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# CREATING AN ENABLING ENVIRONMENT FOR TECHNOLOGY-DRIVEN BUSINESSES:

The Case of Gilgit-Baltistan (GB)  
and Khyber Pakhtunkhwa (KPK)



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## ACKNOWLEDGEMENTS

This policy brief draws on the learnings and insights from two workshops conducted by the Agha Khan Development Network (AKDN) in Gilgit and Mansehra. This is an attempt to capture the challenges faced by early stage entrepreneurs and small and growing business in setting up and operating technology driven businesses in the region. The aim is to develop actionable policy recommendations in the light of feedback and suggestions shared by the participants. The participants from a wide range of functional domains and institutions joined the consultative sessions i.e. technology entrepreneurs, lawyers, representatives of National Incubation Centres (NICs) and multilateral organizations, civil servants managing the IT portfolio, and researchers from academia. The list of participants is available in the Annex. The study is conducted with the financial assistance of European Union and led by Accelerate Prosperity (AP), Pakistan.

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## 1. Context

The information technology (IT) sector is emerging as a catalyst of economic development in contemporary times, and Pakistan holds tremendous potential of growth in this sector. Pakistan has witnessed significant growth in IT exports since last few years and crossed the \$2.6 billion mark during the fiscal year (FY) 2023. However, experts assert that Pakistan has yet to exploit its full potential, and it must accelerate its growth to capture a greater share in global exports. The recent global data of 2021 reveals that Pakistan's share in the global export of software and IT services is only 0.3% whereas Ireland leads the sector with a share of 28%, followed by India with 11.5% and China with 7.5%. Global trends in the sector underscore a rising wave of growth opportunities in the future. Therefore, the need to propel IT sector forward by creating an enabling environment is of paramount importance.

Pakistan's IT exports are dominated by small-scale software exporters with annual proceeds of less than \$100,000. The analysis of firm-wise data reveals that more than 80% of the firms export less than \$100,000 per year. This indicates the importance of early-stage

entrepreneurs and small and growing businesses in the IT sector. Pakistan's start-up ecosystem is still at nascent stages and is gradually evolving. The public sector needs to serve as a steward in the process to facilitate these businesses in scaling up, attracting more foreign investment, developing skilled IT professionals, and pitching the products to international clients.

The region of Gilgit – Baltistan presents a unique case in terms of its status as disputed constitutional territory, mountainous terrain, scattered and relatively small population. The case of KPK province is slightly different in terms of its constitutional status, however, the other circumstances are somewhat similar in areas far away from the centre of the provincial capital, Peshawar, both in the north and south of the province. Therefore, it's not appealing for the market players to prioritise their investments in these regions. Thus, the fundamental responsibility lies with the government to step in and create an enabling environment for early-stage entrepreneurs and small and growing businesses to thrive. Once the ecosystem is developed then it can eventually lead to a network effect and exponential growth for the broader sector.

## 2. Approach

Several factors hamper the prospects of digitalisation in general and growth of technology-driven businesses in particular. This paper explores the challenges of technology driven businesses around three building blocks of infrastructural needs, institutional facilitation, and human capital investment.

### 2.1 Infrastructural Needs: Access to Internet Connectivity and Electricity

Establishing a resilient infrastructure of essential services is imperative for technology entrepreneurs to foster the growth of their ventures and deliver dependable services to both the local and international clients. It is the fundamental responsibility of the government to address these needs and ensure the provision of these essential services. The infrastructure of essential services includes the availability of uninterrupted electricity supply, stable and speedy internet, banking services, and security. Furthermore, unavailability of these services increases the cost of doing business and adds to the challenges of already resource scarce and bootstrapped early stage businesses. Therefore, the tremendous initial cost of setting up a technology-driven business, either a startup or an IT-related business, and securing the essential services often serve as barriers to entry.

**Network Coverage And Performance:** Pakistan has demonstrated notable advancements in connectivity indicators during the past five years. Mobile cellular subscriptions have surged from around 152 million to 195 million between FY18 and FY22. Broadband subscriptions reached 130 million in FY22, with 127 million utilizing mobile broadband and 3 million relying on fixed broadband. The overall broadband penetration

(combining mobile and fixed) has experienced a Compound Annual Growth Rate (CAGR) of 15.1 percent, resulting in a total broadband penetration of 54 percent in FY22. Despite these strides, Pakistan's digital connectivity still remains low owing to large pockets of unserved and underserved regions. The challenges posed by inadequate network coverage and performance remain substantial barriers to the sustained growth potential in IT-enabled exports.

