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Entrepreneurship and Innovation in the Digital Economy

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Abstract

It is believed that Pakistan's digital economy will follow a similar growth trajectory to India, but with a lag of about five to six years. This implies that the digital economy in Pakistan carries immense potential and is likely to see very rapid growth in the next five years or so. This paper provides an overview of Pakistan's digital economy in terms of international players, successful local businesses and rising stars in different segments of the industry. We also evaluate the role played by incubation centers. The industry's emerging financial landscape appears to be attracting international venture capital firms, which is surprising, given the country risk and monitoring and control issues that are usually seen as binding constraints to investment. However, these investors use models tested in Silicon Valley and in countries such as India to estimate the potential for increase in the capital valuation of digital businesses in Pakistan. This development has also started to attract local investors. As a result, we are seeing the emergence of a venture capital industry in Pakistan. Finally, we examine the policy environment in the country and find that the existing tax policies, which were designed for traditional businesses, could be a major obstacle to the growth of the digital economy. We conclude by recommending that the government review its tax policy in view of the different nature of digital businesses and adapt it accordingly.

Keywords: Entrepreneurship, innovation, economy, Pakistan.

JEL classification: L26.

1. Introduction

The digital economy has grown rapidly since the 1990s and, today, is a dominant force in the world economy. According to the European Commission (n.d.), "the digital economy now contributes up to eight percent of the GDP of G-20 major economies [and is] the single most important driver of innovation, competitiveness and growth." In a recent report, McKinsey

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estimates that, in 2015, the value of world trade in digital services surpassed that of goods (Manyika et al., 2016). This dominance is also evident from the fact that, in 2016, five of the ten largest companies in the world by market capitalization were technology companies: Apple, Alphabet, Microsoft, Facebook and Amazon (PricewaterhouseCoopers, 2016).

India's higher economic growth since the 1990s owes a great deal to the rapid expansion of information technology (IT) and IT-enabled service exports (which, in 2015, exceeded $80 billion) and more recently to the rapid growth of digital businesses catering to the domestic economy in areas such as e-commerce, on-demand services, finance and media. IT companies such as Tata Consultancy Services and Infosys are among the top five companies by market valuation in India.

In most developing countries, the vast majority of first-time Internet users go online using their mobile phones rather than computers. Digital businesses catering to the domestic market in India, therefore, took off only with the availability of fast mobile Internet services, following the launch of 3G/4G services in 2009. Since then, its digital economy has expanded rapidly. A number of companies, such as Flipkart, Snapdeal, Shopclues (e-commerce marketplaces), Olacabs (on-demand transportation), Paytm (fintech), Hike and Zomato (social), are now counted as global "unicorns" – private companies with a market valuation of over $1 billion (CB Insights, n.d.).

Pakistan has a number of well-established IT companies such as Systems Ltd and NetSol, but digital business startups catering to the domestic market are a more recent phenomenon. The growth of digital businesses and new startups has accelerated since the launch of 3G/4G services in Pakistan in mid-2014. The Fletcher School at Tufts has developed a digital evolution index (DEI) that analyses the key underlying drivers and barriers governing a country's evolution into a digital economy. Its report states that "each emerging e-commerce market will chart its own path … but neighborhoods matter … [that is] countries in close geographic proximity seem to display similar trajectories" (Chakravorti, Tunnard & Chaturvedi, 2014).

Thus, in a sense, Pakistan could be about five years behind India in this area. In 2013, a year before 3G/4G services were launched, Pakistan was not among the top 50 countries based on its DEI, while India was ranked at 42, having shown among the highest rates of improvement in its DEI in the period 2008–13. One can expect a similar improvement in Pakistan's DEI score by 2018.

In this paper, we look at digital businesses and startups in Pakistan in terms of the entrepreneurial environment, the growth trajectories of selected successful businesses and startups and the constraints to growth in this sector.[1] The aim of the paper is threefold. First, we show that the digital economy is expanding rapidly in Pakistan and that emerging companies could be a major source of investment and growth over the next decade. Second, highlighting the immense potential of the digital economy and identifying the constraints to its growth may persuade policymakers and other stakeholders to take measures to mitigate these constraints. Third, since the process from startup to established company in the technology sector is very rapid,[2] this allows us to clearly gauge which factors either hinder or promote entrepreneurship in Pakistan. This could provide useful insights for developing policies to promote entrepreneurship in the rest of the economy as well.

The rest of the paper is organized as follows. Section 2 examines the potential of the digital economy in Pakistan, assuming that it will follow a trajectory similar to that of India. Sections 3 and 4 provide an overview of emerging players and segments of the digital economy. This is followed by a more detailed look in Section 5 at some of the success stories in the industry. Section 6 describes the role of incubation centers and co-working spaces in promoting digital startups. Sections 7 and 8 look at the emerging financial landscape induced by the financing needs of new digital businesses and the associated potential for capital gains. Section 8 examines policy issues, particularly those that might retard the growth of the digital economy, and Section 9 concludes the paper.

2. The Potential of the Digital Economy

The digital economy is sometimes called the new economy or the Internet economy, but a more concrete definition is provided by a US Department of Commerce report, *The Emerging Digital Economy*, which "characterizes a digital economy [as] based on industries and forms of IT-enabled business activity …. These [activities] include the IT industry itself, electronic commerce among businesses, the digital delivery of goods and

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[1] We have interviewed a number of people involved with the digital economy in various capacities (see Appendix).

[2] Entrepreneurs go from an idea to a company with a capital valuation of over Rs1 billion in only a few years.

services and the IT-supported retail sales of tangible goods and services" (cited in Kling & Lamb, 2000, p. 296).

In Pakistan, the third segment is already fairly well developed, with activities ranging from provision of software and business services to international and local businesses by firms such as Systems and NetSol to gaming studios, mobile app developers and freelancers.[3] However, in this paper, the term 'digital economy' refers only to the fourth segment: the IT-supported sale of goods and services to consumers.

The potential of the digital economy in Pakistan is tremendous, given the country's large consumer base. Its population is over 190 million, of whom more than 50 percent are in the 10–40-year age group (Pakistan, Ministry of Finance, 2014), that is, people who are mostly literate and comfortable using digital technology. Moreover, Pakistan is probably one of the most urbanized countries in South Asia. A recent World Bank report on urbanization in South Asia points out that,

> According to the agglomeration index, an alternative measure of urban concentration, the share of Pakistan's population living in areas with urban characteristics in 2010 was 55.8 percent. This compares to an urban share of the population based on official definitions of urban areas of just less than 36 percent, suggesting the existence of considerable hidden urbanization (Ellis & Roberts, 2015).

Thus, a large proportion of the population has exposure to a wide range of consumer goods and advertising and is within easy reach of private delivery services. Finally, there is also considerable spending power: Credit Suisse's Global Wealth Report for 2015 notes that Pakistan's middle class consists of 6.27 million people,[4] making it the 18th largest middle class worldwide (Shorrocks, Davies & Lluberas, 2015).

The key to realizing the potential of the digital economy is widespread access to the Internet. This access has grown exponentially in Pakistan since the launch of 3G/4G services in 2014. For instance, the total number of broadband subscribers (including cellular subscribers) has increased from 3.8 million in 2013/14 to 34.5 million (including 3G/4G subscribers) in July 2016 (Pakistan Telecommunication Authority, 2016). Just how phenomenal this growth has been is evident from the fact that, in 2016,

[3] Pakistan is among the top five freelancing countries in the world (Elance, n.d.).
[4] This is more than one fourth as large as India's middle class, which was 23.67 million in 2015.

