Digital Entrepreneurship Ecosystem in Pakistan 2017

How Pakistan can build a world-class digital ecosystem
Foreword by Aamir Ibrahim, CEO of Jazz

Pakistan has all the ingredients required to build a globally competitive digital economy. The country has a successful software and Information Technology services industry, a large, young, urban population that is eager to harness and develop digital technologies and services. Pakistan needs to nurture and support aspiring digital entrepreneurs, giving them the expertise and funding to turn ideas into robust businesses that employ people and export products and services around the world. Given the right support, start-ups become a part of a virtuous circle and emerge as entrepreneurs where investors mentor and back their successors, helping to build dynamic digital clusters in which the best concepts, products, and services receive the attention and funding they deserve.

All economies need dynamic digital start-ups. A global wave of innovation is creating both opportunities and challenges for entrepreneurs and established businesses. New technologies such as the Internet of Things, wearable devices, autonomous vehicles, 3-D printing, and 5G mobile networks along with advances in virtual reality, artificial intelligence, and robotics are transforming markets and creating new sectors in both the business-to-consumer and business-to-business spheres. Therefore, agile start-ups tend to be better placed to pursue these opportunities than established businesses, but they still need the support of enterprises, universities, and policy makers. With this in mind, leading digital companies and universities around the world are investing in and partnering with small nimble businesses run by visionary entrepreneurs.

By cultivating its startup ecosystem, Pakistan can start removing the obstacles that make it difficult for entrepreneurs to build businesses that can achieve scale. Also, the country’s numerous small and medium-size enterprises must embrace digital technologies and services to create a vibrant home market for startups while boosting the productivity of the national economy.

To develop a strong digital ecosystem, all the stakeholders need to work on their parts. As most of the population of Pakistan is young and ready to make an impact with their tremendous talents and potential, startup ventures can be a driving factor to make their dream come true.

The white paper on Digital Entrepreneurial Ecosystem in Pakistan provides recommendations to various stakeholders to engage themselves and contribute towards strengthening the digital ecosystem of the country. If every stakeholder works for a common goal, it is not that far that Pakistan will be an example to the world for its fast moving digital economy.
Executive Summary

Pakistan needs a vibrant digital ecosystem to strengthen the economy, boost exports, and help provide jobs for the two million young people who enter the workforce each year. With the potential to build a formidable digital ecosystem, the country is already a major global player in IT services. The low-cost yet highly capable IT outsourcing sector is generating $2 billion per year and has a CAGR of 17 percent\(^1\). But most of Pakistan’s software engineers continue to work for big companies or as freelancers. Fewer than five of about 300 digital start-ups launched in Pakistan each year are sustainable in the medium term. Because the market for digital services is fragmented and immature, most of these sustainable start-ups are in popular consumer segments such as e-commerce and delivery, marketplaces, communications, social media, and content.

Factors behind the development of the digital ecosystem

- **Availability of talented software developers.** Pakistan has 360,000 software developers and 1,280 registered IT companies\(^2\). As the third largest supplier of experts for the leading contractor site freelancer.com, Pakistan is globally recognized for the quality of its software and Web developers.

- **A young urban population with an appetite for digital services.** More than 75 million people in Pakistan live in cities, and 50 percent are under the age of 20, so there is huge latent demand for digital services\(^3\).

- **Rising Internet usage.** Driven by the falling cost of smartphones and the rollout of 3G and 4G mobile networks, the number of Internet users in Pakistan rose to almost 38 million by the end of 2016, which is about 20 percent of the population.

- **An improving regulatory climate.** The government has an action plan to improve the business environment. It is becoming easier to register new businesses, obtain credit from banks, trade across borders, enforce contracts, and resolve insolvency.

- **A growing support network.** In recent years, Pakistan’s universities, city administrations, and the government’s information and communication technology (ICT) fund have expanded the support network for start-ups. Pakistan now has 16 incubators and four accelerators that provide business programs, coaches and mentors, and co-working space.

Challenges for the development of the digital ecosystem

- **Immature digital market.** Only 3 percent of the population—about five million people—regularly shop online. The leading e-commerce companies, and Daraz, make an average of only 3,000 and 1,000 sales per day respectively. The market is held back by a heavy reliance on cash-on-delivery payments and the fact that less than 60 percent of the population over the age of 15 can read and write, reflecting Pakistan’s long-time challenges in education\(^4\).

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\(^1\) Government of Pakistan Ministry of Information Technology and Telecom

\(^2\) International Data Corporation

\(^3\) World Bank

\(^4\) The Central Intelligence Agency World Factbook
• **Very limited venture capital.** Since 2012, there have been only 51 disclosed venture capital investments in Pakistan-based start-ups, worth a total of $125 million.

• **Lack of business and global market knowledge.** Digital entrepreneurs complain that universities do not provide effective business courses or sufficient support for entrepreneurs. They are also calling for accelerators and corporations to provide much-needed marketing and distribution support.

• **Gaps in the regulatory framework.** Although regulations are becoming more robust, start-ups say they still need improvements in several areas: dealing with foreign markets, options to register a private stock company, and fewer obstacles that prevent the development of online payment platforms.

**Recommendations**

Pakistan's digital ecosystem can take an array of steps to support start-ups and entrepreneurial activity. Our research suggests the country should prioritize the following measures:

**Corporations**

• Run accelerators with non-monetary awards, such as marketing and distribution support.

• Develop clear and easy processes for commercial partnerships with start-ups.

**Universities**

• Collaborate more with industry.

• Launch R&D labs for fast-developing digital segments.

**Investors**

• Hire early-stage investment professionals from abroad.

• Establish a network to support start-ups in scaling up to the Middle East, North Africa, and Asia Pacific.

**Entrepreneurs**

• Begin with a focus on growing the customer base rather than generating revenue.

• Consider launching products in a developed market first to help secure seed investments.

**Incubators, accelerators, and foundations**

• Organize training centers for coaches and mentors.

