primarily in adtech. These companies specialize in services like bulk SMS, custom software development, and mobile app development.

Notable entrepreneurial companies in this sector include AIM Group, an adtech firm specialized in custom product development for business and one of the largest companies in the sector. One of its flagship products, EKYC, facilitates SIM card registration in a market where high levels of unregistered SIM cards have been linked to higher rates of mobile cybercrime.<sup>10</sup> EKYC has been used by many major telecom companies including Vodacom, MTN, and Airtel.<sup>11</sup>

Shule Direct, an edtech firm, is another company to note. The company provides a variety of educational services to students and teachers, including a web platform with classes, notes, quizzes, and previous exams for a variety of subjects. The company also offers a mobile revision platform that secondary school students — especially those who do not have access to wifi or data bundles — can use to ask questions and get real time responses from teachers.

The average tech firm in Dar es Salaam has between four and six employees and is between three and five years old. The average founding team is also small, typically with just one or two founders, although there is a slightly higher occurrence of two-founder teams than in the other cities. These founders have fewer years of work experience on average than founders in the other cities — the average founder has only worked one to two years before starting their company.

Approximately 5 percent of companies in Dar es Salaam have received some form of angel or venture capital investment. Most of these investments are of a size that would be considered relatively small in other tech communities, i.e., less than US\$1 million.

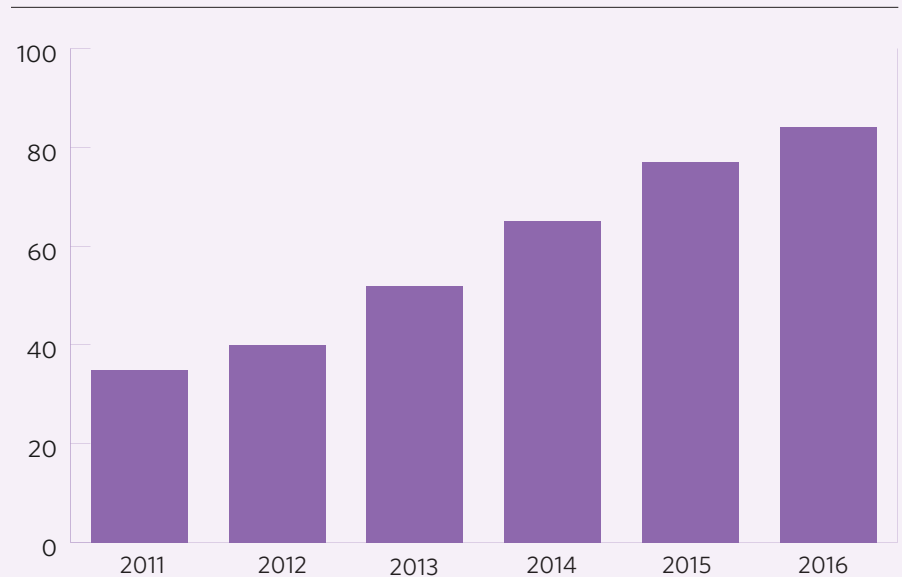
The software sector in Dar es Salaam has produced only around 1,000 jobs and has collectively raised a small amount of venture capital funding compared to other cities in this study. To date, there have been no major exits or acquisitions.

\* Unless otherwise noted, all figures in this document reflect year-end totals for 2016. Endeavor Insight interviewed or surveyed 21 local software entrepreneurs in Dar es Salaam in the process of its research. Endeavor Insight defines an entrepreneurship community as the collection of stakeholders whose primary activities involve operating, supporting, or investing in entrepreneurial companies within a single metropolitan area or region, and a single industry or group of highly related industries. For the purposes of this research, "entrepreneurial companies" are defined as businesses that are started by individuals who possess ownership and control of the firm. This excludes businesses that began as either government entities or subsidiaries of larger companies. "Software companies" are defined as firms where the primary business activity is either software development, fintech, or e-commerce. To avoid excess repetition, the terms "software company" and "tech company" are used synonymously in this document.

## DAR ES SALAAM'S TECH SECTOR IS MAINLY COMPRISED OF YOUNG COMPANIES, BUT RELATIVELY OLDER FIRMS DOMINATE PRODUCTIVITY.

Approximately 90 percent of Dar es Salaam's tech companies were founded in the previous ten years. However, productivity appears to be driven mostly by relatively older companies. Roughly 40 percent of companies in the sector were founded five to ten years ago, but about 70 percent of productivity comes from them.

### NUMBER OF ENTREPRENEURIAL TECH COMPANIES IN DAR ES SALAAM



Source: Endeavor Insight.

## TECH ENTREPRENEURS ARE DRAWN TO DAR ES SALAAM BY MARKET OPPORTUNITIES CREATED BY THE CITY'S RECENT ECONOMIC GROWTH.

Endeavor Insight asked local tech founders why they chose to start their companies in Dar es Salaam. The most common reason cited, aside from founders already living in the area, was market opportunity.

Many founders were attracted to market gaps and limited competition in their industries, which provided them with strong opportunities for growth. As one founder stated, "The economy is growing very rapidly, so there is endless opportunity in Tanzania, especially if you are able to define a specific niche." Other founders considered the city as the business hub of Tanzania, where most of their current and potential customers were based. According to one such founder, "Dar es Salaam is a major and commercial city and has a huge population compared to other cities in Tanzania."

### RESPONSES: "WHY DID YOU CHOOSE TO START YOUR BUSINESS IN DAR ES SALAAM?"

#### Most Commonly Mentioned Words Among Tech Founders Listed from Most to Least Frequent

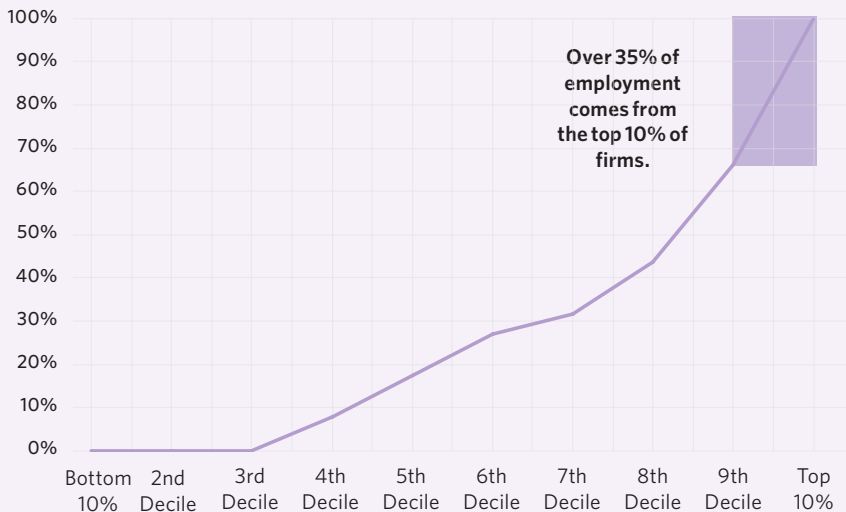
business	company	inspires
start	awareness	compare
availability	resources	number
opportunity	customers	
technology	problems	

Source: Endeavor Insight.



## THE TOP 10 PERCENT OF ENTREPRENEURIAL SOFTWARE FIRMS IN DAR ES SALAAM CREATED OVER 35 PERCENT OF THE JOBS IN THE LOCAL SOFTWARE SECTOR.

### DAR ES SALAAM TECH FIRMS: CUMULATIVE EMPLOYMENT SHARE BY DECILE



Source: Endeavor Insight.

As the findings of the main report noted, a relatively small number of companies that reach significant scale drive a disproportionate amount of productivity in entrepreneurship communities.\* This is less evident in Dar es Salaam than the other cities in this study, but the entrepreneurial companies in the top 10% of employers still created over 35 percent of the employment in the tech sector. The reason that this effect is weaker in this city compared to other communities in this study is primarily due to the small number of firms that have grown beyond 20 employees.

Dar es Salaam does include a significant number of low-productivity microbusinesses that have fewer than three employees and no venture capital funding. Roughly 40 percent of companies identified in the city fall into this category.

## NO ENTREPRENEURIAL SOFTWARE FIRMS IN DAR ES SALAAM HAVE YET REACHED THE SCALE OF 100 OR MORE EMPLOYEES.

### COMPARATIVE PRODUCTIVITY: DAR ES SALAAM VS. OTHER CITIES IN STUDY (APPROXIMATED RESULTS)

	Bangalore	Dhaka	Lagos	Nairobi	Kampala	Dar es Salaam
Total Firms	3,100	900	800	660	<200	<b>&lt;100</b>
Total Jobs	550,000	22,000	9,500	7,400	<2,000	<b>&lt;1,000</b>
Average Jobs per Firm	180	25	12	11	<10	<b>&lt;10</b>
Firms with 100+ Employees	6%	3%	2%	1%	1%	<b>0%</b>

Source: Endeavor Insight.

The software entrepreneurship community in Dar es Salaam is less productive than the other cities in this study. This may be due in part to the fact that the sector in Dar es Salaam is quite young on average — only about 10 companies identified in this sector were founded over 10 years ago and very few were founded before the early 2000s.

The tech sector in Dar es Salaam has produced around 1,000 jobs and has collectively raised a relatively small amount of venture capital funding compared to other tech sectors in this study. To date, there have been no major exits or acquisitions.

At the time the data was collected for this study, there were no entrepreneurial software firms observed in Dar es Salaam that had yet reached the scale of 100 employees.

\* More information on the importance of companies that reach scale can be found on pages six to ten of the main report.

## DAR ES SALAAM'S ENTREPRENEURSHIP NETWORK SHOWS LOW RATES OF CONNECTIVITY IN GENERAL, AND PARTICULARLY LACKS INVESTMENT CONNECTIONS.

As discussed in the main report, the influence of leaders who have scaled a company is associated with better performance among individual companies and greater productivity among the cities in this study.

The table below illustrates these patterns of influence in Dar es

Salaam. This influence is made up of connections observed among founders of entrepreneurial companies as well as investors and leaders of support organizations. The three observed connection types are experience through former employment or serial entrepreneurship, support

through mentorship or participation in a program, and investment, whether angel or venture capital.

In Dar es Salaam, overall connectivity is comparatively low. Support is by far the common type of connection, followed by experience, and then investment.