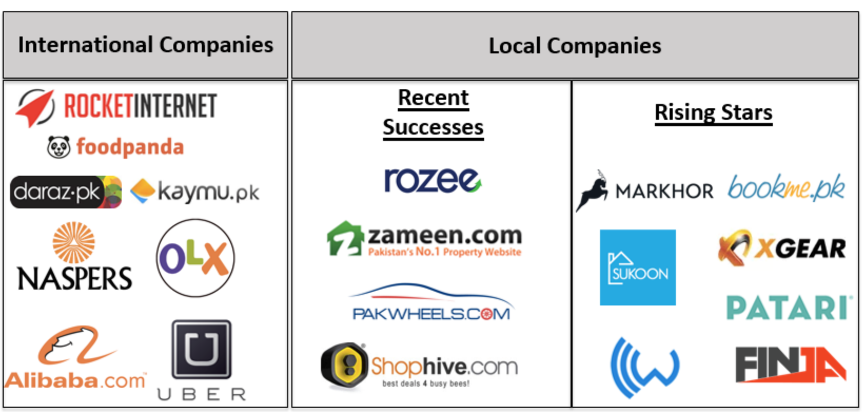
17.8 percent of Pakistan's population had Internet access compared with 11.4 percent in India, where 3G/4G services were launched in 2009.[5]

In brief, the size of Pakistan's consumer market is in the range of one sixth to one quarter that of India and Internet access is, if anything, higher. Thus, as noted above, the e-commerce market in Pakistan should follow a similar trajectory to that of India. Estimates of India's e-commerce market in 2015 ranged from $13 billion to $23 billion and it is projected to be growing at about 30 percent per annum. This provides some indication of the future of Pakistan's e-commerce market, which was estimated to be in the range of $30 million to $60 million in 2015, that is, it should reach between $2 billion and $5 billion by 2020. This would imply a growth rate of over 100 percent per annum, which is similar to the rate achieved in the last five years.

3. The Digital Players

As today's web economy develops rapidly, several categories of digital players have emerged: from new businesses entering the industry to the global giants. These digital players are classified broadly as (i) international companies operating worldwide, (ii) the successful digital companies within the Pakistani ecosystem and (iii) rising stars – businesses that have shown a remarkable growth trend and received risk financing in the short time since their establishment (Figure 1). These categories are discussed below. Since case studies of several successful digital companies are presented later in this paper, this section describes only some prominent rising stars.

Figure 1: Categories of digital companies in Pakistan



5 In April 2016, there were 151.1 million broadband subscribers in India, including 133.5 million 3G/4G subscribers (Telecom Regulatory Authority of India, 2016).

3.1 International Companies

As the Internet economy fundamentally reduces the need for space and physical presence, today's international giants have no geographical limits. With the growth of the digital economy and as e-commerce expands, global players see Pakistan as a potentially lucrative market. Despite security risks and other concerns, a number of international companies have set up operations in Pakistan in the last few years. One of the biggest entrants is Rocket Internet, a Germany-based Internet company valued at more than $8 billion. It has launched several ventures in Pakistan, including Daraz (an online shop for shoes and fashion), Foodpanda (an online food delivery service), Kaymu (an online marketplace for used or new items), Lamudi (a property portal) and Carmudi (an online platform for the sale and purchase of cars, motorcycles or commercial vehicles).

In September 2015, Daraz, which operates in Bangladesh, Pakistan and Myanmar, raised $56 million (€50 million), not from Rocket's regular investing partners, but with the CDC Group[6] leading the round (ProPakistani, 2015). Simultaneously, there has been substantial investment by Naspers[7] in expanding its OLX venture in Pakistan (a classifieds platform with a presence in more than 40 countries). The launch of Uber Technologies in Pakistan in March 2016 shows growing international recognition of the market potential of the country.

3.2 Recent Local Successes

The mid-2000s saw the first wave of local online business startups in Pakistan. Recent successes in this group include Zameen.com, Rozee.pk, PakWheels.com and Shophive.com (see Section 5 for case studies). These companies had the first-mover advantage and, as pioneers in the services sector, established their brand names as leaders in markets such as real estate, jobs and automobiles.

The success of such firms has attracted additional e-commerce investment. Some of these businesses have even drawn international venture capital funds of approximately $39 million from the US, Southeast Asia and Europe. With such injected capital and ever-expanding Internet access, these companies are constantly changing scale and consistently creating new opportunities. These investments are used not only to expand capability, but also for advertisement and promotion. The latter has helped these firms

[6] A development finance institution owned wholly by the UK government.
[7] A global Internet and entertainment group and one of the world's largest technology investors.

establish (in their stakeholders' eyes) their brands as valuable commodities to achieve the expansion targets set together with their parent investors.

3.3 Rising Stars

A wave of young entrepreneurs in the digital economy has emerged since 2012. They have turned novel ideas into promising startups, with innovations in areas ranging from e-commerce to music and broadcasting and from food to transportation and entertainment. The availability of real-time information to consumers and the low cost of accessing it has transformed the way people shop. Some entrepreneurs who quickly realized that this change was a window of opportunity have embarked on the road to building the new digital economy and, in a few years, made a name for themselves.

A few such companies are described below to show the diversity and innovativeness of the types of businesses being established.

- Markhor (2012) specializes in quality footwear for men by producing shoes in Pakistan and selling them directly to customers in the US. Its unique selling proposition is to eliminate intermediaries and provide an alternative to mass-produced shoes. The company became popular when it successfully ran a Kickstarter campaign. It was able to generate more than $100,000 from Kickstarter on receiving more than 500 orders. Markhor has been recently incubated with Y Combinator in San Francisco (Husain, 2015a).
- XGear (2014) aims to revolutionize vehicle and driving management with an innovative device that can be plugged into the car's on-board diagnostics port under the steering wheel. Once connected, it transmits data wirelessly to the owner's online account. This data can be accessed online via mobile phone or computer. It has proved very useful in the fleet management of company cars (Imran, 2014).
- Wifigen (2014) gives business owners innovative ways to understand their consumers and let them communicate with each other, using a marketing and analytics tool for customers and brands. It provides free Internet access to its customers and in return gains a social media following and customer data, which helps these brands target their customers more effectively. The company was recently funded, bringing its valuation to $1 million (Husain, 2015c).
- Patari (2015) is the largest Pakistani music streaming network. Patari aims to bring all the music produced in Pakistan onto one digital

platform through which users can access this collection. The website currently hosts some 600 artists and 20,000 songs. These numbers are expected to grow in the future (Salahuddin, 2015).

- Finja (2016) is a fintech startup that aims to revolutionize payment processes from traditional banking to new ways of digital banking. The founders of the company are industry veterans such as Qasif Shahid, who has over 20 years' banking industry experience. It also receives support from Monis Rahman (of Rozee), who has helped Finja secure an investment of $1 million from a venture capital firm based in Stockholm (Dodhy, 2016b).
- Sukoon (2016) is a Karachi-based home repair service that aims to revolutionize how people employ handymen at their homes and offices. It provides services such as plumbing, electrical work, painting, masonry, AC repair and carpentry. Sukoon was also funded recently by a pool of Pakistani investors that include Humayun Zafar of CresVentures, DotZero and The Indus Entrepreneurs (TiE) (Islamabad chapter) (A. Rizwan, 2016).

4. Segments of the Digital Economy in Pakistan

The growing digital economy has had a sizeable impact on traditional services offered in the market. Given the hyper-connectivity among consumers, single vendors and third-party sellers, digital businesses are now taking away the market share of traditional businesses. Digital companies offering these services are empowered by the extensive information available on their customers. These changes are taking place in the consumer goods segment as well as in the services sector. We identify four broad segments of the digital economy: (i) marketplace or classifieds, (ii) e-commerce, (iii) services and (iv) digital advertising and web enablement, which are briefly discussed below.

4.1 The Marketplace (Classifieds)

An online marketplace aims to provide a single trading platform to multiple third parties. It might cater to a single or multiple genres of products or services. Marketplaces in the digital economy operate in three forms: land markets, job markets and multiple markets (Figure 2). Zameen and Lamudi are successful examples of marketplaces servicing real estate players. Zameen has acquired funding of $29 million, making it the biggest provider in the online land market. Other mega-players operating in

Pakistan include Rozee (the job market), OLX (multiple markets, including second-hand or used goods) and PakWheels (automobiles).

Figure 2: Market types and companies

Online classifieds are a convenient, cost-efficient way of exchanging products and services and pose tough competition to existing mechanisms of classified advertising. Traditionally, selling many items such as furniture, used electronics and automobiles was very difficult and people relied largely on references or brokers to make the sale. These platforms provide a way for sellers to expose their products to an enormous customer base.

4.2 E-commerce

Pakistan has seen a rise in e-commerce in the last five years, with many businesses rapidly launching their services online. Typically using the Internet, e-commerce facilitates the trading of goods between different parties. Such commerce is divided into two segments: business-to-business (B2B) and business-to-consumer (B2C).

