Study for Assessment of Pakistan's Startup Ecosystem

Submitted to:
Ignite – National Technology Fund

Submitted by:

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List of Acronyms

AAEA	Advance against equity agreements
ACRA	Accounting and Corporate Regulatory Authority
AOA	Articles of Association
AOP	Association of Persons
ASEAN	Association of Southeast Asian Nations
BIC	Business Incubation Centers
BOT	Bank of Thailand
CAGR	Compound Annual Growth Rate
CCP	Competition Commission of Pakistan
CDC	Central Depository Company of Pakistan Limited
CDS	Convertible Debt Notes
CGPDTM	Controller General of Patent, Trademark and Design
CIPAM	Cell for IPR Promotion and Management
CUIN	Corporate Unique Identification Number
DFID	Department of International Development
DFIs	Development Financial Institutions
DFT	Deal Flow Tracker
DKPTO	Danish Trademark and Patent Office
DPIIT	Department for Promotion of Industry and Internal Trade
DRAP	Drug Registration Authority of Pakistan
ECAC	Electronic Certification Accreditation Council
EGC	Emerging Growth Companies
EMIs	Electronic money institutions
EOBI	Employees Old-Age Benefits Institution
EPO	European Patent Office
ESO	Entrepreneurial Support Organizations
ESOP	Employee Stock Option Plan
ETO	Electronic Transactions Ordinance
FBR	Federal Board if Revenue
FDI	Foreign Direct Investment
FE Manual	Foreign Exchange Manual
FERA	The Foreign Exchange Regulatory Authority
FERP	FATA Economic Revitalization Program
FIA	Federal Investigation Agency
GCI	Global Competitiveness Index
GEM	Growth Enterprise Market
HEC	Higher Education Commission
HSR	Hart-Scott-Rodino
i2i	Invest 2 Innovate
IBA	Institute of Business Administration
IBAN	International Bank Account Number
ICE	International Certificate in Entrepreneurship
ICT/IT	Information & Communications Technology
IP	Intellectual Property
IPO	Intellectual Property Organization

IPO	Initial Public Offering
IPO of Pakistan	Intellectual Property Organization of Pakistan
IPR	Intellectual Property Rights
IRA	Inland Revenue Authority
ITO	Income Tax Ordinance
KITS	Karnataka Innovation and Technology Society
KPITB	Khyber Pakhtunkhwa Information Technology Board
LLC	Limited Liability Company
LLP	Limited Liability Partnership
LUMS	Lahore University of Management Sciences
M&A	Mergers and Acquisitions
MAS	Monetary Authority of Singapore
MENA	Middle East North Africa
MOA	Memorandum of Association
MOI	Ministry of Interior
MOITT	Ministry of Information Technology and Telecommunications
MRA	Market Readiness Assistance
MSMEs	Ministry of Micro, Small and Medium Enterprise
NBFCs	Non-Banking Finance Companies
NCVA	National Venture Capital Association of the United States
NFT	Non-Fungible Token
NIC	National Incubation Center
NICK	National Incubation Center Karachi
NITB	National Information Technology Board
NJA	National Judicial Academy
NSTP	National Science and Technology Park
NTN	National Tax Number
NUML	National University of Modern Languages
NUST	National University of Science and Technology
NYC	New York City
OIC	Office of the Insurance Commission
ORIC	Office of Research, Innovation and Commercialization
P2P Lending	Peer to Peer Lending
PE & VC	Private Equity and Venture Capital
PEP	Promotion of Education in Pakistan
PESSI	Punjab Employees Social Security Institution
PITB	Punjab Information Technology Board
PRC	Proceeds Realization Certificate
PSBA	Private Sector Borrowings from Abroad
PSEB	Pakistan Software Export Board
PSER	Pakistan Startup Ecosystem Report
PSW	Pakistan Single Window
PWC	PricewaterhouseCoopers
R&D	Research and Development
RBI	Reserve Bank of India
REIT	Real Estate Investment Trust
SAFE	Simple Agreement for Future Equity
SB	Small Businesses

SBP	State Bank of Pakistan
SBP	State Bank of Pakistan
SCB	Standard Chartered Bank
SDG	Sustainable Development Goals
SEBI	Securities and Exchange Board of India
SEC, Thailand	Securities and Exchange Commission of Thailand
SEC, U.S.	U.S. Securities and Exchange Commission
SECP	Securities and Exchange Commission of Pakistan
SEED	Sustainable Energy and Economic Development
SESSI	Sindh Employees Social Security Institution
SIPP	Scheme for Facilitating Start-Ups Intellectual Property Protection
SLA	Service Level Agreement
SMEDA	Small and Medium Enterprises Development Authority
STR	Secured Transaction Registry
STZA	The Special Technology Zones Authority
SUTE	Startup Tax Exemption Scheme
TECS	Technology Enterprise Commercialization Scheme
TIC	Technology Incubation Center
TiE	The Indus Valley Entrepreneurs
TISC	Technology and Innovation Support Centre
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UOP	University of Central Punjab
US	United States of America
USTR	Office of the United States Trade Representative
VAT	Value Added Tax
VC	Venture Capital
VCAP	Venture Capital Association of Pakistan
WECREATE	Women's Entrepreneurial Center of Resources, Education, Access, Training for Economic Empowerment
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

Laws, Acts & Regulations

ARC	German Act Against Restraints of Competition
Berne Convention	Berne Convention for the Protection of Literary and Artistic Works
CDA	Central Depositories Act of 1997
Companies Amendment Act	Companies (Amendment) Act 2021
Copyrights Ordinance	Copyrights Ordinance 1962
CROWDFUND Act	Capital Raising Online While Deterring Fraud and Unethical Non-Disclosure Act of 2012
DTSA	Defend Trade Secrets Act of 2016
ETO	Electronic Transaction Ordinance 2002
ICT Act	Information and Communication Technology Act, 2006
IPO Act 2012	Intellectual Property Organization of Pakistan Act 2012
ITO	Income Tax Ordinance 2001
JOBS Act	Jumpstart Our Business Startups Act 2012
MFIO	Microfinance Institutions Ordinance 2001
NBFC Regulations	Non-Banking Finance Companies and Notified Entities Regulations 2008
NBFC Rules	Non-Banking Finance Companies (Establishment and Regulation) Rules 2003
Paris Convention	Paris Convention for the Protection of Industrial Property
Patents Ordinance	Patents Ordinance of 2000
PCT	Patent Cooperation Treaty
PECA	Prevention of Electronic Crimes Act 2016
Private Fund Regulations	Private Fund Regulations 2015
PS & FT Act	Payment Systems and Electronic Funds Transfer Act 2007
PSW Act	Pakistan Single Window Act 2021
PTA Act	Pakistan Telecommunication (Re-organization) Act 1996
Regulations 2020	Companies (Further Issue of Shares) Regulations 2020 Companies (Issue of Capital) Rules 1996 Rules 1996
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
STA	Financial Institutions (Secured Transaction) Act 2016
STZA Act	Special Technology Zones Authority Act 2021
Trademarks Ordinance	Trademarks Ordinance 2001
UTSA	Uniform Trade Secrets Act

Executive Summary

This project has been sanctioned by Ignite – National Technology Fund for a study to assess the startup ecosystem in Pakistan. The ecosystem review will be supplemented by policy recommendations based on interaction with various stakeholders in the ecosystem. Stakeholders include detailed interviews with startups, policy makers, regulators, banks, incubators & accelerators, angel investors, venture capital funds and sector experts. The specific findings and key takeaways from these discussions have been used to populate the various sections in this report.

The assessment of the ecosystem began with a literature review to identify the baseline of the ecosystem, beginning from 2016, and the current state of the ecosystem, along with the identification of key stakeholders. The identified stakeholders were interviewed/surveyed, and the findings of the research were used to formulate recommendations for the future development of the ecosystem. These recommendations have been benchmarked with international best practices so that any relevant policy measures can be devised and subsequently implemented.