### NETWORK ANALYSIS OF THE ENTREPRENEURIAL TECH SECTOR IN DAR ES SALAAM

	Bangalore	Dhaka	Lagos	Nairobi	Kampala	Dar es Salaam
Approximate Number of Observed Connections in Local Entrepreneurship Network per Firm	0.9	0.6	1.0	0.8	1.0	<b>0.6</b>
Percentage of Observed Connections Coming from Leaders of Firms that Reach the Scale of 100+ Employees	41%	11%	15%	6%	<5%	<b>&lt;5%</b>
Approximate Number of Total Observed Connections	2700	510	750	500	200	<b>60</b>
<b>Percentage of Observed Connections by Type:</b>						
Support	18%	26%	34%	39%	55%	<b>57%</b>
Experience	46%	59%	43%	40%	42%	<b>39%</b>
Investment	36%	15%	23%	20%	4%	<b>4%</b>

Note: Percentages listed above may not add up to 100 due to rounding. Source: Endeavor Insight.

## SERIAL ENTREPRENEURSHIP IS COMMON IN DAR ES SALAAM, BUT FEW ENTREPRENEURS ARE ACTIVE AS MENTORS OR INVESTORS.

Compared to the other cities in this study, there is very little connectivity among founders in Dar es Salaam. Given that there are fewer companies in the city's tech sector and that most of them are comparatively new, it makes sense that these connections have not yet developed on a wide scale. One result of this is that there are very few, if any, major influencers who are connected to more than two or three companies.

The most common types of connections among software firms in Dar es Salaam are support and experience. Investment

remains comparatively low. Most of the founders of the top 20 firms in the sector are serial entrepreneurs, but not mentors or investors.

These patterns have two main implications. First, the founders of the most successful companies are not actively involved in supporting local entrepreneurs, even if they are successful serial entrepreneurs. On the positive side, the other implication is that it is comparatively easy for these successful founders to establish themselves as centers of influence.

Low overall connectivity means that a very small increase in the involvement of these founders can significantly increase their relative influence and affect a significant percentage of companies in the entrepreneurship community. Even a small increase in mentorship and investment from these founders can go a long way towards supporting local tech firms.

## ACCESS TO CAPITAL POSES THE MOST SERIOUS CHALLENGE TO SOFTWARE ENTREPRENEURS IN DAR ES SALAAM.

Software founders were asked whether or not they consider three key elements — access to customers, access to talent, and access to equity financing — as serious or very serious challenges to operating their business. These challenges are typically assessed by examining those cited by all founders of and those cited by the founders of the fastest-growing local firms separately, but due to the relatively small size of the entrepreneurial tech sector in Dar

es Salaam, the analysis in this report could only examine the challenges as reported among all founders.\* However, this yielded several interesting findings.

Access to equity was by far the most critical challenge reported. Raising equity to start and grow a company is challenging anywhere, but in Dar es Salaam, 64 percent of respondents rated it as a serious or very serious challenge — higher than responses for any of the other challenges.

Access to talent was the second most reported challenge, with around 43 percent of founders considering it as a challenge.

About 31 percent of founders rated access to customers as a challenge. While this is the lowest-rated challenge in Dar es Salaam, it is also the highest rating for access to customers among the cities in this study, indicating that it is still a challenge in the sector.

\* The fastest-growing local firms are defined as firms that are larger than 90 percent of peer companies that were founded in the same year, or age-cohort, and operate in the same city and industry. These fastest-growing firms are also referred to as "top-performers" in the main report.

## TWO KEY STRATEGIES CAN SUPPORT HIGHER DYNAMISM AND PRODUCTIVITY IN DAR ES SALAAM'S TECH SECTOR.

The five recommendations discussed in this report are all important for improving the productivity of the tech sector in Dar es Salaam. Decision makers who wish to support local software entrepreneurs should focus on two of these recommendations in particular.

### **Avoid the “myths of quantity.”**

When an entrepreneurial network like Dar es Salaam's tech sector is at a relatively small size and level of productivity, it can be very tempting to fall into the trap of focusing on quantity. Many decision makers in this situation assume that increasing the quantity of startups, support organizations, or connectivity will automatically generate a more productive entrepreneurship community. It is critical for decision makers in Dar es Salaam to avoid this, especially since the sector is relatively small but already has a growing number of entrepreneurship support organizations.

Since very few companies in networks of this size have already reached scale, purely increasing the number of these organizations and connections is very likely to elevate people who have no entrepreneurial leadership experience or have only worked at low productivity microbusinesses. This may spread bad practices and knowledge from people without relevant experience, which can then become norms in the community. It can also reduce the relative influence of leaders of scaled entrepreneurial companies who do get involved.

### **Invite leaders of companies at scale to positions of influence at existing support organizations.**

Instead of increasing the number of connections and support organizations, decision makers should focus on inviting people who have experience as founders or executives at companies that have reached scale to work with local companies through existing support organizations. Given the small size of the tech entrepreneurship community and relatively low numbers of founders at scale in Dar es Salaam, many these leaders could also come from other local industries.

Other industries in the city may have larger networks of founders and executives at scaled companies, and these leaders are likely to have experience working with technology even if they are not software founders themselves. Additionally, some of these experienced entrepreneurial leaders can come from outside the city. The best place to look may be in neighboring international communities like Nairobi, South Africa, or the Middle East, as well as further abroad in places like Europe or the United States.

An important strategy to keep in mind throughout this process is identifying and focusing on areas within the tech sector where companies seem to be most successful. The vast majority of Dar es Salaam's largest tech companies are business-to-business companies, many with an adtech focus. Understanding what makes this sub-industry successful

and what types of connections with other industries will be most useful can assist decision makers in developing effective policies. At the same time, support organizations that build these types of connections may also help local business-to-business tech companies build stronger client bases in these other local industries.

For more information on these recommendations and the analyses in this study, please contact the authors of this report.

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### **SPECIAL THANKS**

The authors would like to thank the following individuals who participated in expert interviews and focus groups in Dar es Salaam: Neha Kumar, Jumanne Mtambalike, Camilla Shearman, and Devang Vussonji.





# DHAKA

## CITY OVERVIEW

**DHAKA'S** software entrepreneurship community includes approximately 900 companies working in software development and related sectors.\* Less than 5 percent of these companies work in fintech, the lowest percentage among the cities in this study. The vast majority of Dhaka's largest companies are business-to-business software developers. Several of these build their own branded platforms, while others have a specific industry specialization, and many build a broader range of customized software and mobile apps. However, many of the largest firms also operate in the business-to-consumer space, mostly in fintech and e-commerce.

Chaldal, a massive e-commerce company, is a major success story to note. The company provides online grocery shopping services, saving hours of time for consumers in a city well-known for its traffic jams. Chaldal was founded only a few years prior to this study and is currently one of the largest firms in the sector, with over 350 employees.

LEADS Corporation is a notable business-to-business company. The company provides custom software development for private companies in multiple industries as well as government entities and non-governmental organizations. Many of their software products, especially in the banking and financial space, are individually branded. LEADS was founded in 1992 and has around 300 employees.<sup>12</sup>

Shohoz is one of the fastest-growing firms in its cohort. The company aims to digitize the travel and transportation industry in Bangladesh and has built an online ticket sales platform for some of the country's largest bus and ferry

operators, which also offers tickets for entertainment events like movies and sports events. Shohoz has also expanded into motorcycle ride-sharing. The company is one of the highest-funded in the sector, raising a total of US\$15 million.<sup>13</sup>

The average software firm in Dhaka has between 11 and 25 employees and is between five and seven years old — older than the average company in any of the other cities. The average founding team is small, typically with one or two founders, who each have about two to four years of previous work experience before starting the company.

Less than 10 percent of companies in Dhaka have received some form of angel or venture capital investment — a low percentage compared to most of the cities in this study. Most of these investments would be considered relatively small in other tech communities, i.e., less than US\$1 million. Even the highest-funded companies have often raised a total of less than US\$20 million. Some of these companies include Shohoz, which has raised a total of US\$15 million, Pathao, which has raised over US\$10 million, and SureCash, which has raised over US\$5 million.<sup>14</sup>

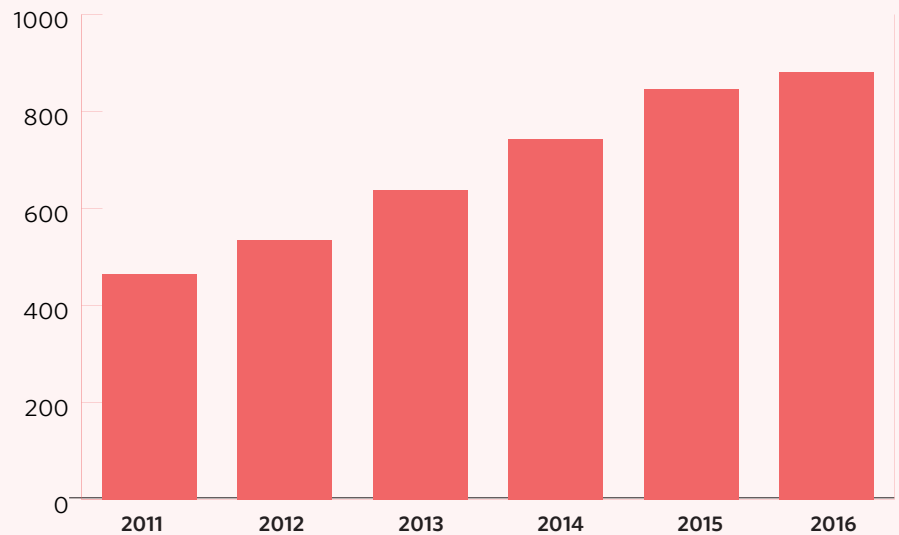
\* Unless otherwise noted, all figures in this document reflect year-end totals for 2016. Endeavor Insight interviewed or surveyed 229 local software entrepreneurs in Dhaka in the process of its research. Endeavor Insight defines an entrepreneurship community as the collection of stakeholders whose primary activities involve operating, supporting, or investing in entrepreneurial companies within a single metropolitan area or region, and a single industry or group of highly related industries. For the purposes of this research, "entrepreneurial companies" are defined as businesses that are started by individuals who possess ownership and control of the firm. This excludes businesses that began as either government entities or subsidiaries of larger companies. "Software companies" are defined as firms where the primary business activity is either software development, fintech, or e-commerce. To avoid excess repetition, the terms "software company" and "tech company" are used synonymously in this document.

## DHAKA'S TECH SECTOR REMAINS DOMINATED BY OLDER FIRMS BUT EXHIBITS POTENTIAL FOR MUCH HIGHER GROWTH AND DYNAMISM.

Roughly 75 to 80 percent of software entrepreneurial companies in Dhaka were founded in the previous ten years, and less than half were founded in the previous five years. This is lower than the other cities in this study, where about 80 to 90 percent of companies were founded in the previous ten years. The number of firms has also grown at a slower rate in Dhaka than in the other cities.