In Pakistan, most e-commerce is B2C and can be further divided into three types, which overlap in some cases, although it is still useful to make the distinction (Figure 3). The first category includes the online stores of traditional retailers with brick-and-mortar stores. Many successful local brands such as Bareeze, Khaadi and StoneAge now have online stores. The second type are digital retailers such as Homeshopping, Shophive and Symbios, which have their own inventory and a limited number of selected sellers, but deliver all goods themselves. The third segment of e-commerce includes digital businesses such as Daraz and Kaymu, which provide a platform for third-party sellers and span a wide range of products from hundreds of sellers.

Figure 3: E-commerce types and companies

4.3 *Services*

Some noteworthy innovations have been made in the online services industry in Pakistan. Significant new entrants have emerged in major areas such as transportation, delivery and entertainment (Figure 4). Most known brands in each category have seen tremendous growth and acceptance in a short span of time. Careem, Uber and Savari have all started successful operations in the personal transportation (ride-on-demand) segment, while delivery services have grown rapidly because of companies such as Roadrunner, Delivery Chacha, Foodpanda and EatOye. Other service providers such as Bookme, Javago and MyTicket help in booking cinema tickets, hotel rooms and airline, train and bus tickets.

Figure 4: Service areas and companies

4.4 *Digital Advertising and Web Enablement*

These companies provide a range of services with the aim of delivering complete online solutions to their clients. The key services they offer include e-commerce solutions for traditional services sector businesses (brick-and-mortar retailers), including website development and web-based customer services. They also provide alternative marketing and brand development services through social media marketing and website solutions that allow media companies (in print, TV and radio) to monetize their content and services. Bramerz is a market leader in this field (see Section 5).

5. Some Success Stories

This section provides a number of case studies, describing their operations and associated challenges and constraints.

5.1 Rozee

Rozee was founded in 2005 by Monis Rahman as a job portal to post jobs online for his existing venture, Naseeb (a social networking site he had developed earlier).[8] In 2007, he began turning it into a business and hired the first salesperson. Those who had invested in Naseeb, which was listed in the US as a C-corporation, were rolled onto Rozee, a Pakistani private limited company. After the first round of investment, Rozee became a fully owned subsidiary of Naseeb.

Rahman feels that his experience as an entrepreneur in Silicon Valley has been very beneficial. In addition, having worked with an organization in the US has fostered his investors' trust in the business and helped transactions be carried out faster. Following US regulations in terms of finance also gives his investors a sense of security.

5.1.1 Business Model and Operations

As an online job marketplace, the company has changed how Pakistan looks at online enablement. Rozee caters to employees with an FSc degree or higher, but predominantly advertises jobs that require at least a Bachelor's degree. It has moved from processing around 700 job applications a day in 2008 to 40,000 job applications a day in 2015/16. The Rozee team, which consisted of around 18 people in 2008, has grown to 280 people across its offices in Lahore, Sialkot, Faisalabad, Gujranwala, Riyadh and Jeddah.

Initially, Rozee did not charge employers for job listing, but for conducting CV searches. The business model has evolved over time and Rozee now offers supplementary services around its core product of job

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[8] This case study is based on the authors' interview with Monis Rahman, the CEO of Rozee.

listings for all those who can pay for the additional services. 'Insta-match' is an algorithm that highlights people who have not applied for the job, but are predicted as a good match. There is an option to brand jobs, where Rozee highlights an employer's brand name and they can post their logo with it. Rozee also develops hiring sites for organizations such as Mobilink and Engro. These jobs are posted on Rozee's website. It also sells banner advertisements on its website to monetize the substantial traffic it receives.

Rozee's philosophy is that it does not, and will never, charge jobseekers to apply for a job. Over time, it has realized the need for improved CV writing as very qualified people were losing out because their CVs were so poorly written. Now, Rozee charges from Rs1,500 to Rs12,000 for senior management level CVs. It also includes a priority feature for Rs3,000 a year that gives jobseekers insight into jobs and analytics such as Linkedin's premium account or Glassdoor. The analytics include the median and mean pay for similar jobs, the number of applicants and the customer's relative rank. Rozee believes there is scope for improving this service. It plans to add an assessment arm to its functions whereby it will offer tests that employers can use to gauge a prospective employee's credentials. These can also be added to an applicant's CV.

By allowing employers and employees to connect online, Rozee has enabled around a million people to find jobs at a fraction of the money and effort involved in traditional newspaper advertisements. Companies, especially startups, which initially found it very hard to advertise jobs, can now do so cheaply and this helps them grow faster.

5.1.2 Financing

In 2008, Rozee became the first Internet company in Pakistan to raise a venture capital investment of $2 million. In 2010/11, it issued a convertible note in the US. The investors included both old investors and a few new ones. The note was converted into equity along with the round Rozee did in May 2015 when $6.5 million was raised from a Swedish and UK-based fund, which are both organized by one group. With more negotiating power and conditions in Pakistan improving, Rozee was able to choose from four funds and had very entrepreneur-favorable terms.

5.1.3 Constraints and Challenges

Although Rozee is an 'online' job portal, only 25–30 percent of its 280 employees are part of the IT department. Finding it hard to convince companies to hire online, it has a massive sales team that accounts for more than 50 percent of its staff. In terms of human capital, Rozee believes that Pakistan lacks certain skills largely because the ecosystem does not incentivize people to learn those skills. There are many jobs for which it has had to 'groom' employees who were smart enough to learn quickly. However, it has not faced any shortage of IT employees, requiring fewer than 100 employees in that capacity.

Rozee has been used by 65,000 employers to date. Around 400 organizations in Pakistan use hiring sites through Rozee. These include large organizations such as the United Nations, banks and telecom firms. The product is very cost-effective for companies as Rozee charges them only a fraction of what it would cost in-house. However, as a pioneer in this segment in Pakistan, it was very difficult for Rozee to convince companies to join it. It had to plan and execute job fairs on the ground, which were attended by around 145,000 jobseekers. Employers were invited to set up booths. This was one way Rozee was able to show that its online presence was a reality and not just virtual. It also employs a large sales team that interacts with employers in person and persuades them of the potential benefits of moving online so that they are comfortable with the idea of posting jobs online.

It is now working on an advertisement campaign to reach the mass market of employers who have yet to work with Rozee. It has hired an advertising agency and plans to use conventional channels such as the television and print media, which is necessary to change people's views. The scale it is aiming at needs such advertisement to reach small towns. Rozee targets mainly businesses and not jobseekers. People are hesitant to hire online because they have never done so. Over time, it will gain acceptance, but by undertaking this kind of advertising, Rozee is speeding up the process.

Although Rozee is eyeing other foreign markets, having established a reputation in the Middle East for being hardworking, it is waiting to prove itself before expanding abroad any further. In Saudi Arabia, it caters to the domestic market where it matches local people to local jobs. Rozee also plans to work down the chain and include jobs for unskilled workers. With this, it wants to establish itself for blue-collar job openings. Rahman has a personal interest in this segment. However, the financial feasibility of such a task is very long-term. Currently, blue-collar workers are hired at their own expense in the Middle East. Employers do not pay to hire them as they do for white-collar jobs.

Rahman is also incubating or mentoring six companies. Being part of the industry gives him an opportunity to identify good ideas and support them either financially or through nonfinancial mentoring. Easy Tickets is a website that allows customers to buy movie tickets in real time. It is linked to 12 cinemas all over Pakistan and is integrated with all banks with kiosks at the cinema where tickets bought online can be printed. Travelplay caters to airline tickets, car rentals and hotel bookings. He also supports Pring, an SMS platform, and Checkin, an air travel-related online startup.

Rahman is risk-averse when it comes to investing in startups. He invests only when entrepreneurs have started showing numbers and their ideas appeal to him. The funding is on an individual basis: he and his friends club together like an informal venture fund. Everyone gets the same investment terms and they trust his decisions. The goal is to invest $100,000 or so and ensure the startup reaches the traction stage and begins growing from a revenue perspective. With Rahman's links to international funds, they aim to raise an investment round of $1 million–3 million.