Initially a baseline review of the startup ecosystem has been undertaken for the year 2016, when the first National Incubation Center in Islamabad was commissioned. The baseline study has been done to identify the state of the startup ecosystem of Pakistan in 2016, and to analyze this against the current state of the ecosystem. The baseline study identifies the key players at the time when the ecosystem was still budding. In 2016, the government announced the launch of National Incubation centers across Pakistan, which would become operational in 2016. Similarly, there were a handful of private equity firms and lack of angel investment. Angels were increasing too slowly; foreign VCs were dropping out of Pakistan. Policies and payment systems were also a key hinderance, along with issues in deal flow and lack of exits inhibiting investor confidence. There were five notable incubators in Pakistan (Plan9, The Nest i/o, LCE, NUST Technology Incubation Center & Founder's Institute).

Pakistan's startup ecosystem was slowly seeing signs of activity and growth at the time. The Higher Education Commission (HEC) promoted the growth of incubation by mandating the setup of Business Incubation Centers and Offices of Research, Innovation and Commercialization (ORICs). However, such programs lacked quality, and there was a lack of communication and coordination among universities. Support players such as incubators, accelerators, co-working spaces etc., were operating in silos. There was a prevalent lack of industry-level data collection and storage leading to a lack of data-driven growth trajectory.

To understand entrepreneurship ecosystems in other countries and draw relevant examples for Pakistan to strengthen its ecosystem, an international benchmarking exercise was done. Comparisons were drawn from startup ecosystems operating in other economies of the world that are role models for Pakistan, such as the Silicon Valley in the USA, Tech Valley in Bangalore, India, or in other similar economies comparable to Pakistan in the MENA region, Israel, and Estonia in East Europe. This helped identify the key features that augment the growth and success of startup ecosystems globally. Startups in international ecosystems exhibit the ability to integrate their innovation strategies with their business strategies, especially with the integration of technology. International ecosystems are fast paced and focused on digitization (as in the case of Estonia, Egypt, Israel). Due to this, startups across the board must exhibit flexibility in pre-planning during market validation e.g., testing a minimum viable product and getting market feedback before tweaking their business model. This helps create a commercialize-able product that caters to industry driven demand. Globally, all data is collected, and repositories/indexes have been created to track startup activity.

Entrepreneurial Support Organizations (ESOs) over the globe offer a wide suite of benefits and services to their startups. There is great emphasis on mentorship/coaching/training offered at accelerators, with tailored programs being offered along with generic ones. Another key feature is the network comprising of Industry-Academia-Government support and its connection with the ESO directly in contact with startups. Affiliations enable access to mentors that can help with disciplines of a wide variety, and mentor lists can be perused by startups before the ESO helps them connect and create relationships.

An important aspect of international incubators is their attachment/affiliation to either an external VC/angel/equity fund, or the presence of their own fund. International startups have more rapid access to capital (venture capital) as and when needed. This process is facilitated by ecosystem players being aggregated in a single relation so that they can work in proximity, as observed in various startup destinations (Silicon Valley, Bangalore). This enables resource sharing in a knowledge and innovation-based ecosystem. All of these activities are supported by conducive and relaxed regulatory policies.

International benchmarking was also used to undertake an analysis of the regulatory frameworks in place in each of the selected regions and economies. This analysis has helped in drawing a comparison of initiatives and incentives available to the start-up sector, in terms of tax exemptions, recognition by the procurement authorities for inclusion in public sector contracts, and dedicated authorities established for looking after the interest of startups, including handling their registrations, disputes and specific legislations with respect to startups in some economies within dedicated zones. The legal and regulatory framework section of this report discusses in detail all such incentives and specific regulatory challenges identified in the startup ecosystem in Pakistan.

The start-up ecosystem review and analysis entail detailed meetings with key stakeholders and regulators. For these engagements more than 60 startups belonging to different geographies across Pakistan were selected, and the discussions with them were carefully analyzed and used to develop thematic areas of the start-up ecosystem; their journey as a start-up, their experience with ESOs, access to finance, the availability and challenges with respect to human capital in Pakistan, especially in the IT industry, challenges with respect to raising finance and accessibility to angels and venture capital funds available in Pakistan. Exit strategies and available avenues were also discussed, especially in line with some of the initiatives by the SECP for this space, such as the Sandbox, and other conventional modes of exit that are available or are in practice by the startups operating in Pakistan.

In addition to startups, key regulators that play a part in the ecosystem were also included in the study to understand the challenges being faced in the regulatory side such as the lack of visibility of funds raised by startups through international communities in Pakistan, and the absence of some important regulatory support areas that are necessary for the ecosystem, such as the laws with respect to bankruptcy, payment systems, foreign currency repatriation, foreign investment regulations, and other challenges such as the registration of products with the Intellectual Property Organization of Pakistan.

One-on-one meetings with the NICs operating in all four provinces were held and a review of their contribution along with their challenges has been included in the overall analysis of the ecosystem. There need to be more bespoke programs for women entrepreneurs at NICs and other incubators. Operational challenges in some of the NICs were also highlighted such as the use of premises by startups and available operating hours owing to the requirement of working with other time zones by some of the businesses, that need to be addressed by the operators. Similar observations were highlighted during interaction with startups operating from co-working spaces in different parts of the country, who mentioned the merits of having a more professional intermingling and cross germination of ideas with other startups who have either raised financing or have been faced with similar challenges during their journeys, as opposed to the support and capacity development they experienced at the NICs. This aspect of the ecosystem has been discussed in more elaborate detail in the section for recommendations with respect to the ecosystem, for the relevant stakeholders to take necessary action.

The establishment of new NICs in some of the second tier and smaller cities with entrepreneurial potential has also been covered as part of this project. The rationale for establishing new NICs with an outreach to include smaller communities with recognized entrepreneurial potential has been developed. The rationale takes into account that, while the probability of finding good entrepreneurs is higher in urban areas, smaller cities also have entrepreneurial potential. However, the will and capacity to develop that entrepreneurial idea or opportunity into a workable commercial venture is weak. This potential can be adequately explored if incubation centers are taken to smaller cities, rather than taking entrepreneurs to bigger cities. The latter will enable more local participation and provide easier accessibility along with lower logistics costs for the founder to stay close to home while gaining the same benefit of being trained at a locally situated incubator. Another opportunity in Pakistan's entrepreneurship eco-system is that of vertical integration or offering

specialized incubators. The recommendations section later in the report highlights a few examples of such incubators.

Access to finance or capital are means for survival for any business. Startups have a tendency of bootstrapping and sustaining their idea using financial support from family or informal sources before their idea is commercialized and gets close to sustainability. This is the most sensitive stage for a start-up as most of the businesses fail at this stage owing to the lack of financial support available for the founder to take the idea to the next level. Therefore, it is imperative to sustain the idea at this stage by providing the founder with accessible financing from angel investors or other opportunities for being accelerated to the next level. The need for activating more family offices that have the appetite for absorbing risk that is imminent at this stage of the start-up lifecycle, by providing them with the support and capital needed to survive through the challenging times before becoming sustainable on their own business model, is evident. Moreover, for subsequent series of financing needed for growth and expansion, the sector is mainly looking at venture capital firms and funds that are operating internationally and have stronger financial bandwidth but have the appetite for investment in developing economies like Pakistan. While these funds have a better risk absorption capacity owing to the nature of their business model, as opposed to banks and financial institutions operating in Pakistan, that have a collateral-based model for financing, the accessibility of these funds and the success ratio of founders for being able to raise financing is minimal. The instances where founders have been able to raise from foreign VCs have been seen primarily in the case of startups that were founded by foreign graduates that have strong alumni networks available with VCs operating with their universities or incubation centers, or those that were part of high-growth businesses like SWVL and Careem. It is important for stakeholders in Pakistan to provide the necessary space to startups for being able to compete with other economies that have excelled in this domain. A conducive legal and regulatory framework, financial freedom of being able to raise money and retain it in foreign currency will give the required depth to the economy, as well as create the culture of freedom and trust in the government that is needed for creating a competitive environment for the start-up ecosystem, that is now being focused on by different business and economic fora as a means for enhancing IT exports of the country.