Moreover, the speed of internet also plays a pivotal role in digital connectivity as internet speed sets the parameters of the effectiveness and efficiency of internet use. According to 2022 Netflix ISP Index, Pakistan's internet speed is 2.8 Mbps compared to global average of 3.5 Mbps and lower middle income countries average of 3.3 Mbps.

The regions of GB and KPK are way below the national averages in terms of coverage and speed of the internet. The region of GB qualifies for the category of unserved and underserved areas defined in the laws as more than 50% of the GB doesn't even have access to broadband internet. There is only one cellular and fixed internet provider i.e. SCO (Special Communications Organization) in GB, whereas four different networks are available in KPK. Even for the existing coverage areas, the internet services of SCO are centred around major urban areas. The network connectivity is altogether a matter of concern with system breakdowns to very slow speed of internet as common occurrence.

**Electricity:** As far the provision of electricity is concerned, the mountainous terrain with dispersed population is a huge barrier for transmission lines and eventually depriving the remote areas from access to electricity. Therefore, the installation of solar power system is



one of the most efficient and effective solution for this challenge. However, the high cost of installation hampers the early stage entrepreneurs in opting for this solution. To create a reliable electricity supply, technology entrepreneurs often have to spend almost 1 million PKR in setting up a solar power system.

## 2.2 Institutional Facilitation: Access to Finance, Taxation, And Partnerships

**Access to Finance:** The availability of funds to start a business is a crucial factor for a venture to be successful. Entrepreneurs working in the technology sector of Pakistan, particularly operating at small scale, face multifaceted challenges to access finance at early stage of their journeys. The two widely available and practiced modes of financing include 1) borrowing from banks and 2) raising funds from venture capital (VC) firms. In the conventional mode of financing through banks, the first barrier in the process is the absence of substantial collateral, as technology companies do not have large parcels of land or plants that could be used as collateral. Often times, early stage entrepreneurs do not even have the working capital needed to meet their running expenses let alone collateral to avail financing. As far as VC funding is concerned, the funding breakdown shows that angel rounds are scarce in Pakistan, which is a constraint for new startups and particularly for small-scale businesses. The investors are not focused on the ideation stage businesses owing to higher risks; the data of VC funding deals from 2015–2022 reveals that only 65 out of total 270 deals were classified as angel round and pre-seed round. It is pertinent to note these numbers represent national-level data, whereas, the share of funding dedicated to businesses operating in GB and KPK is negligible

as the VC funds are primarily concentrated in the provincial capitals.

The adoption of alternative means of collateral including operational cash-flows, personal guarantees, and Intellectual Property Rights etc. can serve as key enablers to facilitate the technology companies at early stages of their businesses. As a next step, these early stage entrepreneurs need facilitation in the form of concessional financing. One use case of this is the concessional financing scheme launched by the IT department of GB under the umbrella of E-Rozgar. The program afforded technology entrepreneurs the opportunity to access loans at a discounted rate, with the department shouldering the associated borrowing costs. It served as a catalyst for small and growing businesses and early stage tech entrepreneurs in the region. Furthermore, with the approval of licenses to digital retail banks by the State Bank of Pakistan, it is pertinent to prioritise and incentivize their penetration in these remote pockets to facilitate entrepreneurs.

**Taxation:** Pakistan's accession to international IT Agreements emphasises across the board reduction in tariffs, taxes and other duties for a large positive spill over of technology on the economy. The government has made progress by facilitating technology entrepreneurs through Special Technology Zones (STZs). Despite designated zones in both the regions of GB & KPK, the government has not been able to operationalise the STZs to the extent to attract national and international IT companies to establish their offices in these regions. The IT and Investment Boards need to network with local and global IT companies and pitch the potential of setting up businesses and availing incentives of tax holidays. The tax incentives include exemption of income tax, and sales tax on goods and services for a period of 10 years, and exemption from tax on dividends and long term

gains on VC investments. The established companies can activate the market in the region and utilise the skilled labour force.