5.2 *PakWheels*

PakWheels, an online marketplace for buying and selling used cars, was founded in 2003 by Hanif Bhatti and a few friends. It has now become a platform for automotive enthusiasts.[9] The CEO of PakWheels, Raza Saeed, along with his friend Suneel Sarfaraz, bought PakWheels in 2008. Saeed had started a software development and consultancy business named Uraan. Later, in 2005, he cofounded Confiz with Zartash Uzmi. Confiz employs over 300 people and provides mobile solutions, enterprise resource planning and content management services to Fortune 500 companies such as Macys and Walmart.

In 2008, in partnership with Sarfaraz, Saeed acquired PakWheels. It was still a small venture but Sarfaraz's significant business experience and Saeed's knowledge of software solutions made it possible for them to improve the business model significantly. PakWheels has grown by 20 times as much, making it the largest online community-based automobile website in Pakistan.

5.2.1 Business Model and Operations

PakWheels has been in business for about 13 years and is therefore ahead of other companies in terms of market penetration. It is a platform

[9] This case study is based on the authors' interview with Raza Saeed, the CEO of PakWheels.

for buyers and sellers to purchase and sell used vehicles online, and also serves as a discussion forum for users to share information and suggestions on new automobiles or brands available or to discuss issues regarding their automobiles.

The website offers research on new cars, compares different cars and provides blogs and other news. It also provides specialized reviews that people find useful when deciding which car to buy, used or otherwise. The decision to buy a car is the second biggest decision a person makes and PakWheels provides services for every step, from the decision to buy a motorcycle to the decision to upgrade to a new car. Specialized tools such as CarSure and car valuations have been added to the site. Under the CarSure option, customers can have their cars inspected by a team.

PakWheels has multiple sources of revenue, primarily the advertisements that FMCGs put up on the website to reach the customer base of the company. Advertisements by car companies and specialized offers for dealers are also posted on the website. Even private dealers who wish to sell used cars have their ads featured on the website for Rs1,000.

5.2.2 Financing

PakWheels was acquired using money raised from Confiz. The equity is divided between the owners and shareholders who own a significant minority. PakWheels has had only one round of venture capital funding in which it managed to raise $3.5 million from an international investor. The company has made small investments, such as in Autogenie. It has also invested in two external startups (urbangalleria.com and tripkar.com) and incubated several other startups. Saeed believes it is important to give startups time and nurture them properly if investing in them.

5.2.3 Issues and Constraints

PakWheels has around 150 people working in Karachi, Lahore and Islamabad. The workforce consists of both IT professionals as well as people with a business background. There are 20 product engineers, 10 marketing people and the rest are part of the car inspection and sales teams.

According to Saeed, technology companies have not been able to create more skill sets and there is a problem finding the right talent for an organization. The basic skill set required at PakWheels is project management, analytics, user experience, user interface design, sales and digital marketing. Managing employees becomes difficult when certain skill sets are in great demand. In future, PakWheels aims to be with the customer through all steps related to car purchase and maintenance. Car inspection and transaction services on the customer's behalf are a prospect it plans to consider.

5.3 Shophive

Arslan Nazir, a graduate of the Nottingham Business School, started an online retail business in electronics in 2002 as his family had run a similar business for some years. In 2006, he launched Shophive.[10] He started the business with limited resources and worked from home. He then hired two people for content and delivery. Within a year, he had moved into an office with six employees.

For the coding and design of his website, he gave two of his friends a 20 percent stake each in the business as he was short of cash. Nazir used bootstrapping to keep costs low and reduce the need for external finance. Within a short time, his friends lost interest in the idea and started fulltime jobs of their own, while Nazir invested even more in the company, seeing immense potential in the industry. Later, he bought back the 40 percent equity his friends had owned, giving him 100 percent ownership of the company.

5.3.1 Business Model and Operations

Shophive was initially used by customers as a reference website for comparing prices and products. Gradually, its own sales started growing. Publicizing the business online was hard at the time as social media were not as active. In order to promote the business, Nazir offered friends a discount of up to 30 percent to change their status on MSN to "Shophive" and spread the word. This worked as people became curious and found out more about the business. Shophive has yet to market its brand widely and relies on repeat orders and referrals as its main source of traction.

Shophive was a pioneer in e-commerce in Pakistan when it began in 2006. It focused on providing 'genuine' goods, which it identified as an important niche, given the large number of fakes and copies being sold in the market. When it initially tried to market this idea, people did not trust it and the company had to state it was a genuine seller on the website. Over time, people realized that Shophive dealt in genuine products and the word spread. It expanded from electronics to other goods and now sells over

[10] This case study is based on the authors' interview with Arslan Nazir, the CEO of Shophive.

30,000 products. The company is focusing on bigger-ticket items, based on the trust it has earned among its customers. Shophive has four different modes of functioning: a just-in-time purchase system, inventory, resale and imports. Imports take around two to four weeks for delivery and orders are placed in advance.

Shophive receives 60 percent of its orders from Lahore, 15 percent from Karachi and the remaining from Islamabad, Rawalpindi and the rest of the country. It delivers to more than 200 areas in Pakistan through TCS. It currently has one large warehouse in Lahore. For most items, orders are delivered on the same day within Lahore. For other cities, delivery takes a day. Bigger products such as refrigerators are delivered within three to five days overland. There are also two pickup points in Lahore that cater to clients who want to avoid paying delivery charges.

Shophive has only one retailer for each product it offers, who is thoroughly examined against quality parameters to ensure the quality of the supplier and reduce any confusion for the consumer. It also makes sure that retailers have authentic rights to sell the product. Everything sold on the website is guaranteed to be genuine. Once the product is ordered, it is sent by the retailer to Shophive, where it is checked against the order, inspected and delivered to the client in time.

5.3.2 Constraints and Challenges

When Shophive began operations, cash-on-delivery was not functional in Pakistan, not even in Lahore. It then opened small back-end offices in Faisalabad and Islamabad so that its riders could deliver via cash-on-delivery. Nazir believes this was a blessing in disguise as the company had to provide excellent service to attract clients. Initially, clients purchased cheaper products, but the good service they received built trust and bigger-tickets items became more popular. At the time, online card payment did not work very well and Internet bank transfers were used instead. Even today, bank transfers are preferred, particularly for big-ticket items. The industry average is 95 percent cash-on-delivery and only 5 percent in online payments, whereas Shophive has 25 percent in online payments, which includes 20 percent through Internet banking and 5 percent via credit card.

Shophive has signed up as a payment merchant and accepts all credit cards. It will start accepting debit cards as soon as OneLink is integrated with its system. The payment system is 3D-protected and customers are redirected to Mastercard or Visa websites to complete the payment process, which ensures the security of their financial information. Currently, payment methods such as Easy Paisa, Mobicash, U-pay and Time Pay are also used, but they are expensive alternatives and are usually used only for small-ticket items.

Initially, Shophive's policy on returns was to replace defective items without any restriction. This created problems when clients started taking undue advantage of the policy, forcing Shophive to pay out of its own pocket to avoid negative online reviews. Nazir used this as a marketing strategy and clients who had used the policy to their benefit spread the word. Over time, Shophive changed its policy and currently offers a seven-day replacement policy in case of a manufacturing defect or damaged item. If the product does not match its details online, the entire amount is refunded.

In terms of human capital, Shophive has not had any issues. It now has around 60 employees, with seven to eight staff in managerial positions, seven to eight in IT, ten in sales and the rest in accounts, fulfilment centers, deliveries and packing. Nazir handles business development and customer services himself. His employees have been working at Shophive for four to nine years and since they are well taken care of, turnover remains low. The company uses referrals from existing employees when hiring new staff.

The heavy tax burden and complex FBR rules for the industry pose a problem. Shophive has to comply with tax laws such as withholding tax and sales tax, which are cut at source. Unlike offline retailers, all Shophive transactions are fully documented and there is no possibility of tax evasion. The nature of cash-on-delivery is problematic as some delivery staff have taken money from clients and not deposited it with Shophive.

Although Nazir attends startup events if he has time, he does not plan to incubate any firms as he wants to focus on Shophive. In 2011, he started a clothing website, Collection.pk, which he closed down two years later as it made him lose focus on Shophive. While Shophive is already one of the largest electronic retailers in Pakistan, Nazir has ambitious growth plans and is considering venture capital funding, specifically from international funds. One of the main reasons he is looking towards external funds is to expand the marketing budget. He plans to open warehouses in Karachi and Islamabad and multiply the number of pick-up points from six to 30 by 2020, with a presence in other cities. Moreover, Nazir plans to continue the horizontal and vertical growth in products that has always been part of his vision for Shophive.