A glaring gap exists when it comes to the number of women entrepreneurs active in Pakistan, as well as the number of women-led businesses that have raised investment. Out of more than USD 277 million raised in the first half of 2022, only USD 1.8 million has been raised by a woman entrepreneur, and that too, *one* woman entrepreneur! This trend is evident in the past as well with 2020 marking the first year when a female-founded startup, Aimfit, raised USD 1 million. There is a clear need for more women-focused funds targeting women entrepreneurs at all stages in their journey. Furthermore, only a handful of women VCs exist in the country and more effort must be put in to educate and prepare women investors. At the same time, existing VC firms, private equity entities and other funding bodies need to induct more women in their teams and decision-making roles.

In addition to the above, the taxation system applicable on startups and freelancers was reviewed. For this purpose, a review of the laws including Income Tax Ordinance, Sales Tax Act, provincial sales tax acts on services of Khyber Pakhtunkhwa, Punjab, Sindh, and Baluchistan to identify the tax incentives offered at federal and provincial level. For startups, a comparative analysis was also performed with several regional and international destinations, for example India, Silicon Valley (USA), Singapore and Indonesia. The tax regime applicable in Pakistan for IT and startups can be generally termed supportive as opposed to other industries operating in Pakistan. During interaction with Startups some of the areas of difficulty were the non-awareness of laws and the complex provincial sales tax system. The research also revealed that the current taxation regime in Pakistan is not as supportive in some of the other countries in the region. The report offers some recommendations in relation to the tax incentives to be offered to startups if Pakistan wants to attract investment in the startup space and provide a conducive and enabling eco-system for tech companies.

Furthermore, the Report contains an extensive gap analysis of the current legislation, laws, and regulations in Pakistan with a particular focus on access to capital and exit framework, legal and regulatory compliances, and the Intellectual Property Rights Framework applicable to startups. This gap analysis is a precursor to the recommendations for implementation of policy measures aimed at facilitating startups. The gaps have been identified and the recommendations have been proposed through a benchmarking exercise

undertaken in light of the international jurisdictions where the startup ecosystem is well developed or developing rapidly i.e., USA, Dubai, Singapore, Thailand, and Bangladesh.

The Report makes reference to the overlapping mandate of regulatory authorities and the interplay between various agencies when it comes to regulating the parties involved in the startup ecosystem including their activities and transactions and identifies a comprehensive list of various compliance requirements that have to be fulfilled by startups.

In addition to the gap analysis, the existing legal and regulatory framework was reviewed specifically to address issues with compliances, access to finance, and the Intellectual Property Regime. The issues mainly stem from conflicting legal provisions, conflicting mandates of regulators, independent actions of regulators and lack of coherence between laws, policies, decisions, and actions of the regulators concerning startups. Some of the major issues are, 1) conflicting definitions of startups in the Companies (Amendment) Act 2021 and the Income Tax Ordinance 2011, 2) excessive transaction costs associated with statutes that conflict other laws or impose onerous compliance requirements, 3) outdated practices such as manual attestation and notarization of documents; 4) incoherence and lack of coordination between the actions of regulatory agencies who are framing legislation/policies for the ease of doing business; 5) remittance issues associated with raising capital from abroad, delays in profit repatriation, numerous compliances for foreign entities/individuals operating and/or investing in Pakistan; and 6) delays caused by capacity issues particularly relevant to the Intellectual Property Organization.

The Full Report specifically highlights the laws applicable to startup financing, access to capital and conducts a gap analysis of the laws and regulations which restrict easy access to finance by startups and while funding and access to capital for startups has increased in the last few years, the laws and regulatory landscape is not particularly conducive for transactions to go through since there are systematic issues that affect the capacity to raise finance especially from abroad. The legal framework and issues surrounding debt financing i.e., loans from banks, Peer- to-Peer lending, equity financing (i.e., purchase of shares, right shares, transfer of shares), share swaps, equity crowdfunding, employee stock options, and hybrid financing (i.e., convertible debt notes, SAFEs) have been addressed in particular.

In addition to the laws applicable to the modes of financing, the laws relevant to exits in the form of Initial Public Offerings, Merger and Acquisitions, Private Placements etc. that directly affect the startup ecosystem and determine the incentives for VCs and angels in investing in startups have been analyzed.

The Startup Ecosystem

Chapter 1. Introduction & Methodology

1.1 Introduction to the Assignment

Recognizing that the technology sector in today's world will enable a major impact on economic development, Pakistan has rapidly moved towards facilitating and embracing steps which will lead to rapid progress. Pakistan's initiative for the development of an ecosystem is in its early stages. A key factor for this development is the provision of an enabling ecosystem to facilitate the development of this sector. This study requires addressing the ecosystem requirement on a major segment of the IT/Tech sector, the Startup Ecosystem.

1.2 Assignment Objectives

The objectives of this assignment were to conduct comprehensive research studies on the startup ecosystem, which have been detailed below:

i. **Assessment of the Startup Ecosystem in Pakistan:** Conducted a robust assessment of Pakistan's startup ecosystem to understand its evolution, key existing support for startups, identification of gaps and challenges to be addressed at the policy level and highlighting critical components & growth drivers necessary for success of startups in Pakistan. This included a thorough analysis of existing regulatory framework, intellectual property rights (IPR) regime for startups, tax regime for startups, access to finance options for startups, framework for exit strategies.
ii. **Performance Analysis of Key Incubators/Accelerators:** Analyzed performance of key Incubators/Accelerators and identify potential gaps/factors critical for their success/failure including but not limited to curriculum, mentoring, coaching staff, infrastructure, outreach, revenue generation, access to capital/investments, etc.
iii. **Gaps Identification in Pakistan's Eco-system:** The first two parts of the project have enabled the identification of gaps, challenges, and issues of the eco-system.
iv. **Comparison of Pakistan's Startup Eco-system with Existing Regulatory Frameworks with International Models**: The above-mentioned assessment of the existing regulatory framework, IPR, tax regime for startups provided the basis for conducting a comparative study of some of the best global startup and incubation/acceleration ecosystems around the world including Silicon Valley, Singapore, Bangalore, etc. and a comparison with the ecosystem in Pakistan.
v. **Analysis of Future Needs of Development of New Incubators:** Identified additional 15 cities of Pakistan in terms of entrepreneurial potential.
vi. **Development of Business Case for Proposed Recommendations:** Developed comprehensive policy measures, regulatory incentives, packages for promotion of tech startups, both software and hardware based, aimed at facilitating and nurturing the startup eco-system at national level, and incentives for investments from local and foreign sources including VCs, Angels & other relevant funding bodies.

1.3 Overview of the Startup Ecosystem

Currently the concept of enabling, facilitating, and supporting tech startups is a prime focus across the world, and Pakistan is also trying to do the same with increasingly visible results. However, a majority of startups are faced with issues, and it is believed that 90% of startups fail.[1] Presently, **Pakistan ranks at 75** among the top 100 countries in startups with neighboring countries India and China ranked 20th and 7th in terms of startups proliferation.[2] The recent announcements of capital raising show that, in 2021 **Pakistani startups raised $373 million and in 2022, Pakistani startups raised $ 360 million**.

[1] https://www.forbes.com/sites/neilpatel/2015/01/16/90-of-startups-will-fail-heres-what-you-need-to-know-about-the-10/?sh=79a9882c6679
[2] Global Startup Ecosystem Index 2021, StartupBlink.

1.4 Overall Approach to the Study

- The overall approach for conducting this study entailed deployment of two teams which gathered the data independently or collectively, as required, to ensure that the research is completed in a timely manner. Certain key experts proposed in the project have conducted a thorough review of all policies that impact startups, for instance the tax regime, banking and payments mechanisms, access to finance, ease of doing business etc.
- Furthermore, the approach was a mix of primary and secondary research as well as comparative analysis with top performing countries in terms of startup ecosystem performance and success. Benchmarking against best practices and standards provided a basis for the recommendations made to the stakeholders for strengthening the interlinked eco- systems.