• Collaborate with international accelerators to gain access to global mentors.

**Government**

• Increase spending on education to match that of comparable emerging markets.

• Launch a public fund to support professional venture capital funds registered in Pakistan while making it easier to perform venture capital investment deals.
• Create tax incentives for companies to make greater use of digital technologies.

• Apply standards for the management and operation policies of incubators.

• Introduce a special taxation regime for risk-taking start-ups, such as a two-year tax exemption.

• Enable all types of online payments by adopting the Secured Transaction Bill drafted by the National Bank.

• Initiate smart city programs, big data programs, and accelerators for digital governance services.

• Stimulate mobile broadband expansion by lowering taxes on mobile broadband and smartphones.

**Potential progress between now and 2020**

If stakeholders take the steps outlined above, the digital ecosystem could make a major leap forward. Performance on many metrics could improve dramatically between now and 2020. The domestic e-commerce market, for example, could grow fivefold to be worth $500 million a year, helping the country create more than 10 digital ventures worth more than $100 million each.
1 Introduction

1.1 Why Pakistan needs a vibrant digital entrepreneurial ecosystem

To realize its economic potential and provide employment for the two million young people who enter the job market each year, Pakistan will need to expand its private sector. Private investment today accounts for only 10 percent of the economy compared with an average of 18 percent across emerging markets, according to the International Monetary Fund. A larger and stronger private sector would also help Pakistan export more, which would boost the economy. Today, exports are about 10 percent of GDP—about one quarter of the emerging market average.

A vibrant entrepreneurial ecosystem can help drive the development and growth of a national economy. In the United States, for example, companies originally backed by venture capital now account for 43 percent of public corporations and 57 percent of the total market capitalization of public companies. These companies create jobs that account for 37 percent of the total workforce of public companies, and they pay taxes and make a major contribution to the broader health of the economy. Venture capital is also a powerful engine for growth in some smaller economies, such as Israel and Canada.

A fast-growing digital ecosystem would help diversify Pakistan’s economy. Agriculture accounts for more than one-quarter of output and two-fifths of employment, while textiles and apparel account for most of export earnings.

In addition to boosting the economy by developing jobs and skills, the digital applications that emerge from an innovation ecosystem could help Pakistan address important social and environmental challenges—improving efficiency, reducing waste, and enhancing healthcare, education, and other public services while also serving hard-to-reach segments of the population.

1.2 Objectives and methodology

Designed to help Pakistan build a stronger digital economy, this paper analyzes the country’s digital entrepreneurial ecosystem, pinpointing its strengths and weaknesses before making recommendations for the various stakeholders in the digital ecosystem. Our analysis is based on a framework illustrating the elements of an entrepreneurial digital ecosystem (see figure 1).

This paper presents the findings of research conducted by A.T. Kearney and VEON for Make Your Mark, the international telecom operator’s flagship corporate responsibility program. Through the telecom service provider Jazz, VEON is a major player in Pakistan’s digital economy. A.T. Kearney interviewed market experts, including government representatives, educational institutes, investors, ICT companies, and entrepreneurs as well as senior executives in Jazz, and conducted an online survey of 45 start-ups.

Drawing on the views of these experts along with data from third-party sources such as the World Economic Forum, the International Telecommunication Union, and industry analysts, we offer insights into how Pakistan can expand its nascent digital ecosystem.

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5 “Pakistan and Emerging Markets in the World Economy,” International Monetary Fund, 24 October 2016
6 Stanford Business School
7 The Central Intelligence Agency World Factbook
8 The Make Your Mark program is designed to help young people shape their future by supporting education, inspiring entrepreneurs, and creating digital solutions for society.
2 Pakistan’s Digital Foundation

This section describes the characteristics of Pakistan’s digital ecosystem, highlighting both its strengths and its weaknesses.

2.1 Large base of low-cost IT professionals

A major global player in IT services, Pakistan has 360,000 software developers and 1,280 registered IT companies. Salaries are low compared with other centers of IT excellence (see figure 2). However, the quality of the country’s software and Web developers is globally recognized: the country is the third-largest supplier of experts for the leading contractor site freelancer.com.

Although the domestic ICT services market is small, generating only $500 million in revenue each year, the IT outsourcing sector is growing fast at a CAGR of 17 percent and is worth $2 billion per year, representing 1 percent of total exports. The Pakistan Software Export Board has set a target to reach $5 billion in annual software exports by 2020.

Today, most software developers work for large IT outsourcing companies or as freelancers, with only a small portion willing to launch or join a start-up. This reflects the fact that the stable IT outsourcing sector has generated several successful companies, whereas Pakistan’s digital start-ups tend to be small and low profile.

2.2 Start-ups focus on consumer segments

In Pakistan, about 300 digital start-ups are launched each year (see figure 3). Market experts estimate that about half of these are promising projects, of which about 10 percent secure funding, typically from business angels or friends and family. An additional 3 percent go abroad for funding. Of the 15 or so Pakistan-funded start-ups that remain in the country, up to five prove to be sustainable. Experts say this high attrition rate is because of a shortage of venture funding, a lack of payment and advertising platforms to monetize digital projects, an immature domestic market, difficulties in expanding into other countries, and the need for regulatory improvements.

In Pakistan, most start-ups are launched by people who are over the age of 30 and have a professional background: 80 percent of digital start-up founders have professional work experience, 46 percent have start-up experience, and 85 percent speak fluent English. Although some of these entrepreneurs are young people who have studied or worked abroad and returned to Pakistan to do business, 75 percent of start-ups only target the local market. Market experts say many founders lack business and management skills and an entrepreneurial mindset, while 50 percent of start-ups have only IT engineers in the founding team.

About 50 percent of the start-ups launched in Pakistan since 2013 are in popular consumer segments such as ecommerce and delivery, marketplaces, communications, social media, and content (see figure 4). Many of these companies, which tend to focus on the domestic market, seek to replicate digital business models that have been successful in other parts of the world.