5.4 Bramerz

The name of the company, Bramerz, is derived from the first names of its founders: Badar Khushnood, Amir Sarfraz and Zeeshan Saleem.[11] All three are alumni of Government College and the Lahore School of Economics. The company was started in 2005 as a small-scale, part-time project. They started working on it seriously in 2008 while all three still had fulltime jobs. They hired a small team to work with them part-time, which went well for a while, but was extremely challenging.

At the time, Nestle was looking for a Google-certified digital agency. Bramerz was shortlisted because Sarfraz, one of its founders, was Google-certified in advertising. Thereafter, Bramerz grew very quickly into a digital marketing agency. By 2012, it was functioning as two agencies: Bramerz and 3scrowd. The need for this arose as Bramerz was competing with clients such as Samsung, Huawei, Nestle and Pepsi. The agencies were kept physically apart on separate floors of the building.

5.4.1 Business Model and Operations

In its early stages, Bramerz catered to all the digital needs of its clients. Providing a full range of services on the digital spectrum sets it apart from its competitors. It offers a wide variety of products and services that include, but are not limited to, software production, publishing, digital media and social media. Bramerz does not charge for its services, but instead takes a fraction of the revenue. This is an innovative performance-based model: Bramerz makes money if its clients do.

Bramerz is the only Google-certified agency for content monetization in Pakistan and only one of forty such agencies in the world. It helps companies go online, which is its key contribution to the Pakistani IT ecosystem. It places advertisements in the content, using priority advertising and ad networks optimally to maximize views. It is impossible to manually manage the 80 million-page views that Bramerz handles and it has developed a sophisticated model and software for this purpose. It also uses direct advertising and other means it has on offer. For content monetization, Bramerz boasts a no-cost solution. It uses a revenue-sharing model with clients: there are no upfront costs and the revenue generated is divided as

[11] This case study is based on the authors' interview with Badar Khushnood, entrepreneur-in-residence at Bramerz.

stated in the contract. For e-commerce platforms, it uses a revenue-sharing model that specifies a percentage in the budget for digital marketing.

Bramerz was recently taken on board by Radio Pakistan to bring 50 years of its archives online. Its customers in terms of advertising include many Fortune 500 companies such as Nestle, Pepsi and Samsung. Its founders leverage their marketing and business background in conjunction with technology to create products that cater to the needs of companies in a rapidly moving world. Bramerz offers its clients four unique products: Publishrr, Fishry, Olaround and Anytickets. Publishrr was launched to help newspapers and news channels go online. The Nation and Nawa-e-Waqt were the first to use this service, which was later productized. Over time, the team has acquired companies such as the Daily Times, Qudrat, Dunya News and Samaa TV.

Publishrr is its flagship product. Fishry is an e-commerce platform through which the company manages all the needs of a business from website development to mobile applications. Dominos was its first major client and now it has more than 50 local brands on its portfolio. Fishry helps brick-and-mortar stores go online and reach a wider market. Olaround is a loyalty and discount application launched in 2012, long before 3G access in the country. The fact that powerful smartphones and 3G were not available then created issues regarding growth and the product was shelved. Anytickets was started in October 2015 as its newest venture. This is a cinema ticketing site that currently caters to the Cinestar cinema in Township, Lahore.

The Pakistan Super League, which had its first tournament in 2016, was completely digitalized by Bramerz, including the website, live scoring, live streaming, a fantasy league, a mobile app and merchandise sale via e-commerce platforms. Bramerz used cutting-edge technology to make sure the website did not crash with the huge traffic online. This venture helped generate good leads and companies now want to purchase the fantasy league app while Geo TV wants to buy the mobile app.

Even with a very low budget, Bramerz accepts such contracts to create leads. Its products are created with the aim of just covering costs. The strategy is to make money from successive leads. Now that sports can be productized, Bramerz can sell to any cricket club as the requisite backend is ready. This is the vision the company wants to scale up.

5.4.2 Financing

The founders pooled in the seed investment of Rs1.8 million. Drawing only salaries, they plough back all profits into the business. Their capital is currently estimated at around Rs60 million to 70 million. Bramerz has thus seen excellent growth and is now looking at international venture capital funds for a path to quicker growth.

5.4.3 Constraints and Challenges

In terms of human resources, 70 percent of Bramerz employees have a background in business and the rest in computer science. Given the dearth of talent the company needs, it selects fresh, energetic graduates and trains them. The downside is that many young recruits tend to change jobs quickly, often leaving within a year or two. As trained employees, they are offered higher salaries at bigger companies, which Bramerz finds hard to match. However, in more than half a dozen cases, old employees returned because they had found the work environment at Bramerz very attractive. This is one way Bramerz feels it can retain employees, even on lower salaries. It also uses its profit-sharing model with top employees.

Bramerz states that one reason for its success is its stringent legal contracts, which are necessary in Pakistan. Clients tend to negotiate the price down and then expect to widen the scope of services later. Therefore, the company makes sure every detail of its responsibilities to the client is clearly written down for future reference. Another reason is the comprehensive list of services provided in-house, which means that customers need not contact different agencies for distinct digital requirements. As the only Google-certified agency for monetizing content in Pakistan and one of forty such certified agencies in the world, Bramerz has a special niche in the industry and a competitive edge over its rivals.

An interesting constraint it identified was that no bank was willing to give the company a special corporate lease rate for laptops. They would provide such rates for cars, but not laptops, which are essential to the IT industry. Moreover, getting credit cards for people working in the industry was a problem due to certain regulations. Sending payments abroad was identified as a concern, along with complex regulations and the high direct and indirect taxes on the industry. Such companies in the digital economy work on a low margin and high volumes to generate profits, which means their revenue numbers are extremely large and their profits relatively small. The recent turnover tax (8 percent), which is on revenue and not profits, will make it impossible for such companies to survive.

6. Incubation Centers and Co-Working Spaces

A major contribution to the wave of startups since 2012 has been the emergence of a large number of incubation centers in the country. There are over 30 incubators (mostly IT-based) currently operating in Pakistan and about half a dozen are very active. They provide support services such as mentorship, stipends, office space, uninterrupted power supply, broadband Internet, training and development, funding opportunities and legal advice. Most new technology entrepreneurs are young: many have only an undergraduate education, if that, and very limited financial resources. However, they are bright and have the energy and hunger it takes to succeed.

6.1 Services Provided

The selection process for a place at an incubator is very competitive and plays an important role. At this stage, the idea is vetted by experienced professionals and the capability of the team behind the startup – most incubators insist on there being a minimum of three partners – is assessed. The services the incubator provides to the startups that are selected help ease many of the constraints they face as well as providing the support they need to get through the initial stages of the process, including a collegial environment where they can refine and test the practicality of their ideas. The main services provided are outlined below:

Mentorship. Incubators/accelerators have mentors who guide and advise startups on various matters. Mentors are generally successful entrepreneurs or industry experts selected from across industries so that they have a broad spectrum of knowledge and experience from which the teams can benefit. Mentors also provide the inspiration necessary to keep young entrepreneurs motivated.

Stipends. Startups that are incubated are either at the idea or early development stage and so their product is not generating any revenue. Most young entrepreneurs are straight out of university or college and have no savings to meet even their limited personal expenses. Therefore, a number of incubators/accelerators provide a meagre stipend, mostly per person, to cover basic costs. A few incubators also require a share in equity in return for providing stipends to the founders.

Office space. Rent is a major cost that acts as a barrier to entry for startups. Most incubators provide office space within their buildings to the selected startups. This is almost always free, with a few exceptions. Founders are provided a working area, supported by other amenities such as conference rooms, printing facilities, cafeterias and common areas.

Uninterrupted power supply. Pakistan has faced critical energy shortages in the last few years, with power cuts becoming the norm. Although this is a major constraint to industries in the manufacturing sector, which rely heavily on energy supplies, it also hinders growth in the digital economy. Using generators or UPS units can be very expensive. Incubators and accelerators generally provide uninterrupted power supply to startups by installing generators and bearing the full cost of power.

Broadband Internet. Internet access is the core of the digital economy around which these startups grow. Incubators/accelerators, therefore, make sure that high-speed broadband is available to startups.