Chapter 2. International Benchmarking of Startup Ecosystems

2.1 Global Perspective & Comparison

For the purpose of this study, a review was conducted of the existing literature pertinent to startup ecosystems. To accomplish this, existing reports, articles, blog posts, white papers, research studies etc. relevant to different startup ecosystems around the world, particularly the top selected destinations, were reviewed.

The review is to identifies the strengths and workings of different types of ecosystems operating globally, their success factors, gaps, investment landscape etc., and to compare the studies present within existing literature to the current state of the local ecosystem. Existing policies will also be reviewed and benchmarked against other countries' policy frameworks.

A common feature of these growing ecosystems is the influence that technology has over their growth. New technologies appear in conjunction with the infrastructure required to produce and distribute them. (Condom-Vilà, 2020) Startups, which are geared towards high and rapid growth, are better suited towards the adoption of new technology rather than traditional firms. This is in line with the overall entrepreneurial ecosystem in which startups all over the world thrive. With the advent of new information and technology available globally, startup ecosystems have experienced growth.

By the middle of 2021, there were more than 800 startups around the world with valuations above $1billion, for a cumulative valuation in excess of $2.6 trillion, according to CB Insights. (Startup Genome, 2021) However, when we look at the concentration of these startups, the United States dominates and has the highest valued startups. Similarly, high valued startups have been concentrated within the G7 countries for a long time, but "unicorns", i.e., startups with a valuation of $1 billion, are emerging from other countries such as India, Israel and especially China. (Startup Genome, 2021)

Global e-commerce rose to $26.7 trillion, and the number of people buying food and household items online grew an average 30% worldwide. Businesses pivoted to remote work due to the pandemic and companies sped up digitization of customer and supply-chain operations by three to four years, reports McKinsey & Company. All of these became areas where investors could then divest their capital. In the first half of 2020 venture funding worldwide was $148 billion. In the first half of 2021 it had soared 95% to $288 billion, with increases at every stage, according to Crunchbase. (Startup Genome, 2021)

In the B2B market space, many companies simply adopted technology faster to stay competitive and reduce the vulnerability of their workforce and supply chain; among those that have risen, all are predominantly technology based, or at least incorporate some form of technology or digitization. Life Sciences and Clean Tech are two sectors which have soared during and post-pandemic. Other sectors that have risen include Ed-tech, Cybersecurity, Gaming, and Deep tech; a sector involving the fusion of science and engineering, AI & Big Data, and Advanced Manufacturing & Robotics. The latter has seen a significant increase in funding from local and private VCs.

Silicon Valley - California

"*A third of total venture funding in the U.S. — more than $25 billion — flowed into the Valley in the first quarter of 2021. It is indisputably the world's top startup ecosystem."*[3]

Silicon Valley is undoubtedly one of the top Startup Ecosystems in world, if not the best. Multiple nations have tried to replicate the ecosystem; however, this is easier said than done. The location of Silicon Valley and its surrounding area has an abundance of universities, government research centers and commercial labs; access to plentiful venture capital; a large pool of talented workers and a highly entrepreneurial, risk-taking culture. However, Silicon Valley does not have a monopoly over these features, yet it remains at the top.

[3] https://startupgenome.com/ecosystems/silicon-valley#:~:text=A%20third%20of%20total%20venture,major%20role%20in%20the%20ecosystem.

Bangalore – Karnataka

"Bangalore has served as India's technology capital for over three decades now. With a robust heritage of premier R&D laboratories, academic institutions, and public sector focused firms, the city has significantly contributed to India's IT leadership in the world." [4]

Indian startups raised USD 12.1 billion in the first half of this year, demonstrating the rapid growth of India as a global hub for tech and innovation (Business Standard, 2021). Bangalore is the capital of India's southern Karnataka state and is the center of India's high-tech industry. With nearly 12.3 million inhabitants, the city has been dubbed "the Silicon Valley of India". Bangalore began its transformation into an IT and innovation hub in 1984, when Indian policies regarding imports and exports of hardware and software were liberalized. This allowed companies to setup in Bangalore and take advantage of its local human capital, Indian Programmers.

The largest factor which contributes to Bangalore's success is the support provided by the Indian government, which designated a large piece of land for the development of an electronic city. [5] Now the infrastructure of the city allows it to become a hotspot where global entrepreneurs can meet up and interested investors can invest. It can be observed that the state government has effectively leveraged its policies to create this hub.

Reasons For Startup Growth[6]

1. **Tech Talent**
   With between 1,800 and 2,300 active startups, Bangalore is the hottest startup ecosystem in India, attracting IT job seekers from across the country. This influx of young talent makes it easy for startups to hire hardworking employees at low-cost.
2. **Access to Investors**
   Bangalore offers founders relatively easy access to a large number of venture capitalists and angel investors. Startups can also apply to the Karnataka Government for funds. Since setting up its startup policy in 2015, the state government has set up several funds totaling over Rs. 300 crores/$ 40.5M to back startups across different sectors such as biotechnology, tourism, and animation.
3. **Infrastructure**
   Karnataka, a leader in technological innovation, has 44% of India's R&D centres, including some of the biggest R&D centres, such as Google's first AI and machine learning focused center, Intel's largest 5G technology design center, GE's largest IoT R&D center, all of which are second only to their centres in the US, and Samsung's largest R&D center outside South Korea. The state's Startup Cell aims to create top tier incubation infrastructure and promote Bangalore and Karnataka as premier startup destinations.

2.2 Developing an Enabling Environment[7]

The Situation in Pakistan

Developing countries such as Pakistan face larger constraints to grow their digital economies. Firstly, they lag in **digital infrastructure availability, which translates into lower levels of internet usage across these nations**. In recent years, Pakistan has begun to turn this around with increasing levels of internet penetration. There were 61.34 million internet users in Pakistan in January 2021. The number of internet

[4] Prakash, Prashanth. "How Bangalore Became Asia's Silicon Valley", thescalers, https://thescalers.com/how-bangalore-became-asias-silicon-valley/

[5] Bianchi, Sébastien. "Startup Ecosystem of Silicon Valley and Bangalore: Depiction and Comparison", https://www.academia.edu/18111902/Startup_Ecosystems_of_Silicon_Valley_and_Bangalore_Depiction_and_Comparison

[6] https://startupgenome.com/embedded/bangalore-karnataka

[7] "Think differently. Think archetype. Your digital economy model: *A novel approach to digital transformation and policy reform"*, July 2020, Arthur D. Little.

users in Pakistan increased by 11 million (+21%) between 2020 and 2021. Internet penetration in Pakistan stood at 27.5% in January 2021.[8]

To support this increase there needs to be an increase in digital infrastructure in tier 2 and tier 3 cities. This increase needs to be supplemented by increasing awareness and digital literacy rates in Pakistan. Women are especially lagging in terms of digital literacy in tier 2 and 3 cities, and more work needs to be done to create awareness. **This can be done through creating targeted digital programs** catering to the level of existing education and infrastructure in lower tier cities.

Further challenges arise from a wide **gap in digital capabilities and awareness** compared to those of developed nations. Developing nations need to carefully recognize their digital landscapes and select policy actions that will maximize the benefits of digitalization, given their limited resources. If developed countries succeed at adopting digital technologies, they will become more competitive and maintain their global influence. For developing countries, the prize is even more significant, as digitalization could support an economic leapfrog. Most countries have become aware of the benefits that could arise from digitalization. Therefore, they will have started drafting their digital economy strategies and thinking about the best ways to close the gap with countries already advanced on the digital transformation quest.

Arthur D. Little has introduced an Archetype model for comparing the degree of digitization in an economy. An archetype serves as a reference model that countries can adapt based on their current situations. The archetype framework can be used for assessing opportunities and challenges, and then analyzing the options for development of strategies, specific to a country's situation. It allows a country to make necessary choices and trade-offs when designing and implementing strategy within human, financial and institutional constraints, along with initial conditions, stakeholder interest, institutional dynamics and political willingness. It is to be noted that countries/regions can also present the characteristics of a secondary archetype.