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9 International Data Corporation
10 Government of Pakistan Ministry of Information Technology and Telecom
2.3 Low investment in new businesses

One of the biggest bottlenecks in the entrepreneurial ecosystem is a shortage of venture capital. Pakistan lacks professionals with early-stage investment skills, while the legal framework does not facilitate domestic venture deals. Half of the start-ups we surveyed applied for foreign venture capital (VC) funds. However, to get overseas funding of more than $100,000, start-ups have to register abroad, which encourages entrepreneurs to emigrate. Pakistan’s government has several initiatives to provide small credits to young entrepreneurs and female entrepreneurs, but these programs are not focused on digital innovation.

As a result, most entrepreneurs either invest their own money, borrow from family or friends, or apply to local accelerators or business angels for a small amount, such as $15,000 to $20,000. However, start-up founders say business angels do not generally offer favorable financial terms.

Since 2012, there have been only 51 disclosed venture capital investments in Pakistan-based start-ups, worth a total of $125 million (see figure 5). Of these, 42 were seed deals, 30 exceeded $100,000, and 15 exceeded $1 million. Foreign investors financed most of these larger deals.

2.4 The quantity and quality of start-ups are growing

Despite the lack of funding, an entrepreneurial culture is taking root. The number of start-ups graduating from incubators rose from 40 in 2013 to 95 in 2016 (see figure 6). Market experts acknowledge that the quantity and quality of start-ups are growing each year, forecasting that the number of new start-ups will grow by 40 percent a year to reach 1,000 in 2020 with 45 percent of these based on scalable ideas (up from 25 percent today).
Figure 2
Pakistan ranks high among world leaders for low-cost IT experts

<table>
<thead>
<tr>
<th>Rank</th>
<th>Total number of software developers (thousand)</th>
<th>Number of software developers per 10,000 people</th>
<th>Average annual salary of software developers ($ thousand)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>United States 3,607</td>
<td>112</td>
<td>79.4</td>
</tr>
<tr>
<td>3</td>
<td>India 2,169</td>
<td>17</td>
<td>2.8</td>
</tr>
<tr>
<td>5</td>
<td>Russia 1,055</td>
<td>73</td>
<td>17.0</td>
</tr>
<tr>
<td>12</td>
<td>Pakistan 360</td>
<td>19</td>
<td>6.1</td>
</tr>
<tr>
<td>15</td>
<td>Indonesia 220</td>
<td>9</td>
<td>7.0</td>
</tr>
<tr>
<td>33</td>
<td>Malaysia 49</td>
<td>16</td>
<td>12.9</td>
</tr>
<tr>
<td>49</td>
<td>Bangladesh 45</td>
<td>3</td>
<td>6.6</td>
</tr>
</tbody>
</table>

Note: Rank is equivalent to a specialist with one to three years of professional experience.
Sources: The Tech Salary Guide, International Data Corporation, Tech in Asia, market expert interviews; A.T. Kearney analysis

Figure 3
Few of Pakistan’s digital start-ups survive

<table>
<thead>
<tr>
<th>300 digital start-ups are launched each year</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 are average- or high-quality projects</td>
</tr>
<tr>
<td>150 are low-quality projects</td>
</tr>
<tr>
<td>15 will be selected by local incubators</td>
</tr>
<tr>
<td>95 will be sustained</td>
</tr>
<tr>
<td>15 will receive seed or Round A funding</td>
</tr>
<tr>
<td>1 out of 3 will make it to an incubator</td>
</tr>
<tr>
<td>5 will go abroad</td>
</tr>
<tr>
<td>85 will fail</td>
</tr>
</tbody>
</table>

Note: Start-ups include new projects as well as ones that changed the idea or the name.
Sources: statistics from local incubators, market experts interviews; A.T. Kearney analysis
Figure 4
Most start-ups in Pakistan focus on consumer segments

Digital start-ups launched since 2013

<table>
<thead>
<tr>
<th>Segment</th>
<th>Number of start-ups</th>
<th>% of B2C and B2B2C projects</th>
<th>% of local projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>e-commerce and delivery</td>
<td>45</td>
<td>91%</td>
<td>91%</td>
</tr>
<tr>
<td>e-transportation</td>
<td></td>
<td>82%</td>
<td>100%</td>
</tr>
<tr>
<td>e-health</td>
<td></td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>e-learning</td>
<td></td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>e-finance</td>
<td></td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>e-travel</td>
<td></td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Communication and social platforms</td>
<td></td>
<td>45%</td>
<td>65%</td>
</tr>
<tr>
<td>Content (video, music, games)</td>
<td></td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>SaaS and IaaS</td>
<td></td>
<td>65%</td>
<td>65%</td>
</tr>
<tr>
<td>Other (software related)</td>
<td></td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Payment platforms</td>
<td>1</td>
<td>44%</td>
<td>100%</td>
</tr>
<tr>
<td>Advertising and big data</td>
<td>14</td>
<td>57%</td>
<td>57%</td>
</tr>
<tr>
<td>Marketplaces (many to many)</td>
<td>27</td>
<td>93%</td>
<td>93%</td>
</tr>
<tr>
<td>Smart home</td>
<td>6</td>
<td>83%</td>
<td>83%</td>
</tr>
<tr>
<td>Other smart things</td>
<td>5</td>
<td>80%</td>
<td>80%</td>
</tr>
<tr>
<td>Total</td>
<td>215</td>
<td>79%</td>
<td>79%</td>
</tr>
</tbody>
</table>

Note: Data covers 215 digital start-ups that received institutional investment or participated in the local incubating or accelerating program in 2013–2015 and partially in 2016. B2B is business to business, B2B2C is business to business to consumer. SaaS is software as a service. IaaS is infrastructure as a service. Sources: Crunchbase, portfolio of local incubators, A.T. Kearney analysis.