The main indicator of the sector's potential, however, is whether these companies have been reaching scale.\* About 35 percent of firms with 100 or more employees were founded in the previous ten years, and about 10 percent were founded in the previous five, which is high relative to the overall number of newer firms founded in the previous five and ten years. Still, there is room for significantly more growth and dynamism since the sector remains primarily dominated by older firms.

### GROWTH OF ENTREPRENEURIAL TECH COMPANIES IN DHAKA



Source: Endeavor Insight.

## TECH FOUNDERS IN DHAKA ARE MOTIVATED BY THE LOCAL SOFTWARE SECTOR'S RAPID GROWTH AND THE OPPORTUNITY TO GIVE BACK.

Endeavor Insight asked local tech founders why they chose to start their companies in Dhaka. The most common reason, aside from founders living in the area, was the rapid growth of Bangladesh's tech sector and Dhaka's position as the country's capital and business hub. As one founder stated, "The number of internet consumers in Bangladesh is exploding. Web-based services and products have tremendous potential here in the coming decades." Availability of technical talent and lower operating costs were also common themes.

Another major motivation for entrepreneurs was giving back through the services their businesses provide. As one founder stated, "I started my company...with the long term goal of reducing the number of vehicles on the road by having people share rides." Others wanted to give back by "offering exceptional work opportunities to a new generation of university graduates and creating jobs in Bangladesh in a sector offering high skill and knowledge instead of lower skill manufacturing industries."

### RESPONSES: "WHY DID YOU CHOOSE TO START YOUR BUSINESS IN DHAKA?"

#### Most Commonly Mentioned Words Among Tech Founders Listed from Most to Least Frequent

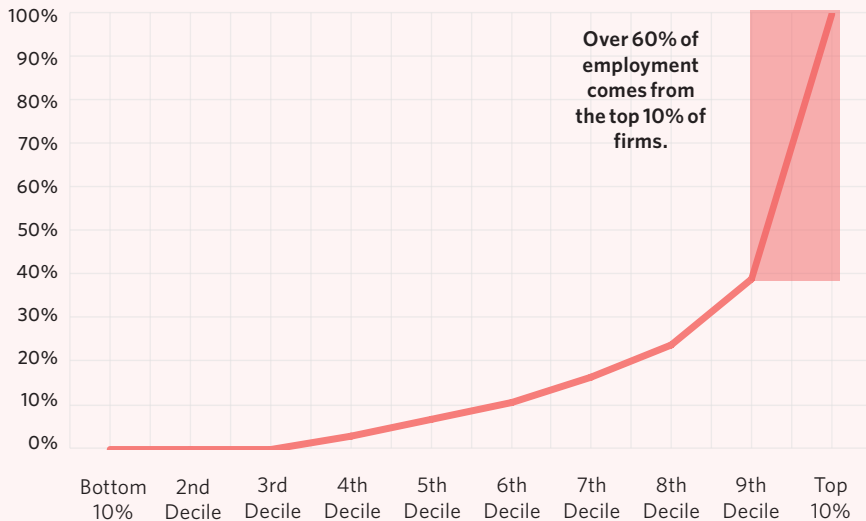
business	company	born
city	started	market
start	people	potential
country	opportunity	internet
capital	live	wanted
software	work	place

Source: Endeavor Insight.

\* More information on the importance of companies that reach scale can be found on pages six to ten of the main report.

## THE TOP 10 PERCENT OF ENTREPRENEURIAL SOFTWARE FIRMS IN DHAKA CREATED OVER 60 PERCENT OF THE JOBS IN THE LOCAL SOFTWARE SECTOR.

### DHAKA TECH FIRMS: CUMULATIVE EMPLOYMENT SHARE BY DECILE



Source: Endeavor Insight.

As the findings of the main report noted, productivity in entrepreneurship communities is driven by a small number of companies that reach high levels of scale. This can be seen in Dhaka, where the entrepreneurial companies in the top 10 percent of employers created roughly 60 percent of the employment in the tech sector.

A large proportion of companies in any tech sector are low productivity microbusinesses with fewer than three employees and no venture capital funding. As a result, the individual contribution of each of these companies is often very low and likely to decrease since firms of this type also have a high rate of failure.

Dhaka, however, has a relatively low percentage of microbusinesses. Only about 15 to 20 percent of all companies are microbusinesses compared to about 40 percent or more in the other cities in this study.

## A HIGHER PERCENTAGE OF DHAKA'S SOFTWARE FIRMS HAVE REACHED THE SCALE OF 100+ EMPLOYEES THAN ANY OTHER CITY IN THIS STUDY EXCEPT BANGALORE.

### COMPARATIVE PRODUCTIVITY: DHAKA VS. OTHER CITIES IN STUDY (APPROXIMATED RESULTS)

	Bangalore	Dhaka	Lagos	Nairobi	Kampala	Dar es Salaam
Total Firms	3,100	<b>900</b>	800	660	<200	<100
Total Jobs	550,000	<b>22,000</b>	9,500	7,400	<2,000	<1,000
Average Jobs per Firm	180	<b>25</b>	12	11	<10	<10
Firms with 100+ Employees	<b>6%</b>	<b>3%</b>	<b>2%</b>	<b>1%</b>	<b>1%</b>	<b>0%</b>

Source: Endeavor Insight.

The tech sector in Dhaka has higher than average levels of productivity compared to the other cities in this study. It has produced close to 22,000 jobs and has collectively raised a large amount of venture capital funding compared to these cities.

At the time the data was collected for this study, 28 companies in Dhaka had reached the level of 100 or more employees — roughly 3 percent of all companies in the sector.

To date, a handful of tech companies are listed on the Dhaka Stock Exchange, most of which are larger business-to-business firms. The values for most of their IPOs are undisclosed.

## CONNECTIVITY IN DHAKA'S SOFTWARE ENTREPRENEURSHIP NETWORK IS DOMINATED BY SERIAL ENTREPRENEURSHIP AND FORMER EMPLOYMENT.

As discussed in the main report, the influence of leaders who have scaled a company is associated with better performance among individual companies and greater productivity among the cities in this study.

The table below illustrates these patterns of influence in Dhaka. This influence is made up of connections observed

among founders of entrepreneurial companies as well as investors and leaders of support organizations. The three observed connection types are experience through former employment or serial entrepreneurship, support through mentorship or participation in a program, and investment, whether angel or venture capital.

As the table shows, the most common type of connection amongst software firms in Dhaka is by far experience, which occurs at a much higher percentage than in the other cities. Angel investment, on the other hand, is comparatively low, especially considering the size of the sector.

### NETWORK ANALYSIS OF THE ENTREPRENEURIAL TECH SECTOR IN DHAKA

	Bangalore	Dhaka	Lagos	Nairobi	Kampala	Dar es Salaam
Approximate Number of Observed Connections in Local Entrepreneurship Network per Firm	0.9	<b>0.6</b>	1.0	0.8	1.0	0.6
Percentage of Observed Connections Coming from Leaders of Firms that Reach the Scale of 100+ Employees	41%	<b>11%</b>	15%	6%	<5%	<5%
Approximate Number of Total Observed Connections	2700	<b>510</b>	750	500	200	60
<b>Percentage of Observed Connections by Type:</b>						
Support	18%	<b>26%</b>	34%	39%	55%	57%
Experience	46%	<b>59%</b>	43%	40%	42%	39%
Investment	36%	<b>15%</b>	23%	20%	4%	4%

Note: Percentages listed above may not add up to 100 due to rounding. Source: Endeavor Insight.

## THE MAJORITY OF THE MOST INFLUENTIAL MEMBERS OF DHAKA'S ENTREPRENEURSHIP COMMUNITY ARE STILL FOUNDERS OF SMALLER FIRMS.

The amount of these types of connections coming from the founders of the largest companies in Dhaka is much lower than it could be. As the table shows, only about 11 percent of connectivity comes from founders of companies with 100 or more employees. Interestingly, the average founder of a company with 100 or more employees provides more mentorship in Dhaka than in any other city in this study. However, this remains low compared to mentorship in the sector as a whole. Only about 10 to 15 percent of all mentorship in the sector comes from people who have led companies with 100 or more

employees, and the same applies for angel investment. Moreover, most of these founders only mentor one or two people at most. As a result, even though these successful founders are fairly active as mentors, the majority of the sector's most influential mentors are founders of much smaller, less successful companies.

On the flipside, some of Dhaka's most successful companies are also among its most influential. OnnoRokom, one of the fastest-growing companies in the sector, is led by one of the community's most active mentors. Companies like Brain Station 23 and Devnet are also

among the most influential, especially in terms of former employment.

Overall, Dhaka's most successful founders are more active and influential compared to those in many other cities in this study. However, there is considerably more room for improvement. Considering the number of companies at scale in the sector, there is a major gap between the level of support that is currently provided and the level it could reach.

## THE ENTREPRENEURS AT DHAKA'S FASTEST-GROWING FIRMS STRUGGLE MOST WITH ACCESS TO HIGH QUALITY MANAGERS.

Surveyed founders were asked whether or not they considered three key elements — access to customers, access to talent, and access to equity financing — as serious or very serious challenges to operating their business. These challenges were evaluated separately for the founders of the fastest-growing companies and all other founders.\*

While many founders were motivated by lower costs of technical talent in Dhaka, access to talent was still the highest-rated challenge among founders of the city's fastest-growing firms, with 62 percent considering it a challenge.

This was primarily driven by difficulties in finding high quality managerial talent. Access to managerial talent was rated higher among the entrepreneurs at the fastest-growing firms in Dhaka than in any other city, with 59 percent of founders rating it as a challenge compared to only 32 percent for availability of engineers and technical talent.

Access to equity was rated lower than talent but still comparatively high — 53 percent of these successful entrepreneurs considered it a challenge. This is not surprising considering the

relatively low investment amounts in the sector, as well as generally low levels of angel investment.

By contrast, founders of smaller companies considered access to equity as their most critical challenge. These founders also found more difficulty finding managers, although the split between difficulty finding engineers and managers was much smaller.

For both groups, access to customers was the lowest-rated challenge. 26 percent of founders of the fastest-growing firms and 23 percent of all other founders rated it as a challenge.

\* The fastest-growing local firms are defined as firms that are larger than 90 percent of peer companies that were founded in the same year, or age-cohort, and operate in the same city and industry. These fastest-growing firms are also referred to as "top-performers" in the main report.



## LISTENING TO THE FOUNDERS OF DHAKA'S FASTEST-GROWING FIRMS COULD ENSURE THE LOCAL TECH SECTOR REACHES HIGHER LEVELS OF DYNAMISM.