Seven archetypes have been identified and Pakistan's position, as an ICT Patron, as been identified as illustrated in the diagram below:

Countries in this archetype are known for their large-scale consumption of ICT goods and services, but

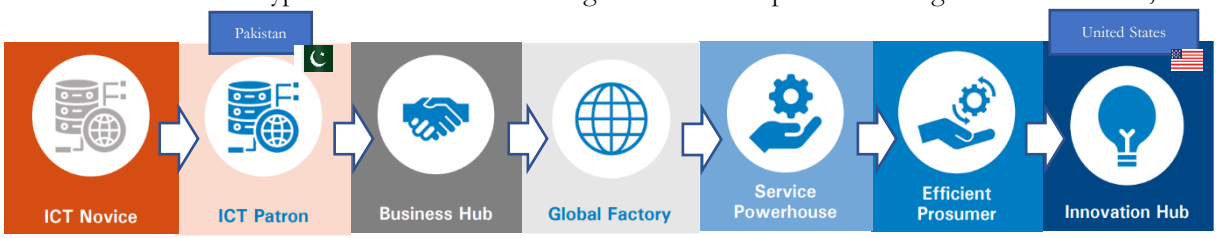

Figure 1. Digitization Archetype Model

their contribution to the global ICT value chain is low. Their large demand for technology solutions is rooted in the prevalence of high-income societies and robust basic ICT infrastructure such as high-speed internet and large international bandwidth.

[8] https://datareportal.com/reports/digital-2021-pakistan

2.3 Global Perspective on Startup Verticals

Emerging Technology Trends[9]
Next, if we take a glance at emerging tech trends globally, these are the key industry verticals:

1. **Robotics and Automation:** The robotics market is spread across numerous different sectors with each sector having specific requirements for the type of robots they need. If we look at the overall robotics market, it was worth $55.8 billion in 2021, and is estimated to reach around USD 81.4 billion by 2028 with a CAGR of 11.8%.[10] Within robotics, key areas are educational robot market (USD 919.71 million in 2021 and expected to grow upwards to USD 3.32 billion by 2028.[11] This is followed by global consumer services market, and the global aerospace robotics market.[12]
2. **Smart Spaces:** "Smart Spaces are physical or digital places and locations with interconnected sensors to give owners, occupants and managers better information and how the system is leveraged."[13] While IoT and Digital Twins have been trending areas within manufacturing sector, now they are expanding to retail, utilities sector, automotive and many other industries and their consumers.
3. **Enterprise Metaverse, Digital Humans, Total Experiences (TX):** The global metaverse revenue opportunity could approach $800 billion in 2024 and presents enormous opportunities.[14] With the advent of metaverses, sectors such as Augmented, Virtual and Mixed Reality (AR/VR/MR), web3, blockchain, cloud computing, gaming are all on the rise. The real-world metaverse, the AR Cloud, or in other words, a Digital Twin of our world, is another interesting phenomenon.[15] Similarly, user's own digital identity and virtual presence is an important element between metaverse spaces usually in the form of an avatar. This concept is expected to grow in the future. TX are a step ahead of Mixed Experiences (MX) and incorporate elements of customer experience (CX), employee experience (EX) and user experience (UX). "This requires a strong, unified user experience approach with user-centered design thinking, plus great technology support like cloud backends to fuel dynamic frontends with the data they need for the custom experience.[16]
4. **Democratization of AI, Edge AI and IoT, and Generative AI:** In 2021, the global AI market was valued at more than USD 328 billion with projections for the market to grow and reach a valuation of over USD 1394 billion by 2029. Low and no-code development trend is increasing massively, with sky rocketing interest by VCs in Generative AI as well.[17] Generative AI will also be critical in the metaverse, where assets are required in large numbers. Meanwhile, Edge AI and IoT are maturing further and are key pieces for the growth of industry 4.0, not just in manufacturing. The Global IIoT Market is also expected to hit USD 110.6 billion.[18]
5. **Homomorphic Encryption:** Cyberattacks are ever increasing and on the rise, therefore pushing companies to start applying Zero Trust models. Homomorphic Encryption is a viable solution since it can perform computations and analytics directly on the encrypted data without having to decrypt it first. This allows external parties to work with encrypted data without access to the data or the results.
6. **Quantum Machine Learning:** Quantum computing (QC) is a new technology for computation, which leverages the laws of quantum mechanics to provide exponential performance improvement for

[9] https://www.valoremreply.com/post/top-ten-emerging-tech-trends-2022/
[10] https://www.prnewswire.com/news-releases/demand-for-global-industrial-robotics-market-size--share-is-expected-11-8-cagr-rise-will-hit-to-usd-81-4-billion-globally-by-2028-with-covid-19-analysis--industry-trends-value-analysis--forecast-report--zion-market-resea-301549130.html
[11] https://www.globenewswire.com/news-release/2022/08/03/2491525/0/en/Educational-Robot-Market-Size-to-hit-3-32Bn-Globally-by-2028-with-20-2-of-CAGR-Exclusive-Report-by-The-Insight-Partners.html
[12] https://www.thebusinessresearchcompany.com/report/aerospace-robotics-global-market-report#:~:text='The%20global%20aerospace%20robotics%20market,(CAGR)%20of%2011.09%25
[13] https://www.valoremreply.com/post/top-ten-emerging-tech-trends-2022/
[14] https://www.bloomberg.com/professional/blog/metaverse-may-be-800-billion-market-next-tech-platform/
[15] https://www.valoremreply.com/post/top-ten-emerging-tech-trends-2022/
[16] https://www.valoremreply.com/post/top-ten-emerging-tech-trends-2022/
[17] https://www.wired.com/story/ais-new-creative-streak-sparks-a-silicon-valley-gold-rush/
[18] https://www.valoremreply.com/post/top-ten-emerging-tech-trends-2022/

some applications and to potentially enable completely new territories of computing. Some of the early quantum hardware products are special-purpose quantum computers, also called quantum simulators. According to a report by McKinsey, QT founding and investment activity reached >USD 700 m in 2020 while large investment rounds were announced for 2021 (eg IonQ, ~ USD 650 million, ArQit, ~USD 345 million, Cambridge Quantum Computing, ~USD 300 million, Xanadu, ~ USD 100 million.[19]

Based on this research, some key verticals that Pakistan can focus on are:

1. Transportation
2. Commercial Products & Services, Consumer Goods & Services Software
3. Pharma & Biotech, Healthcare Services, Systems & Supplies
4. IT Hardware, Electronics and electrical equipment
5. Energy
6. Robotics and Automation
7. AI, Machine Learning (including Quantum Machine Learning)
8. Blockchain
9. AR/VR/XR
10. Cloud Computing (including AR Cloud and Homomorphic Encryption)

[19] https://www.mckinsey.com/~/media/mckinsey/featured%20insights/the%20rise%20of%20quantum%20computing/quantum%20technology%20monitor/2021/mckinsey-quantum-technology-monitor-202109.pdf

Chapter 3. Journey of Pakistan's Startup Ecosystem

3.1 Baseline for Pakistan's Startup Ecosystem – 2016

Pakistan has become one of the hottest entrepreneurial markets in the world, a trend which started in 2020 with a total of USD 75 million investment being injected in startups. These deals included large ticket sizes such as Bykea with USD 13 million, Airlift with USD 10 million, Finja with USD 9 million, Medznmore with USD 2.6 million, Retailo with USD 2.3 million, Tajir with USD 1.8 million and Bazaar with USD 1.3 million.

The trend further grew in 2021, with investments raised by Pakistani startups crossing USD 373 million, five times more than the figures in 2020. In 2022, , this figure is standing at USD 360 Million. This is despite the overall global recession and retreat in VC funding that the world is observing presently.