Training and development. Founders of startups are given technical know-how of entrepreneurship at the incubation centers. They are taught about product development, business development, financial planning, pitching, marketing and corporate communication. Coupled with mentorship, this provides the perfect environment for young entrepreneurs to learn and evolve. Some incubators go to the extent of providing grooming and language classes.

Funding opportunities. One of the most sought-after dimensions of an incubator is the networking it can provide. This gives entrepreneurs the opportunity to grow individually, receive feedback on their product and find angel investors who are willing to put money into the business. Accelerators focus on funding because the startup is mature enough to absorb investment and has figures for revenue and customers, which are then used in the pitch to attract investors.

Legal advice. Legal advice is very costly and startups necessarily require legal protection in terms of intellectual property rights or patents. In addition, getting a business registered can be time-consuming as well as costly. Unambiguous, contractually binding arrangements between partners are essential for the long-term success of a new business. Incubators offer these services free or at minimal cost and the quality of the legal advice is far superior to what they would get even if they were able to pay for it.

6.2 *Active Incubators and Accelerators*

As mentioned above, there are about half a dozen very active incubators and accelerators, three of which we discuss below. These include the best known ones in the sense that they were involved in the development of many of the rising stars discussed in this paper. The aim is to give a feel of how incubators or accelerators work as well as how they contribute to the success of a startup.

The three selected cases are Plan 9, the LUMS Center of Entrepreneurship (LCE) and Nest I/O. These represent a range of possible models and sponsors for such activity (Figure 5). All three select their startups through a rigorous process whereby successful entrepreneurs and industry gurus scrutinize the best ideas of a large pool of business ideas presented. Once selected, the startup is inducted for a period of four to six months. Each incubator/accelerator has two or three cycles a year.

Figure 5: Most active incubators and accelerators

	Plan 9 Where ideas take flight	LUMS Center for Entrepreneurship	The Nest I/O	i2i invest2innovate
Type	Incubator	Incubator/ Accelerator	Incubator	Accelerator
Date Established/Location	2012 Lahore	2014 Lahore	2015 Karachi	2011 Islamabad
Major Supporter	Punjab Information Technology Board	LUMS	PASHA Samsung & Google	DotZero Pasha Fund
Number of Cycles/Annum	2	3	3	1
Duration	6 months	4 months	4 months	4 months Virtual/ 6 in person weekends
Successful Startups	Patari, Bookme, Wifigen	Maro Tandoors Autogenie	Wedding Planit, Mandi Express	DoctHers, Popinjay
Equity	No	Yes; 2.5 – 7.5%	No	Yes; Small startup cost + 0.5-1% Equity
Stipend	Yes	Yes – if 7.5% Equity	No	Yes

6.2.1 *Plan9 and PlanX*

Plan9 is one of the early entrants, providing a facility for budding entrepreneurs and a platform for young startups to test their business ideas, pitch them to industry leaders and gain initial recognition. Plan9 is an initiative of the Punjab government under the Punjab Information

Technology Board (PITB). It started operations in 2012 under the leadership of Dr Umar Saif, who is currently chairman of the PITB and vice-chancellor of Information Technology University (ITU). In the last four years, Plan9 has incubated more than 118 startups, helping them to shape their business models and to work efficiently in the environment on their own. Plan9 provides a startup with six months of incubation, where each founder is also given a stipend of Rs20,000 per month for up to five members in a team. It is a world-class facility based in Arfa Tower, Lahore.

The PITB also runs another operation simultaneously by the name of PlanX (an acceleration center), which provides acceleration services to startups that have shown some traction in business and started commercial activity. PlanX inducts startups once they have begun making sales and serving early customers. It guides these startups in efficient business techniques, establishing contacts in the industry, learning best practices to achieve growth and helping them find suitable employees, partners and investors

6.2.2 LUMS Center of Entrepreneurship

The LCE was formed in 2014 by LUMS to support young entrepreneurs. It does not limit the induction to LUMS students. Rather, it invites people from all across Pakistan. Khurram Zafar, the executive director, is the inspiration behind the center and was one of the founding board members of Plan9. He has extensive international experience, having co-founded two software product startups in Silicon Valley and been part of the founding team of two global IT consulting firms.

LCE offers multiple plans for startups and they can opt for monthly stipends of approximately Rs25,000 per person on the team in return for 7.5 percent equity in the firm. Startups can also be incubated under a 'non-resident' acceleration program in which, for 2.5 percent equity, they are given mentoring sessions, talks, some marketing/PR support and pitching rights at the startup summit. Graduation from the LCE is in the form of an investors summit that gathers businesspersons, industry leaders and local and international investors. Startups pitch their business ideas to these people for investment. This platform has proved to be very successful and companies have raised significant investment via this method.

6.2.3 NEST I/O (P@SHA's Tech Incubator)

The latest addition to the list of incubators in Pakistan is NEST I/O, launched in 2015 in Karachi. This is an initiative by the Pakistan Software Houses Association (P@SHA) and has been funded and supported by Google for Entrepreneurs, Samsung and the US Consulate General in Karachi. It is managed by Jehan Ara, the current president of P@SHA. She understands the entrepreneurial landscape and future potential of IT in Pakistan, having served as president of P@SHA for more than eight years.

NEST I/O has a similar strategy to Plan9 and LCE, whereby it incubates startups for four months and provides initial advice and services. The program comprises four different phases: power building (nest), gaining momentum (ramp up), revving up (propel) and gearing up and taking off (fly). These modules help startups in various areas, such as defining their mission and vision, team building and HR skills, raising funds, managing cash flows and law-related issues.

6.3 Co-Working Spaces

Incubators and accelerators have proven very successful in the last few years. The only drawback of such programs is that startups can become too dependent on mentors, professional advice and excellent facilities: this can become an obstacle once they have graduated from an incubation program. However, another innovation, co-working spaces, can make this transition easier by providing the kind of facilities and work environment a startup has got used to at the incubator, but for a reasonable fee.

Most such companies start either at home or an incubation center. Once they outgrow the space at home or graduate from the incubation center, it is a challenge to move into an independent office space. Money is usually tight and investing in any assets that will not help them fuel business growth is a low priority. Thus, renting a new office, utility bills, back-up energy arrangements and printing and Internet facilities can become a serious problem for startup founders.

To address this problem, co-working spaces have opened up across the country from Peshawar to Karachi. These venues provide founders and their employees with office space, Internet access, meeting rooms, gaming zones for recreation and relaxation pods. Some of the best known co-working spaces are DotZero (Karachi), The Hive (Islamabad) and OfficeSpace (Lahore). On average, the charges range from Rs8,000 to

Rs12,000 per month per seat. This amount falls as the number of people within the startup increases.

These spaces are a good opportunity for startup teams to save on the fixed cost of assets. They also help teams network with the community by arranging meetings and other programs. Such spaces are very popular among the freelancer community. Power outages and infrastructure requirements pose a challenge to young freelancers and these spaces play an integral role in providing a good platform at relatively affordable prices.

A recent entrant in this area is Tech Hub Connect, a PITB initiative that aims to promote entrepreneurship and freelancing in Pakistan by providing a world-class facility for the community. The center is located in Arfa Tower, Lahore, next to Plan9 and PlanX, and is a good opportunity for young startup graduates and freelancers to join free of cost. Its location gives freelancers exposure to IT companies, ITU, Plan9, PlanX and other industry-related offices.

The LCE plans to arrange for the services of accountants and lawyers as well as professionals in marketing and other business-related areas. Startups will be charged for these on a time/usage basis. The center will charge startups on a monthly basis. To encourage them to move out as they get bigger, the per-head cost will increase as the number of team members increases.

7. Emerging Financial Landscape

Financing for small and medium enterprises (SMEs), particularly new businesses, has always been problematic because traditional lenders such as banks require documentation and collateral, which both SMEs and new startups lack. However, the ability of digital businesses in Pakistan to raise risk capital has been a revelation and is a key reason for the rapid growth of these businesses and the excitement surrounding digital startups.

There have been numerous attempts – many supported by international development institutions – to establish venture capital funds in the country, but none have succeeded so far. The two main reasons for this are (i) the inability of investors to control expenditures and monitor the performance of the firms they have invested in and (ii) the lack of an exit strategy in the face of an underdeveloped capital market.