The five recommendations for Entrepreneur-Led Economic Development discussed in the main report are all important for increasing the productivity of the tech sector in Dhaka. Decision makers who wish to support local software entrepreneurs should focus on two of these recommendations in particular.

### **Listen to leaders of the fastest-growing firms to identify the most critical constraints.**

The founders of Dhaka's fastest-growing companies strongly emphasized issues with access to talent, especially for management positions. While there are a number of local entrepreneurship support programs that help these companies raise capital, there is a real lack of assistance in terms of support for developing talent and recruiting effective managers.

At the same time, this means there is an opportunity to pilot innovative program ideas that focus on talent, drawing

from ideas in other communities. These include corporate sabbaticals, executive and managerial education programs, and short term executive-in-residence programs. Any new programs that are developed must be created by groups led by entrepreneurs who have reached scale or are growing quickly. These founders are hiring more than anyone else and will have the best sense of specific challenges to address, like what types of managers are in short supply, whether the focus should be on attracting or retaining talent, and so forth. As is the case with all new programs of this nature, these programs will need to be regularly evaluated and modified when they are not effectively meeting their goals.

### **Expand existing mechanisms that leaders of companies at scale use to influence upcoming founders.**

While founders at scale in Dhaka are fairly active at supporting other tech companies, they are comparatively much less influential than organizations

and founders without this level of experience. As such, there are clearly more opportunities for these founders to be more active as mentors and investors.

For more information on these recommendations and the analyses in this study, please contact the authors of this report.

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The authors would like to thank the following individuals who participated in expert interviews and focus groups in Dhaka: Syeda Kamrun Ahmed, Shameem Ahsan, Bijon Islam, Pial Islam, Sajid Islam, Sonia Kabir, Mustafizur Khan, Sabur Khan, Nabila Nair, Nabila Nowrin, Kamal Quadir, Sajid Rahman, and Fayaz Taher.



# KAMPALA

## CITY OVERVIEW

**KAMPALA'S** software entrepreneurship community includes fewer than 200 tech companies.\* Nearly 20 percent of these companies in Kampala operate in fintech — a relatively high percentage compared to the other cities analyzed in this project. Most of Kampala's largest firms are in the business-to-business space, many of which offer a variety of individually-branded platforms or software solutions. Most of Kampala's business-to-consumer firms are mobile-based.

One notable entrepreneurial company in this sector is Yo Uganda, which was founded in 2006. The company was one of the first firms in Uganda to provide mobile value-added services. They provide custom software for businesses including traditional SMS aggregation services, but their flagship product is Yo! Payments, a mobile money platform for both business and personal accounts. Yo Uganda is one of the fastest-growing tech companies among its peers and one of the largest in Kampala.

Safeboda is another interesting company in the local community. The firm provides a mobile platform for Kampala's motorcycle taxis — or boda bodas — designed to provide better-trained drivers and improve road safety for a form

of transportation that has become notorious for dangerous driving and high rates of accidents. The company was launched in 2015 and is one of the fastest-growing startups in its cohort. It has raised US\$1.3 million in external funding.<sup>15</sup>

The average tech firm in Kampala has between three and seven employees and is between three and five years old — slightly older than the average firm in Dar es Salaam, Nairobi, or Lagos. The average founding team is also small, typically with just one or two founders, who have each worked for two to four years before starting the company.

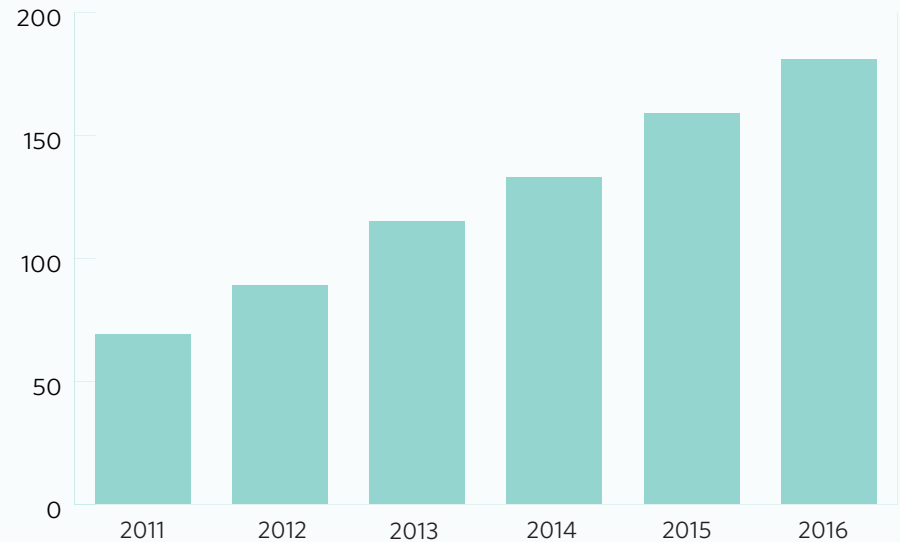
Approximately 10 percent of companies in Kampala have received some form of angel or venture capital investment. Most of these investments are of a size that would be considered relatively small in other tech communities, i.e., less than US\$1 million. There are also relatively high rates of grant funding in the tech sector.

\* Unless otherwise noted, all figures in this document reflect year-end totals for 2016. Endeavor Insight interviewed or surveyed 73 local software entrepreneurs in Kampala in the process of its research. Endeavor Insight defines an entrepreneurship community as the collection of stakeholders whose primary activities involve operating, supporting, or investing in entrepreneurial companies within a single metropolitan area or region, and a single industry or group of highly related industries. For the purposes of this research, "entrepreneurial companies" are defined as businesses that are started by individuals who possess ownership and control of the firm. This excludes businesses that began as either government entities or subsidiaries of larger companies. "Software companies" are defined as firms where the primary business activity is either software development, fintech, or e-commerce. To avoid excess repetition, the terms "software company" and "tech company" are used synonymously in this document.

## THE KAMPALA TECH SECTOR NEARLY DOUBLED IN SIZE OVER THE LAST FIVE YEARS, AND THESE NEW FIRMS ACCOUNT FOR A PROPORTIONAL SHARE OF PRODUCTIVITY.

Between 80 and 90 percent of Kampala’s tech companies were founded in the previous ten years, and roughly 60 percent were founded in the previous five years. These newer firms account for a percentage of productivity that is strongly proportional to their number. This suggests that there is considerable potential for the software entrepreneurship community in Kampala to contribute to economic growth in a more substantial way.

### NUMBER OF ENTREPRENEURIAL TECH COMPANIES IN KAMPALA



Source: Endeavor Insight.

## KAMPALA’S TECH ENTREPRENEURS AIM TO ADDRESS SPECIFIC MARKET GAPS AND PROBLEMS IN THE LOCAL COMMUNITY.

Endeavor Insight interviewed local tech founders and asked why they chose to start their companies in Kampala. The most commonly cited reason, aside from founders already living in Kampala at the time, was market opportunity. Some founders who lived in the area had a strong understanding of market needs and built their companies to address them. As one founder said, “The problems our product was designed to solve are challenges that I have experienced myself because I have lived in Kampala for some time now.” Other founders spoke of the benefits of the market more generally, stating that “the market has a lot of room for experimenting and iterating.”

Many founders also built their companies with a mentality of ‘giving back’ or solving specific local problems. One fintech founder started the company because “access to finance was very difficult in Uganda since banks have very high interest rates and collaterals, which forces people to resort to loan sharks that are very predatory.” This rationale was quite common among fintech founders and may help explain the high number of fintech firms in Kampala’s tech community.

### RESPONSES: “WHY DID YOU CHOOSE TO START YOUR BUSINESS IN KAMPALA?”

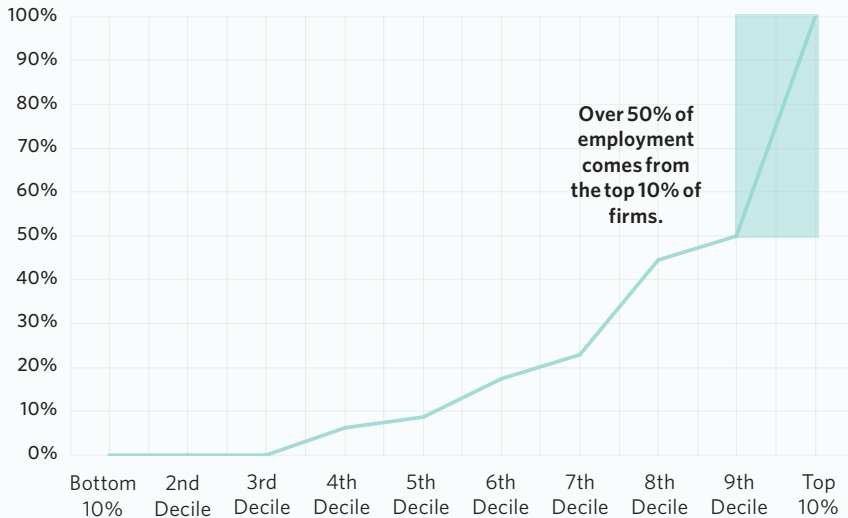
#### Most Commonly Mentioned Words Among Tech Founders Listed from Most to Least Frequent

business	wanted	high
market	africa	city
people	access	challenges
lived	large	community
technology	east	resources
internet	time	products

Source: Endeavor Insight.

## THE TOP 10 PERCENT OF ENTREPRENEURIAL SOFTWARE FIRMS IN KAMPALA CREATED OVER HALF OF THE JOBS IN THE LOCAL SOFTWARE SECTOR.

### KAMPALA TECH FIRMS: CUMULATIVE EMPLOYMENT SHARE BY DECILE



Source: Endeavor Insight.

As the findings of the main report noted, a small number of companies that reach significant scale drive a disproportionate amount of productivity in entrepreneurship communities.\* This can be seen in Kampala, where the entrepreneurial companies in the top 10 percent of employers created over half of the employment in the tech sector.

The opposite is also true. A large number of companies in any tech sector are low-productivity microbusinesses with fewer than three employees and no venture capital funding. As a result, the individual contribution of each of these companies is often very low and likely to decrease since firms of this type also have a high rate of failure. In Kampala, between 40 and 50 percent of companies identified are low-productivity microbusinesses.