However, the recent crunch in VC funding is not unique to Pakistan. It is majorly a result of the changing macroeconomic situation in the world since Covid-19, leading to cooling of venture capital and the startup land all around the world. Large US companies such as Netflix have also been releasing their staff members in the last few months in order to survive the challenging economic situation. The landscape of capital markets and liquidity started changing in March 2020 when the US Federal Reserve (FED) and other reserve central banks cut rates to near zero and pumped liquidity in the monetary system to combat the deflationary environment caused by the Covid-19 pandemic. Almost $7 trillion in liquidity was pumped into the system by the FED alone which created a massive rise (with a lag effect) in all assets at a global scale culminating in a market peak in Q4 2021. Since global capital markets are interlinked, this has led to a liquidity crunch for Pakistan's tech ecosystem as well. Furthermore, higher US interest rates meant a stronger USD leading to a weaker PKR. This coupled with an expected rise in commodities due to inflation, further exasperated by the Russia-Ukraine War, has transformed the present macro-outlook to negative for frontier and emerging markets. Having said that, if we look at Pakistan's performance, top VCs remain interested in Pakistan, and most recently, Bykea has raised a USD 10 million round.

It is critical to note that this positive funding curve did not happen overnight. Pakistan startups did not "arrive" suddenly, and it is critical to look back and reflect on the concrete steps taken at various levels in the Pakistan startup ecosystem, which brought us to this point. The following table presents a snapshot of the key ESOs working in Pakistan in 2016. As can be noted, apart from Punjab Information Technology Board (PITB), most of the interventions were of a private nature. This changed radically in 2016 with the emergence of the first National Incubation Center commissioned (NIC) by Ignite, expansion of university incubation centers, and significant new interventions by the private sector. The next section highlights the key developments since 2016, the impact of the NICs, and a forecasted value of Pakistani startups in the future.

Organization/ Initiative	Category	Established in	Nature	City	Description
Plan9	Incubator	2012	Governme nt-led	Lahore	Incubator set up by Punjab Information Technology Board (PITB)
WomenX	Incubator	2014	Private	Islamabad	Program initiated by The World Bank for running women-led businesses in Islamabad, Karachi, Lahore, Peshawar and Faisalabad
WECREATE	Incubator	2014	Private	Islamabad	Co-working and incubation space by TiE Islamabad, funded by United States State Department
Social Innovation Lab	Incubator	2013	Private	Lahore	Incubator for social enterprises housed initially at Lahore University of Management Sciences (LUMS)
LUMS Center for	Incubator	2014	University	Lahore	University incubator which later became NIC Lahore

Entrepreneurship					
The Nest I/O	Incubator	2015	Private	Karachi	Established by Pakistan Software Houses Association (P@SHA), supported by Google for Entrepreneurs, Samsung and the US Embassy, located in Karachi
Founder's Institute	Incubator	2016	Private	Islamabad Karachi	Global incubator with chapters in two cities in Pakistan
Revolt	Incubator	2016	Private	Peshawar	Initiative by Peshawar 2.0, an entrepreneur support organization that also ran a co-working space called Basecamp
Techvalley Abbottabad	Incubator	2015	Private	Abbottabad	Co-working space and incubator, which later became part of the Durshal network by KPITB
Seed Ventures	Incubator	2009	Private	Karachi	Seed Ventures ran five different types of incubators, conventional, corporate supply chain, incubation centers for urban microentrepreneurs, corporate incubation centers, university incubation centers
NSPIRE	Incubator	2016	Private	Lahore	Set up by NETSOL
NUST Technology Incubation Center	Incubator	2005	University	Islamabad	One of the earliest incubation centers in Pakistan focused on tech startups. Has now become part of NUST National Science & Technology Park (NSTP)
IBA Center for Entrepreneurial Development	Incubator	2011	University	Karachi	University incubator open to all types of entrepreneurs, not just tech
Ignite's National Incubation Center Islamabad	Incubator	2017	Private, Government-funded	Islamabad	The first NIC which started operations in early 2017
Invest2Innovate	Accelerator	2012	Private	Islamabad	Impact entrepreneurs were accelerated over four months each year
PlanX	Accelerator	2014	Government-led	Lahore	PITB established an accelerator as the next step for startups graduating from incubation program Plan9
Telenor Velocity	Accelerator	2016	Private	Islamabad	Telenor Velocity worked with tech startups to help them with go to market strategies and utilize Telenor's services
10XC	Accelerator	2016	Private	Karachi	The accelerator offered equity-based funding, advice, and shared services to startups
Prime Minister's Youth Business Loan	Loan		NBP, Government	Nationwide	Loan scheme to support small businesses by providing loans to youth between 21 and 45 years
Small and Medium Enterprises Development Authority (SMEDA)	Investment Fund	2013	Public-Private Partnership	Lahore	The partnership between SMEDA and Abraaj Group was initiated following the launch of the 'Pakistan Private Investment Initiative', which brought together USAID and The Abraaj Group to launch a Pakistan focused investment fund[20]
Ignite (Formerly National ICT R&D Fund)	Funding body	2006	Telco-funded, government-backed	Islamabad	The entity provided funding to research projects and collaborations between industry and academia

[20] https://www.brecorder.com/news/4155527

Ignite's National Incubation Centers at Lahore, Quetta, Karachi & Peshawar	Incubator	2017-18	Private, Governme nt-funded	Islamabad Lahore, Quetta, Karachi & Peshawar	Ignite's NIC expansion in other major cities
Ignite's National Incubation Centers at Hyderabad and Faisalabad	Incubator	20122	Private, Governme nt-funded	Hyderabad & Faisalabad	Ignite's NIC expansion in 2nd tier cities including first agritech specific at Faisalabad

Table 1. Major Developments in the Startup Ecosystem since 2016

3.2 Pakistan's Startup Ecosystem – Current State

"Despite the global COVID-19 pandemic, investments raised by startups in Pakistan hit an all-time high of approximately **$373 million***, more than five times the $75 million raised in 2020."*[21]

In the world over, the concept of enabling, facilitating, and supporting technology Startups is a prime focus and Pakistan is also trying to do the same with increasingly visible results. According to the Global Startup Ecosystem Index of 2021, Pakistan ranks 75th in the world, moving up 7 places compared to its position on 2020, and second in South Asia. However, in 2019 Pakistan was ranked 61st, which when compared to the current ranking is a significant fall.

A major challenge for Pakistan's startup ecosystem is the abundance of outdated administrative complications involved in setting up a business, the lack of focus towards getting ideas patented and the extensive IPR processes that need to be overcome to do so. There is also a cultural element present whereby the general population has a risk averse nature, however this is slowly shifting. Strengthening the population's willingness to embrace entrepreneurial risks will help grow the local startup ecosystem.

The importance of a technology centered entrepreneurship system can be seen as a solution for growing startups, creating jobs, generating GDP, and providing sufficient infrastructure that can bolster the economy and improve its foundation for nurturing growth.

When comparing the economy of Pakistan with Silicon Valley and Bangalore, many shortcomings stand out. For example, there is lack of access to finance and capital flows into the country are slow. This can be due to a number of reasons, whereby startups may be lacking in their pitch to investors, or investors not being aware of the potential present within the country. Recently, the former seems more likely, as according to a recent report by i2i, there is an increasing shift in how investors in developed economies have sought to broaden their holdings to emerging and frontier markets such as Pakistan, with the country gaining notable international investment from **Tiger Global** and **Kleiner Perkins**, also made their first entry into the Pakistani startup landscape in **2021**.