These two constraints do not seem to be binding in the case of digital businesses. Direct control and monitoring of a company is not necessary because online traffic and transactions are easily observed by investors and there are established models for estimating the capital valuation of a company at any time. Since global players are always interested in expanding their operations in new markets, and acquiring successful firms in new markets is the most cost-effective way of doing so, venture capitalists have an effective exit strategy. As a result, both international venture capital funds and local investors have begun investing in digital businesses in Pakistan, giving birth to a venture capital industry in the country (Table 1).

Table 1: Equity investments in Pakistani companies, 2015 and 2016

Company	Product	Amount raised	Investors
Daraz	Shopping portal	$56 million	• Asia Pacific Internet Group • CDC Group
Zameen	Property portal	$29 million	• Undisclosed
Rozee	Job portal	$6.5 million	• Vostok Nafta • Piton Capital Lead Investment
Vivid Technologies	Voice technology	$350,000 (seed investment)	• Sunbridge Ventures • Rosemont Group • Telefonica • Conrad Labs
Finja	Fintech	$1 million	• Vostok Emerging Finance
Beauty Hooked	Home beauty services	$280,000	• Fatima Ventures
Travly	Transport	$200,000	• Cres Ventures • Faisal Sherjan

Sources: Dodhy (2016a, 2016b); Husain (2015b); ProPakistani (2015, 2016); TechJuice (2015), "Zameen.com raises $20 million," (2016).

8. Sources of Financing

A key milestone for startups on graduating out of the incubation cycle is to obtain funds for product development, operations, marketing, human resources and other requirements for their business model to succeed. We have seen financing evolve from traditional to venture financing in Pakistan. Traditionally, new businesses source investment from family and friends and, subsequently, by ploughing back their earnings. In this new era of financing, startups are not valued by asset size or existing operations, but by their future growth trajectories. Such investments may be seen as risky for not having any physical asset base, but they are preferred by international investors as there is less country risk since all operations run on cloud services.

According to Monis Rahman, the CEO of Rozee, there is a growing trend of international investors from the Far East and Europe: they see huge potential in the economy in the years to come (personal interview). There were a number of international investments in 2015, ranging from as low as $100,000 to $20 million for Zameen. Pakistan provides these investors with a very good option for returns based on the size of the country and market growth potential. There are several different players in this field and are discussed briefly below.

8.1 International Investors

Globally, investors look to invest in emerging markets, which yield a greater rate of return than investing in developed countries. International investors see Pakistan as a potential emerging market and are very hopeful for the future. There were multiple investments in 2015/16, which were clearly made with the expectation of future growth in the country. Frontier Digital Ventures, a Malaysia-based venture capital firm focusing on online classified businesses in emerging markets, has invested $3.5 million in PakWheels. As stated by Shaun Di Gregorio, founder and CEO of Frontier Digital Ventures, "We love frontier and emerging markets and have a wealth of expertise and a proven track record of extracting value in the opportunities these markets present" (TechJuice, 2014).

8.2 Local Investors

As more and more international investors eye Pakistan as an emerging economy and assess its potential for growth, the local community is also picking up cues and trying their hand at investing in these startups. There are several kinds of investors operating locally.

8.2.1 Venture Capital Companies

Venture capital is a relatively new phenomenon in Pakistan: only a handful of companies have explored this space and provide opportunities to young startups. The founders of these investment firms personally scout for new startups by attending entrepreneurship events such as business plan competitions and startup summits and visiting incubation centers.

The pioneer players are CresVentures in Lahore and DotZero Ventures in Karachi, which have already made some investments in local startups (see Box 1). DotZero was set up as a seed and angel investment fund in 2015, having started in August 2013 as a nonprofit foundation for IT to help local entrepreneurs and foster entrepreneurship in Pakistan. It started by providing office space, mentorship and networking opportunities to startups. Seeing greater opportunities, it decided to relaunch itself as a seed and angel investment fund. The company invests in early-stage startup companies that demonstrate a mass appeal for the product or idea. It has invested in eight startups, which include Popinjay, Dealtoday, Sukoon, PerkUp and others. DotZero employs a pool of advisors and individual investors who evaluate ideas and invest as a fund or individually as suited to all stakeholders.

For both companies, on average, the ticket size of their investments ranges from $100,000 to $200,000 and disbursements are tied to quarterly targets. Startups are also provided mentorship, advice and direction by these venture capital firms as their founders have significant experience in the industry. They also understand venture capital, having spent a portion of their lives in the US or worked with companies based there, which has given them exposure to international venture capital firms.

Box 1: CresVentures: A case study

The founder and CEO of CresVentures, Humayun Mazhar, in collaboration with his friend Aizaz, started a company by the name of CresSoft in the 1990s: the first company in Pakistan to exclusively focus on IT export services.12 At the time, he was managing his family business and when his jute production plant closed down, he decided to focus on developing his IT business.

Unfortunately, CresSoft suffered two major setbacks in 2001. The IT bubble in the US burst in March 2001 and, as a result, many clients lost businesses. IT spending by other companies was severely curtailed. While CresSoft was struggling with this, 9/11 occurred and US blue-chip companies became reluctant to do business with Pakistani companies. CresSoft's clients wanted risk-averse strategies put in place and Mazhar had to open offices in Dubai so clients would feel safer. Some clients stayed with CresSoft, but many left, affecting 70 percent of its business dealings. Finally, in 2004, Mazhar decided to shut down CresSoft.

[12] This case study is based on the authors' interview with Humayun Mazhar, the CEO of CresVentures.

In 2013, after assessing the progress and potential of new startup companies in Pakistan, he decided to set up a venture capital firm because at that time, most people who turned to banks for loans were unable to get them due to the stringent evaluation criteria. In preparation, Mazhar took a course on venture capital in Berkeley in which he learned about angel funds and super angel investors. He decided to start an angel fund in Pakistan. An angel fund requires an experienced board of advisors with IT and business backgrounds to help choose appropriate candidates who want to start their own business. Three of Mazhar's former CresSoft employees came on board, helping him undertake investments in healthcare, innovative agriculture and e-commerce.

CresVentures focuses on local market monetization because parallel markets operate in India and a learning model is already available against which to compare ideas. In its assessment, it looks at the skills and abilities of the owners more than the idea itself. A soft launch of CresVentures took place in October 2015, with the provision of investment to potential startup companies in the portfolio such as PerkUp, Sukoon and Travly. PerkUp is a Karachi-based setup that offers customer loyalty and engagement services to consumers and businesses by helping them obtain loyalty rewards from various businesses. This encourages customers to revisit stores, reenergizes lost customers and involves them on birthdays and anniversaries (F. Rizwan, 2016). In this way, merchants are able to segment customers into groups and send targeted offers and track redemptions.

Sukoon.com.pk is a recent Karachi-based online home repair venture. CresVentures invested $200,000 in Sukoon, followed by investment by TiE's Islamabad chapter and DotZero Ventures. This investment is unique in that the top angel funds in Lahore, Islamabad and Karachi are sharing risks and cooperating in the development of a tech startup. Travly was started in Lahore in 2013 after being incubated at Plan9. It joined the PlanX accelerator and collaborated with the Lahore Transport Company to digitize bus routes in Lahore. It helps customers plan bus trips or book rickshaws online; it even provides logistical services.

Companies in the portfolio are chosen based on their growth potential. Once selected, they are provided investment, mentorship and domain expertise. Evaluating a company is an art and can be a challenge to assess if its growth targets are being met. Once the company achieves its set targets, CresVentures and its co-investors hunt for a chief investment officer (who has the experience needed and is based in Pakistan) to monitor the next round of pooled investment.

In some cases, among young entrepreneurs who have the potential to grow, trust issues may arise in terms of the shareholding agreement. As CresVentures demands 30 percent equity upfront before investing in an idea, many entrepreneurs are reluctant to approach the company for fear of a takeover in the future (it also has control over accounting and co-investment by other investors and funds). In 2014/15, approximately Rs300–400 million in investment was raised through startups such as Sukoon and PerkUp, although meeting its estimate for the current year will be hard. While the number of companies is increasing, finding startups with good-quality founders and ideas to incubate has become more difficult.

8.2.2 IT Companies

With the rise in IT in Pakistan over the last 30 years, companies such as Systems, Netsol and Confiz Solutions have expanded by providing B2B services, primarily to international clients. They are also looking to participate in the digital economy and are exploring ideas internally as well as promising startups to support.