## THE AVERAGE ENTREPRENEURIAL FIRM IN KAMPALA GENERATES FEWER THAN 10 JOBS.

### COMPARATIVE PRODUCTIVITY: KAMPALA VS. OTHER CITIES IN STUDY (APPROXIMATED RESULTS)

	Bangalore	Dhaka	Lagos	Nairobi	Kampala	Dar es Salaam
Total Firms	3,100	900	800	660	<200	<100
Total Jobs	550,000	22,000	9,500	7,400	<2,000	<1,000
Average Jobs per Firm	180	25	12	11	<10	<10
Firms with 100+ Employees	6%	3%	2%	1%	1%	0%

Source: Endeavor Insight.

The software entrepreneurship community in Kampala is less productive than the other cities in this study. This may be due in part to the fact that the sector in Kampala is quite young on average — only about 25 companies identified in this sector were founded over 10 years ago. As a result, the sector has so far produced a smaller number of the firms at the scale needed to drive productivity.

The software entrepreneurship community in Kampala has produced close to 2,000 jobs and has collectively raised a relatively small amount of venture capital funding compared to other tech sectors in this study. To date, there have been no major exits or acquisitions.

At the time the data was collected for this study, there was only one entrepreneurial software firm observed in Kampala that had over 100 employees.

\* More information on the importance of companies that reach scale can be found on pages six to ten of the main report.

## DESPITE HIGH OVERALL CONNECTIVITY WITHIN KAMPALA'S ENTREPRENEURSHIP COMMUNITY, INVESTMENT REMAINS EXTREMELY LOW.

As discussed in the main report, the influence of leaders who have scaled a company is associated with better performance among individual companies and greater productivity among the cities in this study.

The table below illustrates these patterns of influence in Kampala. This influence is made up of connections observed

among founders of entrepreneurial companies as well as investors and leaders of support organizations. The three observed connection types are experience through former employment or serial entrepreneurship, support through mentorship or participation in a program, and investment, whether angel or venture capital.

As the table shows, support is by far the most common type of connection in Kampala's entrepreneurship network, followed by experience, and then investment.

### NETWORK ANALYSIS OF THE ENTREPRENEURIAL TECH SECTOR IN KAMPALA

	Bangalore	Dhaka	Lagos	Nairobi	Kampala	Dar es Salaam
Approximate Number of Observed Connections in Local Entrepreneurship Network per Firm	0.9	0.6	1.0	0.8	<b>1.0</b>	0.6
Percentage of Observed Connections Coming from Leaders of Firms that Reach the Scale of 100+ Employees	41%	11%	15%	6%	<b>&lt;5%</b>	<5%
Approximate Number of Total Observed Connections	2700	510	750	500	<b>200</b>	60
Percentage of Observed Connections by Type:						
Support	18%	26%	34%	39%	<b>55%</b>	57%
Experience	46%	59%	43%	40%	<b>42%</b>	39%
Investment	36%	15%	23%	20%	<b>4%</b>	4%

Note: Percentages listed above may not add up to 100 due to rounding. Source: Endeavor Insight.

## MANY OF KAMPALA'S INFLUENTIAL ENTREPRENEURS ARE FOUNDERS OF THE CITY'S LARGEST FIRMS, A TREND WHICH WILL SUPPORT DYNAMISM AND PRODUCTIVITY.

Unlike in most other cities, connections within the entrepreneurship community occur more frequently via support than experience. Investment is also significantly lower compared to the other cities, comprising less than 5 percent of all connections.

One positive signal is that some of the most influential entrepreneurs in the sector, in terms of the number of connections they have to other founders, are people who have led

companies to scale. Thinvoid, one of the most influential companies, is also one of the largest tech companies in the local community. Thinvoid's founders are serial entrepreneurs and mentors to several companies. They have also received mentorship from the founders of one of the sector's fastest-growing companies. The founders of KOKO Networks, another of the largest software companies in the sector, have also mentored other entrepreneurs, including the founders

of Safeboda, one of the fastest-growing companies among its peers.

It is a very good sign that many of the most influential companies are among the fastest-growing. This indicates that these founders are involved in supporting local entrepreneurs. Still, there is significant room for growth, as many of these successful founders are not involved at all and those who are involved often support two or three companies at most.

## KAMPALA'S SOFTWARE ENTREPRENEURS POINT TO ACCESS TO CAPITAL AS THEIR MOST SIGNIFICANT CHALLENGE.

Software founders were asked whether or not they consider three key elements — access to customers, access to talent, and access to equity financing — as serious or very serious challenges to operating their business. Typically, these challenges are evaluated by analyzing the responses of the founders of the city's fastest-growing firms and all other founders separately, but due to the relatively small size of the sector in Kampala, this

analysis only examines the challenges as reported among all founders.\*

Overall, the rankings for many of these challenges were higher among Kampala's respondents than in the other cities in this study. Access to equity was by far the most significant challenge reported. 77 percent of respondents in Kampala considered it a serious or very serious challenge — higher than responses for any of the other cities.

Access to talent was rated lower than access to equity, but still higher than in any of the other cities, with about 51 percent of all founders ranking it as a serious or very serious obstacle.

Since most founders built their companies in Kampala in response to a specific market gap, it is not surprising that very few founders — roughly 26 percent — considered access to customers a major challenge.

\* The fastest-growing local firms are defined as firms that are larger than 90 percent of peer companies that were founded in the same year, or age-cohort, and operate in the same city and industry. These fastest-growing firms are also referred to as "top-performers" in the main report.



## DECISION MAKERS SUPPORTING KAMPALA'S TECH SECTOR SHOULD TAKE TWO KEY STEPS.

The five components of Entrepreneur-Led Economic Development discussed in the main report are important for making sure the rapid growth of Kampala's tech sector leads to high productivity. Given the current stage and size of the sector, decision makers should prioritize the following two components.

### **Avoid "myths of quantity."**

When an entrepreneurship network like the tech sector in Kampala is at a relatively small size and level of productivity, it can be very tempting to focus on quantity. Many decision makers in this situation assume that increasing the quantity of startups, support organizations, or connectivity will automatically generate a more productive entrepreneurship community.

As the sector in Kampala grows, it is critical for decision makers in Kampala to avoid this trap — especially since the sector already has a high number of support organizations relative to the number of companies. Since there are very currently few companies that have reached scale, increasing the number of support organizations and connections is very likely to elevate the influence of people who have no leadership experience or have only worked at low

productivity microbusinesses. This can lead to two things. It may spread bad practices and knowledge from people without relevant experience, which can then become norms in the community. It can also reduce the relative influence of leaders of scaled entrepreneurial companies who do get involved.

### **Invite leaders of companies at scale to positions of influence at existing support organizations.**

Rather than increasing the number of these organizations and connections, a much more effective approach is for founders at scale to take leadership roles at existing support organizations. This will help direct these organizations to the type of activity associated with growth. Since there is currently a limited number of entrepreneurs and executives with this level of experience in Kampala, decision makers should take a cross-border approach and look to draw in entrepreneurs and executives at scaled companies from the larger East African community in cities like Nairobi, as well as other tech hubs across the world.

Kampala already has a strong advantage here. Many of the support organizations operating in the city are well-connected to international networks and funders,

and should be able to leverage these networks to pull in individuals with experience operating companies at scale who can support local entrepreneurs.

For more information on these recommendations and the analyses in this study, please contact the authors of this report.

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### **SPECIAL THANKS**

The authors would like to thank the following individuals who participated in expert interviews and focus groups in Kampala: Gilbert Arinda, George Bakka, Frank Mukasa, Ham Namakajjo, Edirisa Sembatya, and Richard Zulu.



# LAGOS

## CITY OVERVIEW

**LAGOS'** software entrepreneurship community includes approximately 800 companies working in software development and other related fields.\* Close to 10 percent of these companies work in fintech. Given the massive population and consumer base in Nigeria, it is not surprising that Lagos' largest firms are primarily in the business-to-consumer space. These companies include e-commerce firms like the travel platform Wakanow, as well as platforms for various other services like online media and entertainment.

Lagos also includes a large number of business-to-business custom software development companies. Many of these firms are in fintech, building software platforms for payment processing and other financial services. One notable business-to-business example is Chams PLC, a publicly traded company that develops innovative custom identity management and verification solutions. This includes platforms like pension management, digital identification for citizens, an online voting platform, and business process outsourcing.

Another major local firm is Paga, a mobile payment company that allows its users to digitally send and receive money, in addition to buying or sending airtime credit, making retail purchases, and paying bills. The platform is designed to operate on SMS or online, making it accessible to unbanked users without the additional cost of internet bundles. The company has raised more than US\$30 million in funding and has over 200 employees.<sup>16</sup>

Jobberman is another key example to note. The company operates a job search platform connecting employers and job-seekers, currently hosting over 2 million job applicants and 40,000 employers across Nigeria.<sup>17</sup> Jobberman also offers individual resume and cover letter critiquing services, as well as a career center that provides career advice for both job searches and operating on the job. The company was acquired by Swiss company Ringier Media in 2016.<sup>18</sup>

Data collected for this study suggests that the average tech firm in Lagos has between four and 12 employees and is between three and four years old — larger than the average firm in the other African cities in this study, but roughly the same age. The average founding team is small, typically with one or two founders, who each have about three to four years of previous work experience before starting the company.

Roughly 15 to 20 percent of software companies in Lagos have received some form of angel or venture capital investment. Several local firms have raised total amounts of funding in the US\$10 to 50 million range, but the majority have raised a total of US\$1 million or lower. Some key examples are online media distribution platform iROKO Partners and Paga, who have each raised a total of more than US\$30 million in equity, as well as custom software developer Venture Garden Group, which has raised a total of roughly \$US20 million.<sup>19</sup>

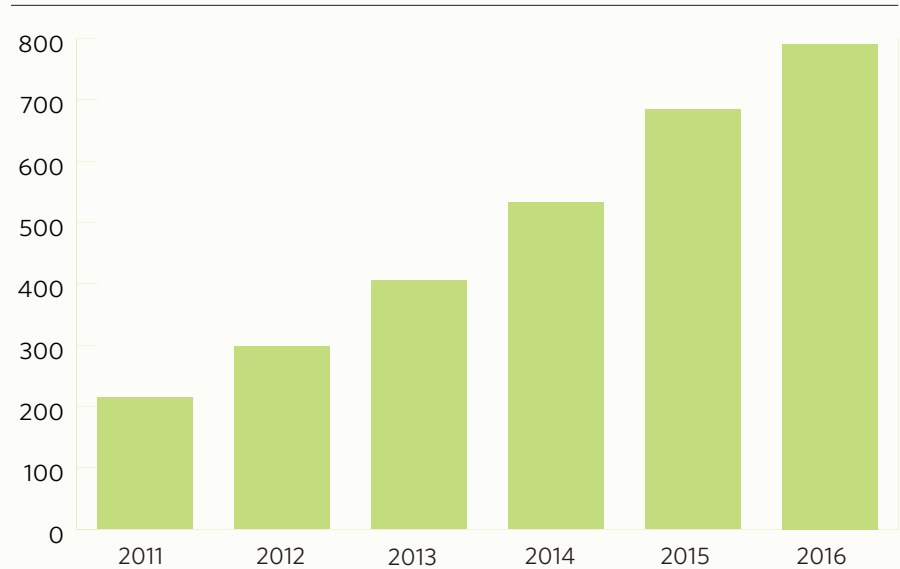
\* Unless otherwise noted, all figures in this document reflect year-end totals for 2016. Endeavor Insight interviewed or surveyed 312 local software entrepreneurs in Lagos in the process of its research. Endeavor Insight defines an entrepreneurship community as the collection of stakeholders whose primary activities involve operating, supporting, or investing in entrepreneurial companies within a single metropolitan area or region, and a single industry or group of highly related industries. For the purposes of this research, "entrepreneurial companies" are defined as businesses that are started by individuals who possess ownership and control of the firm. This excludes businesses that began as either government entities or subsidiaries of larger companies. "Software companies" are defined as firms where the primary business activity is either software development, fintech, or e-commerce. To avoid excess repetition, the terms "software company" and "tech company" are used synonymously in this document.