In Pakistan, there is increased funding for startups looking to digitize traditional brick and mortar driven sectors, especially in the B2B commerce and agriculture spaces. Notable startups in the B2B space, most of which aim to connect retailers directly to suppliers in an attempt to fix the fragmented supply chain and make it more efficient, include Dastgyr, Bazaar, Retailo and Jugnu. Another significant sector seeing increasing emergence of startups is the Fintech sector, which includes Finja, SadaPay, Easypaisa. These startups aim to incorporate financial inclusion into their strategy while reaching out to both the rural and urban areas in Pakistan. While these startups aim to uplift Pakistan, public sector support is vital to ensure that an enabling environment is created. Additionally, there is a great gender disparity in the ecosystem, which is corroborated by the fact that Pakistan is ranked 153rd out of 156 countries on the Global Gender

[21] https://propakistani.pk/2022/03/16/pakistani-startups-raise-563-5-million-in-7-years/

Parity Index. According to the report by 'invest 2 innovate', ***solely female-founded startups account for only 1.4% of all investments raised within the past seven years***.[22]

3.3 Forecasted Value of Pakistan's Startup Ecosystem

DFT is currently the most comprehensive data source pertinent to investments raised by startups. To highlight the potential of startups in Pakistan and obtain an accurate forecast of Pakistan's startup ecosystem, the following methodology and assumptions were used:

- Historical data on the funds/investments raised by startups was gathered from the DFT for the period beginning in 2015 till 2022, which was the latest available.
- The data for 2022 was available up to the second quarter. It was assumed by the end of the year the amount of funding raised in Q2 would be replicated in Q3 & Q4, for a projected value of USD 437.15 Million for 2022. But due to global recession, the total investments injected in Pakistani startups by end of FY 2022 could be USD 360 million.
- Overall valuation of Pakistan's startup ecosystem has been estimated at $3.2 Billion in 2022 considering cumulative investments of $803M in last 3 years against average equity of 25%.
- Startups are presently valued at multiples of **3-5X** of **revenue**.
- If annual investments grow by 30% for the next 7 years, cumulative investments will reach $2.7B and valuation of Pakistani startups is expected to reach $10 B by 2030

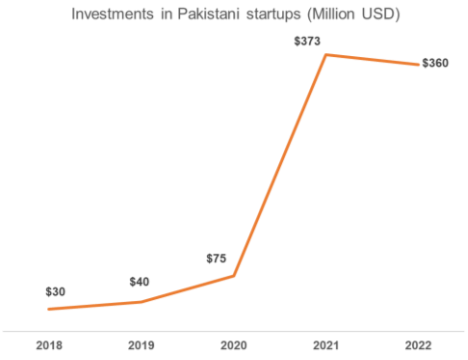

Figure 3. Funding Raised by Startups

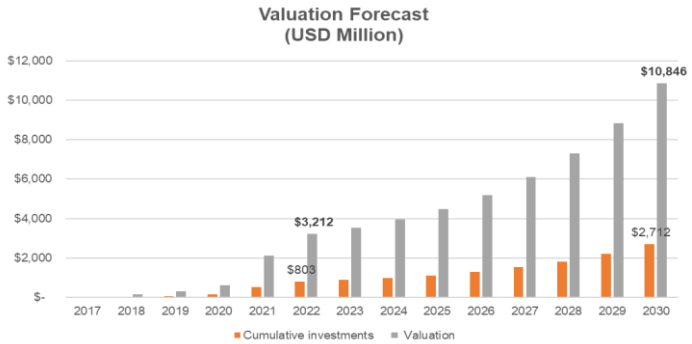

Figure 2. Forecasted Startup Sector Valuation

3.4 Summary of Growth Initiatives and Evolution in the Ecosystem

Since 2016, there has been a tremendous increase in the number of entrepreneur support organizations and initiatives, VC funds, challenges, and conferences. Different stakeholders have entered the ecosystem and are trying to support startups in various ways, from offering workshops, trainings and bootcamps to full-fledged incubation and acceleration, investment readiness support to subsidized and free office space. There are nearly 100 entrepreneurship support organizations (ESOs) operating in Pakistan, falling in the following categories: [23] [24]

Category	Total
Incubators	22
Accelerators	13
Co-working spaces	18
University-based incubators	30

Table 2. ESOs in the Ecosystem

[22] https://profit.pakistantoday.com.pk/2022/03/16/whats-ahead-for-pakistans-startup/
[23] PSER, 2021, i2i
[24] https://www.hec.gov.pk/english/services/universities/EBIC/Pages/Established-BICs.aspx

As can be noted by the sheer increase in the number of incubators, the support for early-stage startups is much more comprehensive today than it was previously.

According to the Pakistan Startup ecosystem report by i2i, the growth in the ecosystem can and is being facilitated by a more supportive administration which has rolled out new initiatives to cater to the evolution and changes in the market. The following excerpt from the PSER 2021 identifies growth initiatives taken by the various ecosystem stakeholders.

GROWTH INITIATIVES IN 2021

"The **State Bank of Pakistan (SBP)**, in setting forth the legal framework for **Electronic Money Institutions (EMIs)**, has contributed to the proliferation of fintech startups. Similarly, the **Securities and Exchange Commission of Pakistan (SECP)** has established a separate legal definition for startups (in the same vein as Corporate Entities and Section 42 Non-Profits). The federal government has also taken steps to ensure that IT & technology is considered a nationally viable industry sector (at a similar level to textiles and agriculture) by establishing the **Special Technology Zone Authority (STZA)** to develop **Special Technology Zones** (serving a purpose similar to Special Economic Zones in promoting the investment prospects of a given sector and facilitating prospective investors to stimulate activity within the said sector.

In light of the ever-changing needs of a growing ecosystem, support organizations continue to provide for the unique needs of stakeholders. Currently, there are a total of **98 entrepreneurship support organizations (ESOs)** operating in Pakistan, which range from **incubation centers (22)** and **accelerator programs (13)** to **coworking spaces (18)**. **University-based Business Incubation Centers (24)** and other organizations including **foundations, business associations, and conferences/challenges (13)** also form part of the business support provider community for startups locally. The Pakistani government, through its continued support of the **National Incubation Centers (NICs)**, has also contributed to the need for accessible support services by gradually expanding its network of incubators from 2020 to 2021 and afterward. The **Higher Education Commission (HEC)** has taken similar steps in order to foster entrepreneurial talent among Pakistani universities through the **Business Incubation Center Policy 2021**. In addition to these public sector initiatives, both extant and newer parties within the private sector, including **Invest2Innovate, Katalyst Labs, Epiphany, Demo, Telenor Velocity,** and **Jazz XLR8**, have continued to provide key developmental support to startups via cohort-based accelerator programs. In the same vein, a larger number of coworking spaces including players such as **Daftarkhwan, The Hive, COLABS**, and **Kickstart**, are providing workspaces and by extension networking opportunities to startup founders and freelancers."

Chapter 4. The Advent of the Ignite's National Incubation Centers

The establishment of National Incubation Centers across Pakistan has been a major gamechanger in the entrepreneurship landscape of the country. So far, Ignite has established eight (8) National Incubation Centers located at Islamabad, Lahore, Karachi, Peshawar, Quetta, Hyderabad, Faisalabad and Rawalpindi. One of the first and foremost contributions of the NICs is that they have been able to successfully introduce entrepreneurship as an alternate profession for youth of Pakistan. There is a distinct wave of entrepreneurship in the country, which can and must be attributed to the NICs. The NICs have emerged as a hub of entrepreneurship in all the different locations where they exist for several reasons:

- The spaces are designed in a creative and conducive manner, with opportunities for work (and play), public events, independent and group work etc.
- NICs are inclusive spaces permitting women, differently abled people, and other individuals from various socioeconomic backgrounds to experience learning at a level playing field, in a safe and secure environment.
- Not only have the NICs led different entrepreneurial events, bootcamps, hackathons, and awareness and advocacy sessions, they have also enabled other ESOs and stakeholders to utilize their facility for human and entrepreneurship development, networking, and community building.
- NICs have incubated nearly 1,300 startups so far, primarily at the idea- and early-stages when startups need the strongest level of support since they are at the very beginning of their journey. Several startups that we interviewed as part of this research study reported that they feel NICs have played a strong role in helping idea-stage startups, studentpreneurs, and fresh graduates who are exploring entrepreneurship for the first time.
- NICs have also become a landing stop for international visitors, delegations, ministerial visits, and are playing a critical role in projecting a soft image of Pakistan successfully. This also renders them extremely relevant for startups who can explore new business development opportunities, and access international mentors, professionals, and investors.
- NICs are well-staffed with specialized marketing professionals who have played a critical role in branding the NICs, Ignite, the partner organizations, and most importantly, startups, who have benefited immensely from the extensive outreach of the centers. Moreover, NICs are credible institutions in the public domain, and being associated with them brings prestige and credibility to startups, which they would have struggled to achieve on their own.
- NICs have also conducted several Investor Summits (5 in Islamabad, 6 in Karachi, 3 in Lahore, 1 in Peshawar) and angel networking events (in Islamabad and Karachi). Whereas, investors summits in newly established NICs at Faisalabad & Hyderabad have also conducted one each. This has enabled startups to develop a better understanding of what investors are looking for, improved their confidence and pitching ability, and create a bridge between international and national potential and existing investors.
- Job creation by the incubated startups has been another major milestone achieved by the NICs.