**Partnerships:** The regions remained closed to national and international players for a very long time. The partnerships of local entrepreneurs with their national and international peers is instrumental in strengthening the ecosystem. The governments of respective regions need to serve as facilitator for these partnerships be it public-private, local or global, institute to institute, organisation to organisation or peer to peer. A great case can be an international or local company setting up a centre in the regions for their global shared services (GSS) or business process outsourcing (BPO) services.

## 2.3 Human Capital Investment: Skills, Advice, and Networking

**Skills:** A skilled labour force serves as a key driver of digital transformation and is at the heart of creating a thriving technology ecosystem. Pakistan has started to face human capital constraints in the IT sector in the form of inadequately equipped IT graduates. A recent study by the Pakistan IT Industry Association (P@sha) highlighted that only 10% of the IT graduates from Pakistani universities are employable, given different levels of weaknesses in both technical as well as soft skills. The soft skills include marketing, social skills, problem solving, critical thinking, business development, and English language proficiency needed to engage with players of international market. The local market in the region is at a very nascent stage in terms of universities equipping students with the skills that are relevant and employable in the local and global markets. The preliminary findings of incubation centres and feedback of local entrepreneurs suggest that the graduates from local universities lack the skills in rapidly evolving technology landscape and there is dire

need of coaching and guidance in areas of business growth and commercialisation of ideas. As a result, only few businesses are able to move beyond the idea stage to build a minimum viable product and reach the market. Whereas on the other hand, supply is also an equally large issue whereby graduates are unable to find the certified and reliable resources to gain skills at the local levels.

The investment in human capital requires a multi-pronged approach and development of an ecosystem whereby young minds are able to gain relevant skills, seek mentorship and guidance, and become an integral part of the system. For technical skills, this can be addressed at two levels: a short term solution is the introduction of certifications and rigorous IT skill bootcamps to upskill and reskill the existing graduates in the market. Whereas, the long term solution requires identification and forecasting of emerging skills and eventually revamping the curriculum and teaching methodologies at the universities. This will lead to well-equipped and trained graduates that can meet the evolving needs of the market. Furthermore, the establishment of platforms of knowledge exchange with local and international institutes can also open up avenues for local students to gain skills and join networks. The local collaboration of University of Baltistan (UoB) with Lahore University of Management Sciences (LUMS), for instance, presents a convincing case to be scaled up for similar opportunities for local students.

**Advice and networking:** As far as the areas of advice and networking are concerned, this is made possible through the creation of physical spaces in the form of incubation centres, science and technology parks (STPs), and digital hubs. The NICs in provincial capitals, STPs and Digital Hub of Gilgit present a strong proof of concept. These spaces offer fully-equipped and

collaborative co-working spaces to aspiring and emerging entrepreneurs to exchange ideas, seek guidance, and learn from industry experts. In the case of GB and KPK, the remoteness of these regions may serve as a hindrance for engagement with mainstream players of the technology ecosystem who are stationed in cities like Lahore, Karachi, and Islamabad. Therefore, a stronger collaboration among these entities along with setting up exchange programs can serve as a key enabler of network effect.



## 3. Recommendations

Pakistan needs to take meaningful steps to make the IT sector a key driver of economic growth in the country. In the context of GB and the province of KPK, the governments need to consider a combination of immediate to long term recommendations:

### 3.1 Immediate Term



Increasing coverage and speed of 4G cellular broadband connectivity throughout the regions by inviting more national providers to GB and helping strengthen their capacity.



Offering discounted pricing through tax incentives and provision of subsidies for internet services, this is instrumental not only for technology businesses but for social, economic and political developments as well.



Aggressively facilitating partnerships at institutional level e.g. local public universities with national public or private universities like UoB-LUMS, setting up NICs Learning Exchange Programmes by sending delegates to other cities in winters and vice versa in summers.



Strengthening the relationship of local entrepreneurs with the relevant government departments through greater accessibility, regular consultations, and stronger communication in areas of mutual interest.



Expanding the coverage of fibre optics based fixed broadband to all the tehsil headquarters and catchment areas to bring the services in the region at par with national average.



Expanding the scale and scope of existing schemes of concessional financing e.g. E-Rozgar and launching new initiatives. The new initiatives may include schemes to finance solar solutions for technology entrepreneurs.