## THE TECH SECTOR IN LAGOS HAS ADDED A LARGE NUMBER OF FIRMS IN THE LAST DECADE, INCLUDING A NUMBER THAT HAVE REACHED SIGNIFICANT SCALE.

Over 90 percent of companies in Lagos' software sector were founded in the previous ten years, and over 70 percent were founded in the previous five years. Yet in this relatively short period, a number of companies have reached significant levels of scale.\* Over half of Lagos' companies with 100 or more employees were founded in the previous ten years.

This is an indication of the relatively high dynamism of firms at scale in the local software sector. Many tech sectors in comparable cities have seen similar increases in the overall number of software companies, but remain dominated by much older firms in terms of scale and productivity. However, the levels of dynamism among newer firms in Lagos could still increase further given the potential and size of the local entrepreneurship community.

### NUMBER OF ENTREPRENEURIAL TECH COMPANIES IN LAGOS



Source: Endeavor Insight.

## SOFTWARE ENTREPRENEURS DECIDE TO START COMPANIES IN LAGOS PRIMARILY FOR ITS MASSIVE AND UNIQUE MARKET.

Endeavor Insight surveyed and interviewed more than 400 local tech founders and asked them why they chose to start their companies in Lagos. The most common reason was by far that Lagos is the commercial and business hub of Nigeria. As one founder stated, "Lagos is the commercial centre of Nigeria and it's a starting point for any entrepreneur to quickly expose his/her idea to the public."

Many founders also saw the city as a unique testing ground due to the population size. "Lagos has many foreigners and a large population, which makes a great place to test run ideas that you hope will eventually spread globally." Others found it the best location for their target markets, as "there is a large population and a receptive market for a mother-centered business."

### RESPONSES: "WHY DID YOU CHOOSE TO START YOUR BUSINESS IN LAGOS?"

#### Most Commonly Mentioned Words Among Tech Founders Listed from Most to Least Frequent

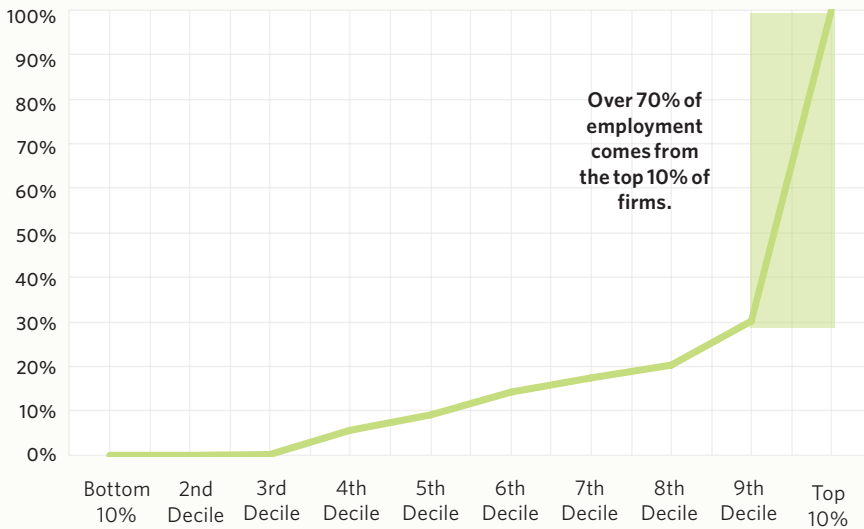
business	companies	access
market	africa	technology
place	opportunities	large
start	commercial	grew
people	city	capital
lived	population	country

Source: Endeavor Insight.

\* More information on the importance of companies that reach scale can be found on pages six to ten of the main report.

## THE TOP 10 PERCENT OF ENTREPRENEURIAL SOFTWARE FIRMS IN LAGOS CREATED OVER 70 PERCENT OF JOBS IN THE LOCAL SOFTWARE SECTOR.

### LAGOS TECH FIRMS: CUMULATIVE EMPLOYMENT SHARE BY DECILE



Source: Endeavor Insight.

The main report illustrated that productivity in entrepreneurship communities is driven by a small number of companies that reach high levels of scale. This is evident in Lagos, where the top 10 percent of employers created roughly 70 percent of the employment in the local software entrepreneurship community.

Data from this study also found that a large percentage of companies in a tech community are low productivity microbusinesses with fewer than three employees and no venture capital funding. In Lagos, these low-productivity firms make up between 40 and 50 percent of companies identified in this research.

## LAGOS' TECH SECTOR DEMONSTRATES RELATIVELY HIGH PRODUCTIVITY, BUT BENCHMARKS FROM CITIES LIKE BANGALORE INDICATE ROOM FOR IMPROVEMENT.

### COMPARATIVE PRODUCTIVITY: LAGOS VS. OTHER CITIES IN STUDY (APPROXIMATED RESULTS)

	Bangalore	Dhaka	Lagos	Nairobi	Kampala	Dar es Salaam
Total Firms	3,100	900	<b>800</b>	660	<200	<100
Total Jobs	550,000	22,000	<b>9,500</b>	7,400	<2,000	<1,000
Average Jobs per Firm	180	25	<b>12</b>	11	<10	<10
Firms with 100+ Employees	<b>6%</b>	<b>3%</b>	<b>2%</b>	<b>1%</b>	<b>1%</b>	<b>0%</b>

Source: Endeavor Insight.

The software entrepreneurship community in Lagos has a greater level of productivity than the other African cities in this study. It has produced close to 9,500 jobs and its firms have raised an amount of venture capital funding that is similar to those in comparable cities like Nairobi.

At the time the data was collected for this study, 18 companies in Lagos had reached the level of 100 or more employees — roughly 2 percent of all companies. This is impressive, but when compared to leading emerging market software communities such as Bangalore, it is clear that tech founders in Lagos can grow to be even more productive.

## LAGOS HAS A DENSELY CONNECTED SOFTWARE ENTREPRENEURSHIP COMMUNITY WITH A RELATIVELY HIGH RATE OF INVESTMENT.

As discussed in the main report, the influence of leaders who have scaled a company is associated with better performance among individual companies and greater productivity among the cities in this study.

The table below illustrates these patterns of influence in Lagos. This influence is made up of connections observed

among founders of entrepreneurial companies as well as investors and leaders of support organizations. The three observed connection types are experience through former employment or serial entrepreneurship, support through mentorship or participation in a program, and investment, whether angel or venture capital.

As the table shows, the software entrepreneurship community in Lagos is highly connected. The average local tech company has more outgoing connections than in any other city in this study except Kampala.

### NETWORK ANALYSIS OF THE ENTREPRENEURIAL TECH SECTOR IN LAGOS

	Bangalore	Dhaka	Lagos	Nairobi	Kampala	Dar es Salaam
Approximate Number of Observed Connections in Local Entrepreneurship Network per Firm	0.9	0.6	<b>1.0</b>	0.8	1.0	0.6
Percentage of Observed Connections Coming from Leaders of Firms that Reach the Scale of 100+ Employees	41%	11%	<b>15%</b>	6%	<5%	<5%
Approximate Number of Total Observed Connections	2700	510	<b>750</b>	500	200	60
<b>Percentage of Observed Connections by Type:</b>						
Support	18%	26%	<b>34%</b>	39%	55%	57%
Experience	46%	59%	<b>43%</b>	40%	42%	39%
Investment	36%	15%	<b>23%</b>	20%	4%	4%

Note: Percentages listed above may not add up to 100 due to rounding. Source: Endeavor Insight.



## LAGOS' MOST SUCCESSFUL FOUNDERS ACCOUNT FOR A COMPARATIVELY HIGH PROPORTION OF LOCAL CONNECTIVITY, BUT THERE IS ROOM FOR MORE GROWTH.

Like most entrepreneurship communities in this study, the most common type of connection in Lagos is experience, followed by support, and then investment. While investment is lowest, it still occurs at a relatively high rate compared to the other cities in this study.

Only about 15 percent of local connectivity comes from the founders of the highest-scaled companies in Lagos. This is high relative to the other cities in this study, but considerably lower than it could be considering that Lagos also has more of these scaled companies. Most of the mentorship from local founders at scaled companies comes

from one or two people, but the rest either mentor one founder at most or are not involved as mentors at all. Only about 10 percent of former employment and serial entrepreneurship comes from these scaled companies. This means that comparatively few founders or employees of Lagos' largest companies are starting new entrepreneurial companies. These founders are more active as investors — roughly 25 percent of investment comes from them.

At the same time, a key advantage of Lagos' tech network is the fact that many of its most influential companies are also its most successful. The founders

of Jobberman, for example, are among the most active mentors and investors in the sector. MTech Communications, a large mobile content aggregator, is also one of the most common former employers of tech founders.

There is a high level of support and connectivity coming from Lagos' most successful founders, but there is a considerable gap between its current level and the level it could reach given the number of these successful founders in the sector.

## FOUNDERS AT THE FASTEST-GROWING FIRMS IN LAGOS FACED GREATER CHALLENGES WITH ACCESS TO EQUITY THAN THOSE IN MOST OTHER CITIES IN THIS STUDY.

Software founders were asked whether or not they consider three key elements — access to customers, access to talent, and access to equity financing — as serious or very serious challenges to operating their business. Access to equity was by far the most critical challenge reported by entrepreneurs at the fastest-growing firms in Lagos — 61 percent of these entrepreneurs considered it as a serious or very serious challenge. This was higher than the ranking in any other city with the exception of Kampala.\*

Access to talent was the second most

reported challenge, with 48 percent of entrepreneurs at the fastest-growing local firms ranking it as such.