2.5 The expanding consumer market

Demand for digital services and technologies is growing fast in Pakistan, where the number of Internet users rose to almost 38 million by the end of 2016, which is about 20 percent of the population (see figure 7). Although this lags that of other Asian countries at a similar stage of development, such as India and Indonesia, the 2014 rollout of 3G mobile services is enabling more Pakistanis to get online.

With fixed broadband penetration insignificant in Pakistan, most Internet access is via smartphones. Smartphone penetration is rising rapidly, and the number of smartphones in use is set to climb to 84 million in 2020, up from 18 million at the end of 2015 (see figure 8). The falling cost of entry-level smartphones, which were selling for $50 in 2016, is fueling adoption. In turn, the use of smartphones is fueling the development of a consumer market for digital services. There is strong latent demand for such services among the 75 million people who live in cities and the country’s young people, who represent 50 percent of the population. Some 25 million of the urban population use Facebook, with that figure rising to more than 75 percent in Lahore and Islamabad. Moreover, the average consumer spending of $1,200 per year is growing at a CAGR of 7 percent (see figure 9).

However, less than 60 percent of the population over the age of 15 can read and write, reflecting Pakistan’s long-time challenges in education. Moreover, 37 percent of mobile phone users do not know how to use the Internet. Only 3 percent of the population (about five million people) regularly shop online, and the leading e-commerce companies, and

11 The Central Intelligence Agency World Factbook
12 GSM Association
Daraz, make an average of only 3,000 and 1,000 sales per day respectively. The market is held back by a reliance on cash-on-delivery payments, which account for more than 95 percent of online purchases.

Most segments of Pakistan’s digital economy, with the exception of ICT services, are immature. Although global companies such as Facebook, SoundCloud, WhatsApp, and Viber have a presence in Pakistan, addressing the cultural differences between Pakistan and western markets will require different operating models. (see figure 10). For example, some commentators in Pakistan have expressed concerns that international social networks are being used for blasphemy and hate speech, and there have been calls for some of these services to be banned. The cultural differences between Pakistan and North America—the home of many global Internet services—opens up opportunities for local companies to develop alternative digital services that meet the specific needs of the market.

2.6 The business market: fragmented and immature

Most Pakistan’s businesses are SMEs specializing in agriculture and services such as trading and transport. Some 99 percent of the country’s 2.3 million businesses are SMEs, and 90 percent generate less than $10,000 a year in revenue. They tend to make limited use of technology and are held back by a lack of market information, limited professional skills, and fragmentation. Because most businesses would benefit from digital services, the business-to-business market presents opportunities for start-ups, particularly in retail, banking, public services, and agriculture. For example, digital technologies can be used to remotely control

Note: Investments are only for disclosed deals available at crunchbase and PitchBook.
Sources: crunchbase, PitchBook; A.T. Kearney analysis

For example, see Dawn’s Analysis: Pakistan’s Facebook Dilemma, 3 August 2014.
irrigation systems, monitor property, and check stock levels. Digital platforms can also make it easier for buyers and sellers to find each other. In many countries, adoption of these tools is growing rapidly. For example, online business-to-business marketplaces serving China’s fast-moving consumer goods sector and targeting traditional trade retail stores are set to handle 330 billion yuan ($48 billion) of transactions in 2018, up from 40 billion yuan in 2016.

2.7 Government measures to encourage entrepreneurs

The government is taking steps to address the perception among business people that Pakistan is a difficult market. To improve the environment, the government has an action plan that encompasses initiatives to make it easier for new businesses to register, obtain credit from banks, trade across borders, enforce contracts, and resolve insolvency.

At the same time, the government has created the National ICT R&D Fund to sponsor infrastructure development. For example, the fund is supporting several incubators and major events aimed at start-ups. The government also funds academic R&D and has initiated a program for universities to provide space and establish incubators for young entrepreneurs, while Jazz and the government are establishing an advanced incubation center for digital

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In 2016, the World Economic Forum ranked Pakistan 138 worldwide on its ease-of-doing business index.
Figure 7
Pakistan’s Internet penetration lags other developing countries

Number of Internet users\(^1\)

<table>
<thead>
<tr>
<th>Year</th>
<th>Internet users (million)</th>
<th>Internet penetration (% of population)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>13.6</td>
<td>8%</td>
</tr>
<tr>
<td>2011</td>
<td>15.6</td>
<td>9%</td>
</tr>
<tr>
<td>2012</td>
<td>17.7</td>
<td>10%</td>
</tr>
<tr>
<td>2013</td>
<td>19.8</td>
<td>11%</td>
</tr>
<tr>
<td>2014</td>
<td>25.5</td>
<td>14%</td>
</tr>
<tr>
<td>2015</td>
<td>34.0</td>
<td>18%</td>
</tr>
<tr>
<td>2016(^e)</td>
<td>37.7</td>
<td>20%</td>
</tr>
</tbody>
</table>

\(^1\) Regular users who are accessing the Internet from a school, cybercafe, or work account from individual household or business accounts
Sources: Internet Live Stats, Economist Intelligence Unit, International Telecommunication Union; A.T. Kearney analysis

Figure 8
Smartphone penetration is growing in Pakistan

Smartphone installed base and penetration (million)

<table>
<thead>
<tr>
<th>Year</th>
<th>Smartphone base</th>
<th>Smartphone penetration, % of total connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>3</td>
<td>3%</td>
</tr>
<tr>
<td>2012</td>
<td>7</td>
<td>6%</td>
</tr>
<tr>
<td>2014</td>
<td>14</td>
<td>10%</td>
</tr>
<tr>
<td>2015</td>
<td>18</td>
<td>14%</td>
</tr>
<tr>
<td>2016(^e)</td>
<td>27</td>
<td>19%</td>
</tr>
<tr>
<td>2018(^f)</td>
<td>52</td>
<td>34%</td>
</tr>
<tr>
<td>2020(^f)</td>
<td>84</td>
<td>51%</td>
</tr>
</tbody>
</table>

Note: Data does not include mobile to mobile.
Sources: Ovum, BMI; A.T. Kearney analysis
start-ups. Local governments have also launched initiatives such as the Punjab Information Technology Board, which is leading several innovative projects, including a program to digitalize the school monitoring system.