Enhancing global visibility by facilitating representation of local entrepreneurs and departments at international platforms including roadshows, Expos, global ideas sharing events like GITEX by allocating funds and facilitating logistics.

## 3.2 Medium Term



Creating and maintaining a network of Digital HUBs and associated clusters of Digital Camps. The Hub can serve as one-stop shop for entrepreneurs to meet their infrastructural, financial and administrative needs by offering all the essential services of co-working spaces, reliable electricity, high speed internet to tax holidays. Whereas the Digital Camps can be a small room equipped with similar services in a village whereby landline broadband is available. The proof of concept is well demonstrated by Digital Hub Gilgit and associated tech villages.



Operationalising the Public Private Partnership (PPP) Act in GB to incentivise private sector to enter the market and facilitate the early-stage entrepreneurs. PPP framework can also be used as a special vehicle to facilitate deals for Digital Hubs, Business Centres, and IT ventures.



Establishing at least one Business Centre each in Gilgit and Malakand division at an easily accessible location to serve as a platform for networking of tourists and visitors with local entrepreneurs. This can also be a place to interact and exchange ideas, showcase local products, hold Expos and business conferences.



Creating joint platforms for communication & learning for public sector departments and universities of GB and KPK. The platforms can be in the form of inter-provincial symposiums, working groups or even STPs for sharing of learnings and challenges in the technology ecosystem.

## 3.3 Long Term



The GB and KPK governments need to actively engage with Universal Service Fund (USF) to seek transfer of their due share of funds from the federal government. Moreover, they need to ensure that the initiatives of providing broadband services to unserved and underserved areas are delivered in their respective regions.



Revamping the public university degree programs of Computer Science and IT related disciplines to ensure that graduates are equipped with the right skillset that meet market demands.



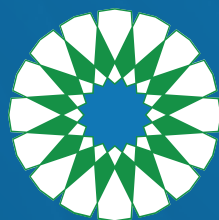
Optimally utilising the platforms of Special Technology Zones Authority (STZA) by fast pace establishment of STZs and inviting international corporations to GB and KPK to set up their offices and avail tax holidays of income, sales & dividend tax, and exemption on imports duties.





## Annex: List of Participants

Sr.	Name	Affiliation
1	Zaheer Abbas	Project Coordinator GB, UNDP
2	Dr. Aftab Ahmad Khan	Assistant Professor, KIU
3	Dr. Saranjam Baig	Associate Professor, KIU & University of Oman
4	Zameer Abbas	Secretary IT, Govt. of GB
5	Ehsan Karim	Deputy Director – IT, Govt. of GB
6	Kumail Abbas	Deputy Secretary IT, Govt. of GB
7	Izhar Abbas	Chief Investment Officer, Apex & co. by Rupani
8	Marvi Soomro	Founder & CEO, IEI, Tech Seheli
9	Mehnaz Parveen	Head of Programs, Soni Jawari Center for Public Policy
10	Bushra Dinar	Programme Manager, Incubation Centre KIU
11	Nur ul Abidin	Hub Manager - Digital Hub Hunza, KADO
12	Mohsin Amir	Founder & CEO, IdeoMetriX
13	Anees Amin	CEO, TechScape Pvt Limited
14	Mehwish Karim	CEO, Stepup Ademia
15	Naeem Sardar	Cofounder & COO, Uconnect
16	Faheem Samad	Cofounder & CEO, Calibreon
17	Aisar Mukhtar	Founder & CEO, Mountain Production
18	Kashif Hussain	Cofounder & CEO, Cloudlem
19	Zahra Noreen	Cofounder & CEO, Shedev
20	Ahmed Manzoor	CEO, Pakistan Blockchain Institute
21	Hamza Ali	Binance, Pakistan
22	Sikander Ali	Binance, Pakistan
23	Dr. Mukhtaj Khan	Chairman of IT Department, University of Haripur
24	Zahid Nawaz	Project Manager, Durshal
25	Muhammad Akram Mughal	Deputy Director Network Security, Federal Investigation Agency (FIA)



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Accelerate Prosperity is a global initiative of the Aga Khan Development Network (AKDN) in Central and South Asia which offers creative financial solutions as well as pre and post investment technical assistance to help grow early-stage businesses, startups, and innovative ideas.

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