Since the massive market in Lagos was a major factor attracting most founders to the city, it is not surprising that access to customers was rated lowest among the three challenges, with only 17 percent of respondents considering it as a challenge. It was also rated lower than in any other the other cities in this study with the exception of Bangalore.

The only major difference between entrepreneurs at the fastest-growing

firms and all other respondents is ranking of access to technical talent and engineers. While respondents overall only rated technical talent as slightly more difficult to find than managerial talent, founders of faster-growing firms rated technical talent nearly twice as high as management, with 41 percent considering technical talent as a challenge compared to 26 percent for management.

\* The fastest-growing local firms are defined as firms that are larger than 90 percent of peer companies that were founded in the same year, or age-cohort, and operate in the same city and industry. These fastest-growing firms are also referred to as "top-performers" in the main report.

## DECISION MAKERS WHO WISH TO FOSTER PRODUCTIVITY WITHIN LAGOS' TECH SECTOR SHOULD FOCUS THEIR EFFORT ON THREE CRITICAL AREAS.

Decision makers in Lagos should work to implement the five actions that make up Entrepreneur-Led Economic Development as outlined in the main report. Three of these actions in particular are critical to Lagos.

### **Listen to leaders of the fastest-growing firms to identify the most critical constraints in the local entrepreneurship community.**

While Lagos has a strong angel investing network, the founders of Lagos' fastest-growing companies rated access to equity as a greater challenge than those in anywhere else in this study with the exception of Kampala. Given the dynamism of the community and the rapid rates of growth among young companies, there are clear opportunities to address this, especially by inviting founders and executives of companies that have reached scale to participate in even greater numbers.

The founders of the fastest-growing companies in Lagos also reported high levels of difficulty with access to talent, especially engineers and technical talent. There are currently very few entrepreneurship support organizations addressing challenges with finding, developing, and retaining talent in the market. The lack of focus on access to technical talent is a recurring problem in many tech sectors, which indicates that this could be an opportunity for Lagos' tech community to take the lead in piloting new models for programs in this area.

Local entrepreneurs at scale suggested a number of ideas for addressing the issue of access to talent during interviews with Endeavor Insight. One such idea was inbound software developer

sabbaticals that bring top programmers from places like Silicon Valley or London to Lagos for two to three months to support multiple local companies and provide instruction at coding meetups in the community. Other ideas include greater support for coding meetups, as well as outbound sabbatical programs to send promising local engineers to other markets in sub-saharan Africa or across the world to deepen their skills. Ideas like these should be piloted in ways that incorporate leadership from founders at companies that have scaled and executives at other fast-growing companies.

### **Invite leaders of companies at scale to positions of influence at existing support organizations.**

Of the cities in this study, Lagos has one of the highest percentages of support organizations run by executives or board members who have led an entrepreneurial company with 100 or more employees. While this is an important strength of the sector, there is room for this trend to become a more established norm.

Most local support organizations in Lagos are still run by people with no entrepreneurial leadership experience. Since there are a number of scaled software companies operating in the city, there is significant potential for their founders and executives to take on new leadership roles within these organizations. Given that Lagos is the business and commercial center of West Africa, there may be unique opportunities to find leaders for entrepreneurship support organizations among founders who have reached scale in adjacent sectors that may be relevant to tech, like transportation or media.

### **Follow local founders who have reached scale.**

Companies in the tech sector may have higher levels of performance in certain sub-sectors, such as fintech or e-commerce. For example, Lagos is the only city in this study where the majority of the largest software companies, i.e. those with 100 or more employees, have a business-to-consumer focus. Decision makers can look to where local founders are reaching scale to identify sectors with the greatest potential. Those that have demonstrated success can be targeted with additional support based on the feedback of founders at fast-growing firms.

For more information on these recommendations and the analyses in this study, please contact the authors of this report.

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### **SPECIAL THANKS**

The authors would like to thank the following individuals who participated in expert interviews and focus groups in Lagos: Helen Anatogu, Neku Atawodi, Tomi Davies, Segun Olukoya, Eloho Oname, and Collins Onuegbu.



# NAIROBI

## CITY OVERVIEW

**NAIROBI'S** software entrepreneurship community includes around 660 companies working in software development and related sectors.\* Approximately one third of these companies are in the fintech industry, the highest percentage among all cities in this study. The majority of Nairobi's largest companies are in the business-to-business space, primarily building customized software platforms. Many of these companies also offer fintech platforms as part of their customized software or services.

Sevenseas Technologies is an example of a large business-to-business company in the local sector. The company was established in 1999 and builds custom software for three key industries: healthcare, homeland security, and social services. Their clients include local and national government, hospitals, private practices, and corporations. To date, Sevenseas has over 100 employees and has raised several million dollars in funding.<sup>20</sup>

Cellulant is a more recent local success story. Established in 2004, the company provides a variety of digital payment platforms mostly for businesses, although some cater directly to consumers. One of their products, Tingga, is a platform that allows consumers, corporations, government entities, and small businesses to exchange card and bank payments, pay bills, save, borrow, and even promote their business. The company has several hundred employees and

has raised a large amount of venture capital funding.<sup>21</sup>

Larger and more experienced firms are outliers in Nairobi's software entrepreneurship community. The average tech firm in Nairobi has between three and 11 employees and is between three and four years old. The average founding team is small with typically one or two founders, who each have about two to three years of previous work experience before starting the company.

Roughly 15 percent of companies in Nairobi have received some form of equity investment. Most of these firms have raised less than US\$10 million. Some of the highest-funded companies include M-KOPA Solar, which has raised more than US\$50 million in equity, and Twiga Foods, which has raised more than US\$10 million.<sup>22</sup> Interestingly, Nairobi also has one of the highest rates of grant-funded companies among the cities in this study. However, while equity investments are associated with much better performance in the city, firms that receive grants do not show significantly better performance when compared to peers.

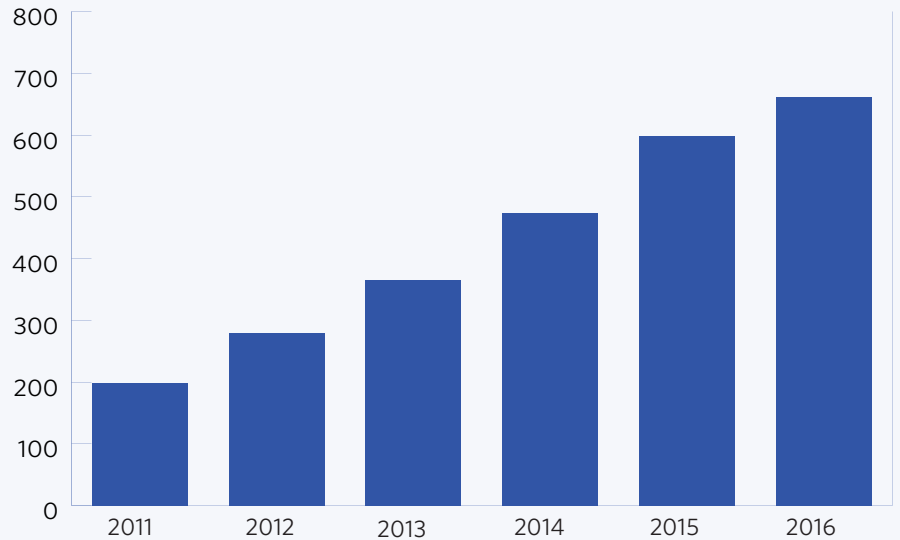
\* Unless otherwise noted, all figures in this document reflect year-end totals for 2016. Endeavor Insight interviewed or surveyed 278 local software entrepreneurs in Nairobi in the process of its research. Endeavor Insight defines an entrepreneurship community as the collection of stakeholders whose primary activities involve operating, supporting, or investing in entrepreneurial companies within a single metropolitan area or region, and a single industry or group of highly related industries. For the purposes of this research, "entrepreneurial companies" are defined as businesses that are started by individuals who possess ownership and control of the firm. This excludes businesses that began as either government entities or subsidiaries of larger companies. "Software companies" are defined as firms where the primary business activity is either software development, fintech, or e-commerce. To avoid excess repetition, the terms "software company" and "tech company" are used synonymously in this document.

## NAIROBI'S SOFTWARE ENTREPRENEURSHIP COMMUNITY HAS ADDED MANY NEW FIRMS IN RECENT YEARS, BUT FEW HAVE GROWN SIGNIFICANTLY.

Over 90 percent of companies in Nairobi's software entrepreneurship community were founded in the previous ten years and around 70 percent were founded in the previous five years.

In terms of scale, dynamism in the sector seems to be quite low. Despite the high levels of growth in the number of companies in the sector, very few of these new companies have reached the high levels of scale needed to drive productivity.\* Of all the software companies with 100 or more employees in Nairobi, only 25 percent were founded in the previous ten years.

### NUMBER OF ENTREPRENEURIAL TECH COMPANIES IN NAIROBI



Source: Endeavor Insight.

## TECH FOUNDERS CHOOSE TO START THEIR COMPANIES IN NAIROBI BECAUSE THEY SEE UNIQUE BUSINESS OPPORTUNITIES IN THE CITY.

Endeavor Insight interviewed local tech founders and asked them why they chose to start their companies in Nairobi. The most common reason cited, aside from founders already living in the area, was that the city held a number of unique opportunities for software companies. Many entrepreneurs mentioned specific business-to-business market gaps created by growth in the software sector. As one founder stated, "There was a great need in the payment ecosystem for integration and aggregation of payment providers."

Some founders also saw Nairobi as a tech hub, describing it as "an urban and vibrant city with ... access to hubs, accelerators, and mentors, as well as easy access to target customers and relevant events to meet customers and network." Others felt that the market was open to innovation: "Nairobi is technology-inclined; people understand how to use technology."