3 Support for Entrepreneurs

This section describes the infrastructure that Pakistan’s aspiring entrepreneurs can tap into to establish and develop digital businesses. Again, we consider both the strengths and weaknesses of the ecosystem.

3.1 Incubators, accelerators, and networking

In recent years, Pakistan’s universities, local governments, and the National ICT R&D Fund have expanded the support network for start-ups. The country now has 16 incubators that provide business programs, coaches, mentors and co-working space, generally in partnership with the ICT fund. University incubators in particular are known for providing high-quality industry expertise.

While there are now enough incubators, experts and start-ups say some need to improve the quality of their programs and sharpen their focus. The entrepreneurs we interviewed called on incubators to give more operational freedom to start-up founders and to provide more access to international experts. Only 31 percent said incubators specialize in their digital segment.

Local governments and business angels sponsor more than 10 co-working spaces, and universities also provide offices for entrepreneurs. However, only 43 percent of start-ups say it is easy to get access to co-working space.

Four accelerators provide seed funding and advice in exchange for equity. However, effectiveness can be hindered by a lack of exit options, few scalable ideas, and a lack of early-stage investment knowledge and expertise. Rather than focusing on digital segments, accelerators tend to seek out capable, motivated entrepreneurs and focus on helping start-ups get traction in the local market: only 17 percent of start-ups say accelerators help them scale up abroad.

Pakistan’s start-ups also have opportunities to enter competitions, attend conferences, and participate in hackathons, which can support idea generation, networking, and visibility for companies and provide financial prizes. The StartUp Cup, the biggest nationwide championship, received more than 400 applications in 2015.

3.2 University and industry collaboration

Partnerships between universities and industry help businesses innovate, adapt to change, and become more globally competitive in addition to helping universities fund more research and commercialize innovations. In fact, there is a strong correlation between the degree of collaboration between academia and enterprises and a country’s overall competitiveness (see figure 11).

Although Pakistan has improved markedly since 2010, the country is well behind Malaysia, Indonesia, and India in terms of innovation and patent applications, according to the World Economic Forum. The country is held back by relatively weak protection of intellectual property rights, a low level of university–industry collaboration, and an academic approach to R&D that is not geared toward commercialization and therefore fails to attract funding.
**Figure 9**

**Pakistan’s consumer market is expanding**

<table>
<thead>
<tr>
<th>Year</th>
<th>Consumer spending per capita ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>803</td>
</tr>
<tr>
<td>2011</td>
<td>988</td>
</tr>
<tr>
<td>2012</td>
<td>998</td>
</tr>
<tr>
<td>2013</td>
<td>1,096</td>
</tr>
<tr>
<td>2014</td>
<td>1,145</td>
</tr>
<tr>
<td>2015</td>
<td>1,205</td>
</tr>
<tr>
<td>2016</td>
<td></td>
</tr>
</tbody>
</table>

Note: Cities include the Islamabad capital area, Lahore, Faisalabad, Rawalpindi, Multan, Hyderabad, Gujranwala, and Peshawar.
Sources: WorldBank, World Population Review, Retail Planet, A.T. Kearney analysis

**Figure 10**

**Pakistan’s digital market is immature**

<table>
<thead>
<tr>
<th>Digital segment</th>
<th>Maturity</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft ICT services</td>
<td>Maturing</td>
<td>The most mature ICT segment with huge IT outsourcing market</td>
<td>Kaymu, Daraz.pk</td>
</tr>
<tr>
<td>Internet Services</td>
<td>Nonexistent</td>
<td>The biggest online business, high fragmentation, cash on delivery in 95%</td>
<td>ShashiSawari, Rixi</td>
</tr>
<tr>
<td></td>
<td>Maturing</td>
<td>E-parking, rickshaw ordering, e-taxis, and other services for private transport</td>
<td>DoctHers, Healthwire</td>
</tr>
<tr>
<td></td>
<td>Maturing</td>
<td>Early-stage companies, distribution of healthcare services via mobile in focus</td>
<td>Interactive Solutions</td>
</tr>
<tr>
<td></td>
<td>Maturing</td>
<td>Early-stage companies focusing on primary and secondary education</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maturing</td>
<td>Low penetration of banking accounts, high potential of mobile financial services</td>
<td>Jazz Cash, Easypaisa</td>
</tr>
<tr>
<td></td>
<td>Maturing</td>
<td>Low level of development</td>
<td>Chutti.pk</td>
</tr>
<tr>
<td></td>
<td>Maturing</td>
<td>Very popular segment in several industries (property, cars, education, jobs)</td>
<td>Educational, Zameen.com</td>
</tr>
<tr>
<td></td>
<td>Maturing</td>
<td>Popular international platforms and several local platforms</td>
<td>Facebook, Whatsapp, Viber</td>
</tr>
<tr>
<td></td>
<td>Maturing</td>
<td>Fast-developing segment with focus on global markets</td>
<td>Wonderful, Soundcloud</td>
</tr>
<tr>
<td>Transaction platforms</td>
<td>Nonexistent</td>
<td>High need but several legal barriers, PayPal not present</td>
<td>Easypaisa</td>
</tr>
<tr>
<td></td>
<td>Maturing</td>
<td>Emerging segment with a few local companies</td>
<td>Interacta</td>
</tr>
<tr>
<td></td>
<td>Maturing</td>
<td>Very popular segment in all industries (education, jobs, cars, commerce)</td>
<td>Rozee.pk, OLX</td>
</tr>
<tr>
<td>Internet of Things</td>
<td>Emerging</td>
<td>Emerging segment, technical capabilities (robotics programs, mechanical engineering in universities)</td>
<td>E4 Technologies</td>
</tr>
<tr>
<td></td>
<td>Maturing</td>
<td></td>
<td>Crickix</td>
</tr>
</tbody>
</table>