Successful digital businesses such as Zameen and Rozee are also looking to expand through promising startups. Their owners have been in the industry long enough to understand this new shift in the digital economy. They actively participate in national business plan competitions held by universities and incubation centers and when they see a promising startup, may offer funding. These companies have a big local presence and are able to provide startups with investment as well as office space and amenities. Startups can also seek technical support from such companies as they have in-house talent in software engineering and related areas.

8.2.3 Traditional Business Families

The latest addition to local investors includes corporations or traditional business families, although many of them find it hard to evaluate startups, given the concept of investing in a new business that has no physical assets. As Khurram Zafar, the director of LCE, says, "Our local businessmen and local industrial groups are sitting on a goldmine with a lot of liquid cash and they are just waiting for a success story, which will motivate them to invest" (personal interview). However, he also noted that these businesses found it hard to understand how companies in the digital economy functioned and thus needed to become familiar with investing techniques in this context.

Currently, they see every investment as a joint venture with the founders of the startup. They also expect the founders to invest a similar amount if they are to be partners: the latter's passion, hard work and ideas are not enough to be accepted as a valuable asset. These investments are at a nascent stage and traditional companies are still exploring this space. Some local players that have made investments include the Fatima Group, SEFAM and others. However, once more and more prominent business groups start investing in startups, other business groups will also become interested.

9. Policy Issues

The active startup scene and rapid expansion of the digital economy in Pakistan indicate that there are some positives in the country's policy environment. The most important of these may be its liberal foreign investment policies. Pakistan allows 100 percent foreign ownership and there are no restrictions on the repatriation of profits and capital. Another important positive is the role played by the Punjab government through the PITB (and ITU) in terms of providing a voice to the emerging industry on policy issues, establishing, as already discussed, one of the first and most active incubators (Plan9) in the country and facilitating the entry of major international companies into Pakistan.[13] The importance of providing a voice on policy issues can be seen from a recent example. In 2015, all the provinces (including Punjab) levied a 19.5 percent tax on Internet services, but lobbying by the PITB and others succeeded in having the tax withdrawn in Punjab. Today, it is the only province in the country that does not tax Internet services.

However, there are still a number of concerns with regard to government policies such as the regulatory environment and, more importantly, taxation, which can hamper the growth of the digital economy. These arise in part because, as noted by the former IBM vice-president and investor in Wifigen, John Russell Patrick, "Pakistan's business laws are still structured around an industrial economy with tangible assets. By contrast, technology startups are based on ideas and knowledge for which there is no regulatory framework" (Nazar, 2016).

This is also true of policies and laws with regard to taxation. In countries such as India, the IT industry was able to grow rapidly in the 1990s because it escaped the pervasive controls and regulations that had stifled the growth of traditional industries. Unfortunately, the ignorance of the government is no longer an advantage. In Pakistan, in the last few years, the

[13] For example, at the time of the launch of Uber in Lahore in March 2016, the Uber team met the Punjab chief minister, who assured them of the government's support and initiated discussions on establishing a partnership to promote the use of technology in facilitating the transport sector.

government has focused on increasing tax revenues. While this is clearly necessary, given the weak tax administration machinery and strong pushback from the present government's traditional constituencies, it has found it very difficult to increase the collection of direct taxes. Therefore, it has attempted to increase tax revenues by imposing withholding taxes, in lieu of income tax, on turnover, which is borne disproportionately by the formal, documented sectors and businesses in the economy.[14]

The implications of such a tax policy for established businesses in the formal sector are bad enough; for new businesses in the digital economy, they can be disastrous. There is a very high level of documentation in this sector, as information is available on every aspect of a business from the number of visitors to the company's portal to every transaction that takes place online. The approach of digital businesses in the early stages is very different from businesses in traditional sectors as their aim is not profits, but growth and increase in capital valuation. Amazon, for example, was a multibillion dollar company before it started to make a profit. Uber, which has a capital valuation of over $60 billion and had over $2 billion in gross revenues in the second quarter of 2015, is still making losses on its worldwide operations (Solomon, 2016).

To illustrate the absurdity of the tax regime facing digital companies in Pakistan, we can look at a hypothetical situation. If Uber were a Pakistani company, it would have had to pay an 8 percent turnover tax on $8 billion in gross revenues, i.e., $640 million despite a loss of over a billion dollars. In addition, Uber would have had to withhold income and sales tax (15 percent and 16 percent, respectively) from over 5 billion dollars it paid that year to its driver contractors. In other words, if Uber were a Pakistani company, it would have closed down a long ago or moved to Dubai. The latter is what a number of successful digital businesses in Pakistan are thinking of doing.

Another issue is the taxation of the Internet, which is the backbone of the digital economy and is heavily taxed in Pakistan. Both businesses and individual consumers pay a 10 percent withholding income tax and a 19.5 percent provincial sales tax (except in Punjab) on Internet services, including mobile Internet access. In terms of the cost of doing business, this represents a 30 percent surcharge on the basic price charged by the service provider. In addition, it reduces the demand for Internet services and the profitability of the service providers and thus adversely affects the quality of, and investment in, critical Internet infrastructure in the country.

[14] In theory, individuals and businesses that file income tax returns can get a refund against excess withholding tax payments, but in practice it is virtually impossible to get an income tax refund in Pakistan.

10. Conclusion

This paper has shown that the digital economy has huge potential for growth in Pakistan. The direct benefits of this are large: not only will it boost economic growth in the country, but it will also provide good jobs to a substantial portion of the young people coming out of Pakistan's rapidly expanding higher education system. This is important not only from an economic point of view, but also for political reasons as a large number of educated unemployed persons could be a problem for the security and stability of the country.

The growth of the digital economy would also give rise to a new generation of entrepreneurs and boost investment in the economy, both of which are in short supply at the moment. Moreover, its indirect benefits may be even larger, as it could play an important role in increasing documentation of the economy and improving the functioning of key markets. For example, the labor market in Pakistan is highly fragmented; information on the availability of jobs and salaries is an important reason for this fragmentation. Employment portals such as Rozee make information on job openings and salaries in all skills, industries and parts of the country available to anyone interested. This should result in enhanced labor mobility, improved job-to-skill matching and reduced downtime for new entrants as well as those between jobs. At the moment, these portals cater to white-collar jobs, but it is only a matter of time before blue-collar jobs are also covered.

Another market that would benefit greatly from the development of the digital economy is agriculture where, for most products, there is a large wedge between the prices received by farmers and those paid by consumers in cities. By bringing buyers and sellers together, marketplace websites have the potential to greatly reduce this wedge, thus benefiting both farmers and consumers and increasing the production of high-value crops. Marketplace websites also expand the reach of SMEs and help promote their sales and, therefore, growth.

However, to realize the full potential of the digital economy, the government must recognize its importance as well as how it is different from traditional industries and introduce appropriate changes in the relevant tax and regulatory policies. If such policies are put in place, there is every reason to expect that, in five years' time, the digital economy will be in excess of $2 billion and its high growth rate could transform Pakistan's economy. Together with CPEC, the digital economy could be the new driver of Pakistan's economic growth.

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Appendix

People interviewed by the authors

Name	Position	Company or organization	Date of interview
Nabeel A. Qadeer	Director	Plan9	19 Jan 2016
Monis Rahman	CEO	Rozee	2 Feb 2016
Imran Ali Khan	Co-CEO	Zameen	24 Feb 2016
Badar Khushnood	Entrepreneur in residence	Bramerz	26 Feb 2016
Arslan Nazir	CEO	Shophive	28 Apr 2016
Humayun Mazhar	CEO	CresVentures	3 May 2016
Aezaz Hussain	CEO	Systems Limited	5 May 2016
Khizra Munir	CEO	CO Pakistan	3 May 2016
Faisal Kapadia	CEO	Mindmap Communications	1 Jun 2016
Farzal Dojki	CEO	DotZero Ventures	2 Jun 2016
Fawaad Saleem	CEO	Digital Tribe and Startup Grind	2 Jun 2016
Jehan Ara	President	P@SHA and NEST I/IO	3 Jun 2016
Raza Saeed	CEO	PakWheels	10 Jun 2016
Khurram Zafar	Executive director	LUMS Center of Entrepreneurship	29 Aug 2016