### RESPONSES: "WHY DID YOU CHOOSE TO START YOUR BUSINESS IN NAIROBI?"

#### Most Commonly Mentioned Words Among Tech Founders Listed from Most to Least Frequent

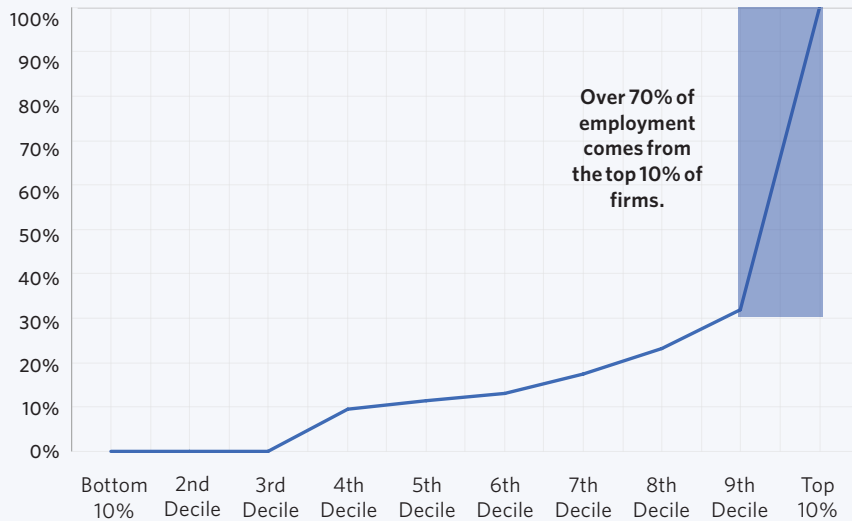
business	city	people
africa	services	access
technology	mobile	good
hub	start	internet
live	east	opportunities
market	place	environment

Source: Endeavor Insight.

\* More information on the importance of companies that reach scale can be found on pages six to ten of the main report.

## THE TOP 10 PERCENT OF ENTREPRENEURIAL SOFTWARE FIRMS IN NAIROBI CREATED OVER 70 PERCENT OF THE JOBS IN THE LOCAL SOFTWARE SECTOR.

### NAIROBI TECH FIRMS: CUMULATIVE EMPLOYMENT SHARE BY DECILE



Source: Endeavor Insight.

As the findings of the main report noted, productivity in entrepreneurship communities is driven by a small number of companies that reach high levels of scale. This can be seen in Nairobi, where entrepreneurial companies in the top 10 percent of employers created approximately 70 percent of the employment in the tech sector.

Data from this study also showed that a large share of companies in an entrepreneurship community are low productivity microbusinesses with fewer than three employees and no venture capital funding. This is also evident in Nairobi, where between 50 and 60 percent of companies identified in this study are low-productivity microbusinesses — a slightly higher percentage than all other cities in this study.

## ONLY 1 PERCENT OF ENTREPRENEURIAL SOFTWARE COMPANIES IN NAIROBI HAVE REACHED THE SCALE OF 100 OR MORE EMPLOYEES.

### COMPARATIVE PRODUCTIVITY: NAIROBI VS. OTHER CITIES IN STUDY (APPROXIMATED RESULTS)

	Bangalore	Dhaka	Lagos	Nairobi	Kampala	Dar es Salaam
Total Firms	3,100	900	800	<b>660</b>	<200	<100
Total Jobs	550,000	22,000	9,500	<b>7,400</b>	<2,000	<1,000
Average Jobs per Firm	180	25	12	<b>11</b>	<10	<10
Firms with 100+ Employees	<b>6%</b>	<b>3%</b>	<b>2%</b>	<b>1%</b>	<b>1%</b>	<b>0%</b>

Source: Endeavor Insight.

The software entrepreneurship community in Nairobi has a moderate level of productivity compared to the other cities in this study. It has produced around 7,400 jobs and has collectively raised an amount of venture capital funding that is similar to that found in comparable communities like Lagos.

There have been a small number of exits among local software firms. The acquisition values that have been disclosed tended to be in a comparatively low range, i.e. less than US\$5 million.

Though Nairobi has generated a large number of tech firms, several significant venture capital investments, and a small number of exits, the community has not produced a great deal of scale. At the time the data was collected for this study, only eight companies in Nairobi had reached the level of 100 or more employees. This is equal to just 1 percent of all local tech companies and places the city on the lower end of the communities in this study.



## NAIROBI'S ENTREPRENEURSHIP NETWORK HAS HIGH LEVELS OF SUPPORT COMING FROM LOCAL INCUBATORS AND ACCELERATORS.

As highlighted in the main report, the influence of leaders who have scaled a company is associated with better performance among individual companies and greater productivity among the cities in this study.

The table below illustrates the patterns of influence in Nairobi and the other communities included in this study. This influence is made up of connections observed among founders of entrepreneurial companies as well

as investors and leaders of support organizations. The three observed connection types are experience through former employment or serial entrepreneurship, support through mentorship or participation in a program, and investment, through angel or venture capital.

When compared to the other larger software entrepreneurship communities in this study, Nairobi stands out due to the high number of support

connections that come from founders participating in local programs, rather than through mentorship from other entrepreneurs. These local programs tend to be incubators and accelerators based in the city.

### NETWORK ANALYSIS OF THE ENTREPRENEURIAL TECH SECTOR IN NAIROBI

	Bangalore	Dhaka	Lagos	Nairobi	Kampala	Dar es Salaam
Approximate Number of Observed Connections in Local Entrepreneurship Network per Firm	0.9	0.6	1.0	<b>0.8</b>	1.0	0.6
Percentage of Observed Connections Coming from Leaders of Firms that Reach the Scale of 100+ Employees	41%	11%	15%	<b>6%</b>	<5%	<5%
Approximate Number of Total Observed Connections	2700	510	750	<b>500</b>	200	60
<b>Percentage of Observed Connections by Type:</b>						
Support	18%	26%	34%	<b>39%</b>	55%	57%
Experience	46%	59%	43%	<b>40%</b>	42%	39%
Investment	36%	15%	23%	<b>20%</b>	4%	4%

Note: Percentages listed above may not add up to 100 due to rounding. Source: Endeavor Insight.

## A VERY SMALL PERCENTAGE OF NAIROBI'S CONNECTIVITY AND SUPPORT COMES FROM ITS MOST SUCCESSFUL FOUNDERS.

Only about 6 percent of local connectivity in Nairobi comes from the founders of companies with 100 or more employees — the lowest rate among all cities in this study, excluding Kampala and Dar es Salaam. While a slightly larger percentage of investment comes from these founders — about 10 percent — virtually none of it is angel investment.

This leads to a very interesting pattern of influence in the sector. Mentorship and support comprise a higher percentage of connections among founders than in most other cities, but the most influential mentors are founders of very small companies, mostly with fewer than ten employees. Similarly, support from local incubators and accelerators is comparatively high, but comes primarily from organizations

run by people with no entrepreneurial leadership experience or experience at a firm that did not reach scale.

There are a few exceptions to this — the entrepreneurs at companies like Cellulant and Seven Seas Technologies are among the most influential local entrepreneurship community members, primarily in terms of former employment. The founders of these companies have supported a number of former employees who became entrepreneurs and acted as mentors for other local founders.

The founders of the most successful companies are not just less influential compared to other more active companies in the sector, they also have low rates of involvement in general.

Most connectivity from founders at scale, particularly mentorship, comes from only one or two founders who each mentor one or two people at most. As a result, there is a considerable gap between the level of connectivity that founders at scale currently provide and the level they could provide given the number of these founders in the sector.

## ACCESS TO EQUITY AND TALENT ARE THE MOST SERIOUS CHALLENGES CITED BY FOUNDERS OF THE FASTEST-GROWING LOCAL FIRMS.

Software founders were asked whether or not they considered three key elements — access to customers, access to talent, and access to equity financing — as serious challenges to operating their business. Access to equity and access to talent were very closely rated among entrepreneurs at the fastest-growing local firms, with 56 percent ranking access to equity as a serious or very serious obstacle and 57 percent of respondents ranking access to talent as such.\*

For all other founders, access to equity was rated much higher, at 69 percent, while access to talent was rated much lower, at 43 percent. It is not uncommon to see this pattern — founders of faster-growing companies are typically more restricted by talent than by capital. However, this difference was more pronounced in Nairobi than in most of the other cities in this study.

The key challenge that founders of fast-growing firms reported within access to

talent was not availability of high quality engineers or technical talent, but high quality managers. Fifty-two percent of these founders considered access to managerial talent as a challenge compared to only 29 percent of all other founders.

Access to customers was the lowest-rated challenge among both groups of founders. Less than a quarter of each group considered it as a serious challenge.

\* The fastest-growing local firms are defined as firms that are larger than 90 percent of peer companies that were founded in the same year, or age-cohort, and operate in the same city and industry. These fastest-growing firms are also referred to as "top-performers" in the main report.

## DECISION MAKERS IN NAIROBI ARE IN A UNIQUE POSITION TO TAKE ACTION TO IMPROVE THE LOCAL TECH SECTOR.

The five recommendations for Entrepreneur-Led Economic Development discussed in main report offer practical actions that can help Nairobi's tech sector to generate higher levels of dynamism and productivity. Given the current status of the sector, decision makers should focus especially on two of these recommendations.

### **Invite leaders of companies at scale to positions of influence at existing support organizations.**

Nairobi has a very large number of incubator and accelerator organizations relative to the size of its entrepreneurship community. Unfortunately, many of these organizations are run by people with no entrepreneurial leadership experience. Therefore, one of the most critical strategies these support organizations can adopt is to bring individuals with experience at scaled companies into leadership roles, either on the board or running the organization on a day-to-day basis.

Nairobi currently has a number of local founders with this type of experience. Many of Nairobi's support organizations are also affiliates of or funded by international organizations, so there is also a clear opportunity for them to find and bring in founders of companies that have scaled abroad by leveraging international networks.

The local incubators and accelerators operating in the city have become important hubs in the local

entrepreneurship network. Research on networks has shown that once an entity becomes a hub, it is very likely to remain one. By strengthening the leadership at local support organizations, decision makers can rapidly transform the patterns of influence in Nairobi's entrepreneurship community.

### **Expand existing mechanisms that leaders of companies at scale use to influence upcoming founders.**

Nairobi has a number of tech companies that have reached scale, but the founders of these companies are not very active in supporting other local entrepreneurs. Many of them do not mentor other founders at all, and those who do have the capacity to mentor additional people.

However, the greatest opportunity to increase their influence is through angel investment. The founders of Nairobi's fastest-growing firms have highlighted access to equity as a major challenge. Moreover, angel investment in Nairobi, both from founders at scale and in general, is very low. In order to boost the levels of angel investment in the sector, the best place to start is with founders who have already reached scale and have the highest levels of experience and resources for making effective investments.

There are a number of successful models for developing effective angel networking groups. Examples can be seen in Silicon Valley, and even closer to Kenya in Lagos. Decision makers

have a unique opportunity to work with local founders of companies at scale to choose the best model for Nairobi and create an effective angel investing network with the leaders of companies that have scaled at its center.

For more information on these recommendations and the analyses in this study, please contact the authors of this report.

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