Note: ICT is information and communication technology.
Sources: market experts interviews, A.T. Kearney analysis
Digital Entrepreneurship in Pakistan

**Figure 11**
Countries thrive when industries and universities work together

**University–industry collaboration in R&D**

Sources: World Economic Forum Global Competitiveness Index, A.T. Kearney analysis

**Figure 12**
Entrepreneurs have qualms about higher education in Pakistan

| Most universities provide high-quality management and marketing programs | 21% | 7% | 43% | 29% |
| Most universities support the spirit of collaboration and entrepreneurship | 7% | 7% | 21% | 50% | 14% |
| Most universities provide the opportunity to get experience abroad | 7% | 36% | 36% | 21% |
| Most universities cooperate closely with businesses | 36% | 21% | 14% | 29% |
| Most universities equip students to work as competent engineers or IT specialists | 21% | 43% | 14% | 21% |
| Most universities provide efficient English language courses | 14% | 29% | 21% | 21% | 14% |

Note: Sample size is 45 start-ups in different digital segments that participated in the local incubators and accelerators. Source: A.T. Kearney analysis
Digital Entrepreneurship in Pakistan

3.3 Start-ups prioritize distribution and marketing support

Most local start-ups agree that Pakistan’s higher education sector needs to become more collaborative (see figure 12). In fact, a lack of business acumen could be holding back first-time entrepreneurs, who complain that universities do not provide effective business courses or sufficient support for entrepreneurship. Perhaps the most glaring gap is technical faculties’ failure to include marketing and business courses in their programs. Still, some issues may be partly addressed by a recent government initiative requiring all universities to provide co-working spaces or incubators.

Universities may also need to update their technical courses. Although about 150 universities in Pakistan have IT faculties, fewer than 10 have a tech or engineering specialization. Many start-ups have concerns about university courses in engineering, IT education, and the English language.

3.3 Start-ups prioritize distribution and marketing support

Asked what support they need to expand their businesses, entrepreneurs prioritized help with distribution and marketing, reflecting the fact that most of Pakistan’s start-ups are consumer and e-commerce related (see figure 13). Most struggle to build a customer or user base larger than 300,000 as additional growth requires considerable resources and partnerships.

Start-ups also highlight a need for legal and tax advice to cope with the country’s bureaucracy and compensate for the lack of guidance from public agencies. Moreover, founders would welcome more feedback from investors and experts who can offer advice on specific market segments.
4 Charting a Way Forward

In summary, Pakistan’s support ecosystem for digital entrepreneurs still needs to mature. Founders say limited access to investors, limited cooperation with corporations, and an inefficient regulatory framework are their biggest barriers (see figure 14). They also believe the regulatory framework falls short in several areas: dealing with foreign markets, limited options to register a company as a private stock company, and support for online payment platforms. PayPal, for example, is not present because of legal issues.

At the same time, entrepreneurs believe corporations are too conservative in establishing the commercial partnerships start-ups need to build connections in the marketplace. Moreover, start-ups highlight difficulties in scaling abroad as a result of a limited network of foreign partners and connections.

4.1 Building a self-sustaining digital ecosystem

If development proceeds at its current pace, the digital entrepreneurial ecosystem is likely to become self-sustainable by 2025. Several factors will support this baseline scenario: a global trend toward digital entrepreneurship, demand for digital technologies to improve basic services such as healthcare in remote areas, availability of low-cost smartphones, and a support network for entrepreneurs in the biggest cities.

Pakistan will benefit from broader adoption of digital technologies, but the country would continue to lag regional peers. However, Pakistan could build a self-sustaining digital entrepreneurial ecosystem by 2020 if the government develops and implements a digital strategy focused on innovation, infrastructure development, entrepreneurship, and international collaboration. This strategy, along with legal measures to make it easier to trade capital stock domestically and invest in foreign companies, could lead to the launch of 10 local VC funds. Under this accelerated scenario, access to investment will enable digital start-ups to grow faster and become self-sustaining. Entrepreneurs will be able to focus on execution and results rather than on finding money to survive. In some cases, access to seed capital could enable a start-up to provide free services that will increase the digital and general literacy of Pakistan’s citizens while gaining market traction.

Countries typically take five to 10 years to build a self-sustaining entrepreneurial ecosystem from scratch (see figure 15). Having taken its first steps in this direction in 2012, Pakistan could create a sustainable ecosystem by 2020 if it continues to put the necessary elements in place.

In many respects, Pakistan is well-equipped to make this journey. With a large, youthful population and considerable IT expertise, the country has the human resources to build a vibrant digital start-up ecosystem on a par with the world’s leading economies. However, international benchmarks suggest the country needs to invest more in education. The International Monetary Fund notes Pakistan’s public investment in education—2.5 percent of GDP—is well behind the emerging market average of 4 percent.

4.2 Recommendations for stakeholders

Below, we outline the steps each group of stakeholders can take to support the development of Pakistan’s digital entrepreneurial ecosystem (in order of priority).
Digital Entrepreneurship in Pakistan

Figure 14
Access to funding is a top concern for Pakistan start-ups

<table>
<thead>
<tr>
<th>To what extent are the following factors significant problems for start-up success in Pakistan?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited access to investors and funding</td>
</tr>
<tr>
<td>Inefficient regulatory framework</td>
</tr>
<tr>
<td>Limited access to corporate business</td>
</tr>
<tr>
<td>Limited availability and quality of IT specialists</td>
</tr>
<tr>
<td>Limited availability of digital information</td>
</tr>
<tr>
<td>Undeveloped fixed broadband infrastructure</td>
</tr>
<tr>
<td>Limited availability of supporting networks</td>
</tr>
<tr>
<td>Undeveloped mobile infrastructure</td>
</tr>
</tbody>
</table>

Note: Sample size is 45 start-ups in various digital segments that participated in local incubators and accelerators.
Source: A.T. Kearney analysis

Figure 15
A self-sustaining entrepreneurial ecosystem can take countries up to a decade to build

Evolution of a start-up

Seed 5-10 years Independence 5-10 years Expansion

- First few start-ups emerge in a concentrated area, usually e-commerce
- First success stories appear (initial public offerings and huge exits); talent and investors migrate
- The ecosystem becomes self-sustaining; major elements are developed
- Local and global consolidation occurs for talent and capital; M&A deals occur in digital areas
- Global integration occurs, and growth continues
- Brain drain begins with no renewal

- Kenya
- Algeria
- Bangladesh
- Thailand
- Philippines
- Russia
- Italy
- India
- Indonesia
- Malaysia
- Brazil
- China
- India
- Australia
- Spain
- Germany
- United Kingdom
- France
- Singapore
- California
- Israel

Pakistan 2016 Pakistan 2020

Sources: “Enabling Entrepreneurs in a Mobile World,” Veon author, 2014; A.T. Kearney analysis
Corporations
- Establish accelerators that give start-ups non-monetary awards, such as marketing and distribution support.
- Develop easy and clear processes for commercial partnerships with start-ups.
- Participate in ecosystem events, such as conferences and networking forums, targeted at start-ups.
- Provide entrepreneurs with mentors and coaches.
- Create access to application programming interfaces and digital tool kits to help start-ups develop products and services.
- Acquire the most relevant and complementary start-ups to provide more exit opportunities for venture capital funds.

Universities
- Collaborate with industry through mechanisms such as internships and joint R&D centers.
- Launch R&D labs focused on fast-developing segments of the digital market, including the Internet of Things, virtual reality, augmented reality, big data, and artificial intelligence.
- Integrate management courses into the curriculum of tech faculties, and educate lecturers to teach these courses.

Investors
- Hire more experienced venture investment professionals from abroad.
- Establish a network of partners to support start-ups looking to expand internationally in the Middle East, North Africa, and Asia Pacific.
- Provide hands-on support for investees.
- Strengthen the network of business angels, for example, by sharing knowledge in digital start-up evaluation models and tools.
- Launch specialist venture funds to finance deals of more than $100,000.

Entrepreneurs
- Attract the attention of international venture capitalists by disrupting the local market, with an initial emphasis on expanding the customer base rather than generating revenue.
- Launch a product or service in a developed market to help secure seed investments from investors in that market.
- Build closer ties with established IT outsourcing companies that have international connections and distribution channels.

Incubators, accelerators, and foundations
- Organize training centers for coaches and mentors.
- Collaborate with international accelerators to give Pakistan’s start-ups access to global mentors.
Pakistan's government could raise the standards for incubators

Each incubator should establish an advisory board comprised of more than 50 percent global experts and industry representatives to ensure independent and professional start-ups selection.

Incubator should adopt a tenant performance review policy: if a start-up doesn't deliver results, it should be dismissed.

Entry and exit policies should be elaborated, for example with intellectual property rights and legal support for success fees.

Incubators should specialize in particular segments (max of 10) to provide tailored expert support to its tenants.

Incubators should provide a program curriculum, coaching program, and mentorship guidance; otherwise, it should be registered as a co-working place.

Duration of the incubation program should be defined based on the start-up's nature (innovative digital solutions require more time) with a minimum six months' requirement.

Incubators can provide other value added services such as tax and legal support and access to global partners and investors.

Incubators should support the start-ups after graduation to ensure sustainability of the new ventures, for example connecting with partners and offering support in finding investors.

Source: A.T. Kearney analysis

Pakistan's digital ecosystem could improve dramatically

Ecosystem targets

Market for information and communication technology and e-commerce in 2020
- 100 million mobile broadband users (x3)
- $500 million e-commerce market (x5)
- $5000 million IT outsourcing services abroad (x2.5)

Venture capital market in 2017-2020
- More than $500 million funding in the domestic market
- More than 400 graduates from incubators
- More than 10 exits, including initial public offerings
- More than 10 new digital ventures with evaluation of more than $100 million each

High-quality leadership in 2020
- More than 50 certified venture capital investment analysts
- More than 100 certified management coaches
- More than 100 active global mentors in the ecosystem
- R&D labs with a focus on new technologies such as the Internet of Things, virtual reality, artificial intelligence, big data, and 3-D printing

Indexes value: scale of 1 to 7 with 7 as top performance

Rank of the country out of 144 countries

Digital Entrepreneurship in Pakistan

1 The target for 2020 is the value of the respective index for Indonesia 2015-16.

2 The target for 2020 is the value of the respective index for the Middle East and North Africa in 2015-16.

Sources: World Economic Forum Global Competitiveness Index 2015-2016, A.T. Kearney analysis
• Organize networking events with industry experts and investors.
• Organize hackathons in specific digital segments to stimulate ideas.
• Provide legal and tax support to start-ups.

4.3 Government

Pakistan could benefit from simplifying and streamlining its regulatory framework. International Monetary Fund studies show that improving the business environment to the average of the Middle East and North Africa could increase growth by 1.5 percentage points per year. To that end, the government could take the following steps:

• Reduce bureaucracy, and improve the ease of doing business, for example, by introducing a corporate law to enable establishment of private stock companies.
• Strengthen intellectual property rights to keep tech companies in the country while establishing technology transfer offices at research centers.
• Introduce a special taxation regime for risk-taking start-ups, such as a two-year tax exemption.
• Enable all types of online payments by adopting the Secured Transaction Bill drafted by the National Bank.

Pakistan’s government has kick-started the digital start-up ecosystem by mandating that universities establish incubators and provide co-working space to entrepreneurs. It can build on these foundations in the following ways:

• Apply standards for the management and operation policies of incubators, along with the variety of services they offer to digital start-ups (see figure 16).
• Drive demand for innovations, for example, by initiating smart city programs, big data programs, and accelerators for digital governance services.
• Invest in supporting infrastructure such as incubators and innovation centers, but with a focus on specific digital segments.
• Develop data centers that can enable cloud-computing services.

The chronic lack of venture capital is a major bottleneck for the country’s digital ecosystem. To alleviate this problem, the government could take the following steps:

• Launch a public fund to provide low-cost financial resources for professional venture capital funds registered in Pakistan.
• Make legislative changes to make it easier to perform early-stage investment deals. Local investors have already developed a tool kit the government could use for this purpose.

Many developed countries use incentives to encourage consumers and businesses to adopt digital technologies, boosting the accessible market for start-ups digital products and services. In this respect, the government could take the following steps:

• Stimulate mobile broadband expansion by lowering taxes on mobile broadband and smartphones.
• Stimulate the business-to-business market with tax incentives that encourage companies to use digital technologies.
• Develop a procurement framework for government ICT projects that gives local entrepreneurs opportunities to collaborate with large ICT corporations.

• Promote secure electronic payments, for example, by encouraging the use of mobile financial services.

### 4.4 Learning from international examples

Pakistan can learn from other countries that are farther along the road to building a self-sustaining digital ecosystem. For example, Russia’s experience suggests Pakistan could address the shortage of VC funding by reducing the restrictions on seed investments both domestically and internationally. After Russia’s first digital success stories (the initial public offering of mail.ru and Yandex in 2010), more than 200 VC funds were established in the country, half of them focused on digital start-ups. These VC funds balance their portfolios and risks by investing in both international and Russian start-ups, which is legally allowed. Moreover, the management boards of Russian VC funds typically include experienced foreign investment professionals.

Moreover, developing countries such as Pakistan that have seen innovators emigrate because of weak intellectual property rights have managed to address this challenge. In this case, the remedy generally involves adopting a national strategy for patents, creating technology transfer offices at research centers, and enforcing intellectual property rights.

Pakistan could also learn from the way China improved the quality of its business incubators with rigorous standards for management and operational policies and the services offered to start-ups. Between 2005 and 2008, the number of technology business incubators in China increased from 534 to 670, while the number of tenants graduating from these incubators doubled from 15,815 to 31,746. To help these start-ups, China also emphasized attracting foreign investors and VC professionals and supporting R&D exchange between foreign and local actors.

On the demand side, Kenya offers a case study in how Pakistan could reduce the cost of mobile phones and digital services. Recognizing that mobile handset prices are a barrier to the development of the mobile sector, the Kenyan government exempted handsets from the value-added tax as of June 2009. Mobile penetration grew from 49 percent that year to 70 percent by the second quarter of 2011.

### 4.5 Potential progress between 2017 and 2020

These moves will accelerate the development of a sustainable digital entrepreneurial ecosystem. In fact, Pakistan’s performance on a number of metrics could improve dramatically between now and 2020 (see figure 17). The domestic e-commerce market, for example, could grow fivefold to be worth $500 million a year, helping the country create more than 10 digital ventures worth more than $100 million each. Moreover, Pakistan could become far more competitive on the global stage, particularly in terms of its capacity to innovate and financially back its innovations.
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About A.T. Kearney

A.T. Kearney is a leading global management consulting firm with offices in more than 40 countries. Since 1926, we have been trusted advisors to the world’s foremost organizations. A.T. Kearney is a partner-owned firm, committed to helping clients achieve immediate impact and growing advantage on their most mission-critical issues. For more information, visit www.atkearney.com.

About VEON

VEON has undergone a profound transformation since the new leadership team initiated the transformation of the company from a pure telecoms operator into a world class telecommunications and digital service provider. In February 2017, the company rebranded as VEON. This and the secondary listing in Amsterdam in April 2017 mark the latest steps in this strategy. VEON is both the new name of the company and of our new personal digital platform, which we intend to deploy across all our markets in the coming year. With an increased free float of 24.1% and shares listed and traded on NASDAQ and Euronext Amsterdam, VEON serves over 240 million customers across 13 markets.

The core communications and connectivity services we provide are recognized as key drivers of social and economic development. With the acceleration in our digital strategy alongside the core business, we intend to develop innovative disruptive technologies to deliver new services and to drive growth. We remain firmly committed to the well-being of the communities we serve. VEON can transform lives with the new innovative digital services and we hope to continue delivering positive, lasting and sustainable impact in our markets.

About Jazz

Jazz is Pakistan’s leading telecom service provider, spearheading service excellence and product innovation in the country. With a subscriber base of more than 50 million and a legacy of more than 20 years, Jazz maintains market leadership through cutting-edge, integrated technology, the strongest brands, and the largest portfolio of value-added services in the industry.

Housing a nationwide network of contact centers and an unparalleled fiber optic backbone of more than 10,000 kilometers, Jazz has invested billions of dollars in the country to provide uninterrupted countrywide connectivity, unmatched customer services, and international roaming in more than 150 countries.

As a responsible entity, the company passionately supports education, health, and environmental initiatives and promotes sustainable business practices.

Jazz offers exclusive and personalized tariff plans that empower customers and cater to the communication needs of a diverse group of people, from individuals to businessmen to corporations and multinationals.

Through its innovative services and products, Jazz is set to bring about a digital revolution that will enable and transform societies toward a more progressive Pakistan.

About Make Your Mark

Make Your Mark is a groupwide program launched by VEON in 2014 focused on helping young people shape their future. Make Your Mark enables VEON to make a significant positive impact on society by involving all of the group’s businesses in contributing initiatives and projects under a common theme. It incorporates ongoing projects and is creating many more. The aim is to help the next generation find solutions to the challenges the future will bring, such as climate change, resource scarcity, rising population, and the pressure this will generate on access to the fundamentals of society, including healthcare, education, employment, and food. The goal of Make Your Mark is to empower young people to make a positive difference through inspiring social entrepreneurship, particularly in the digital arena, and improving access to education.