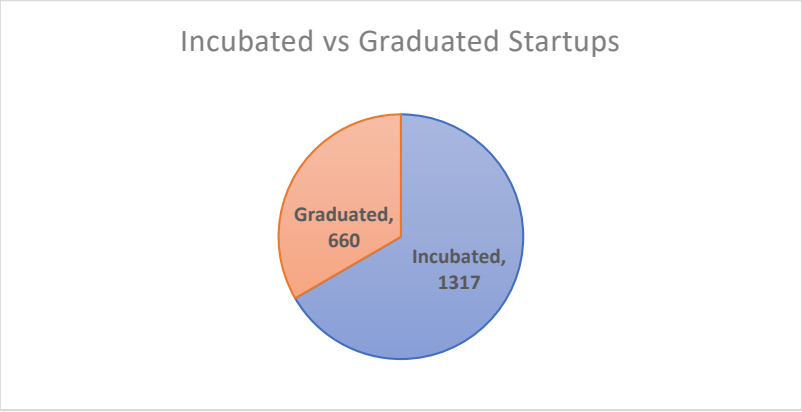

Figure 4. NIC Startup Incubations vs Graduations

A quantitative picture of the impact of NICs is shared above depicting the total number of startups that have been supported – 1,317, and the ones that graduated – 660.

With a graduation rate of more than 50%, NIC Islamabad is in the lead with 73%, followed by 55% at NIC Lahore, Quetta and Karachi, 47% and, 33% at NIC Peshawar. Whereas, NICs at Hyderabad & Faisalabad have not produced graduates so far.

As highlighted above, NICs have also emerged as inclusive and diverse enablers, which have supported almost one-third female founders (491) which is 37% of all NIC startups. Meanwhile, women have also been economically empowered through the provision of jobs. Following figure depicts female founders and female empowered from each NIC. It is important to note that hundreds of females have also been empowered from NIC Quetta and NIC Peshawar.

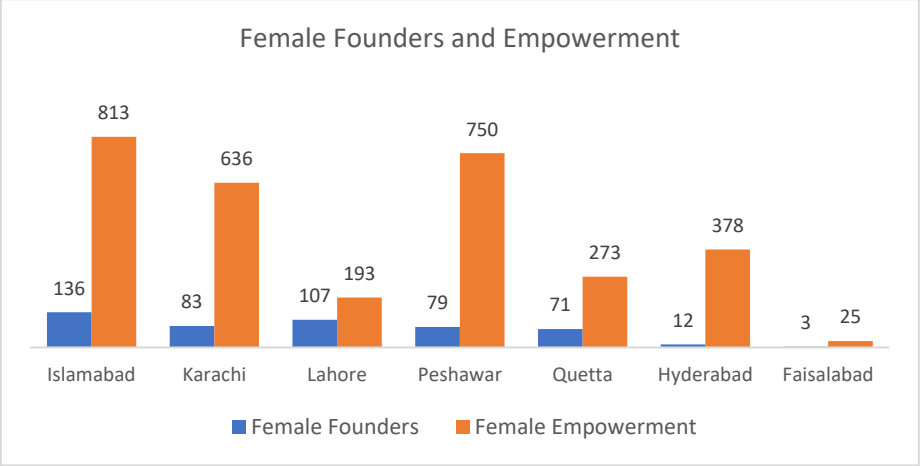

Figure 50. Females Impacted

In terms of stages supported by the NICs, Karachi, Lahore, and Peshawar have focused more on business model-market fit stage of the startups, while NIC Islamabad has inducted more idea/MVP stage startups. NIC Faisalabad and NIC Hyderabad are in list, established in 2022.

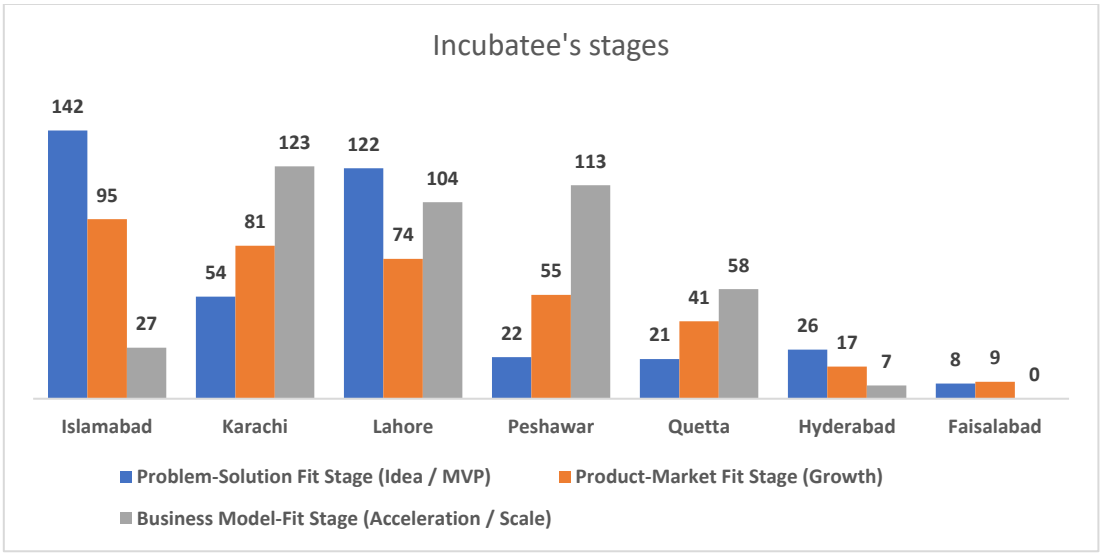

Figure 61. Life Cycle Stage of Startups Incubated

Another major contribution of the NICs has been employment generation by the incubates, which collectively accounts for more than 126,000 jobs.

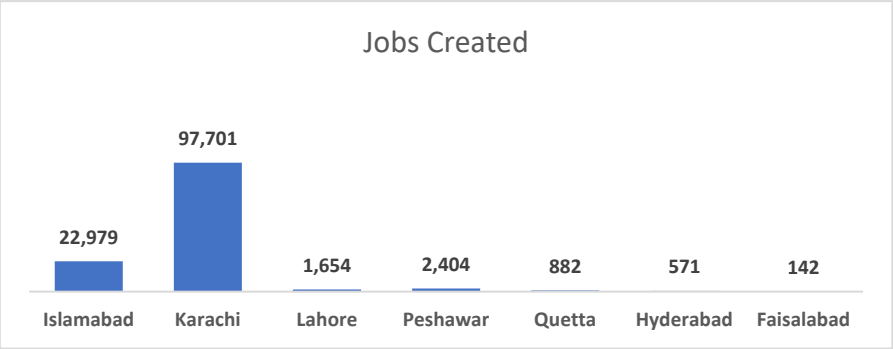

Figure 7. NIC Job Creation

In terms of revenue generated by the startups, the NICs have performed reasonably well against the amount invested by Ignite and generated a total of PKR 13.85 billion versus PKR 22.10 billion investments committed. Around Rs. 3 billion have been spent on capital and operational expenditures of first five NICs since 2017. Considering that impact of these NICs (cumulative revenue plus investments) has been around Rs. 35.95 billion, financial gain over investment of Rs. 3 billion has been around 12 times so far.

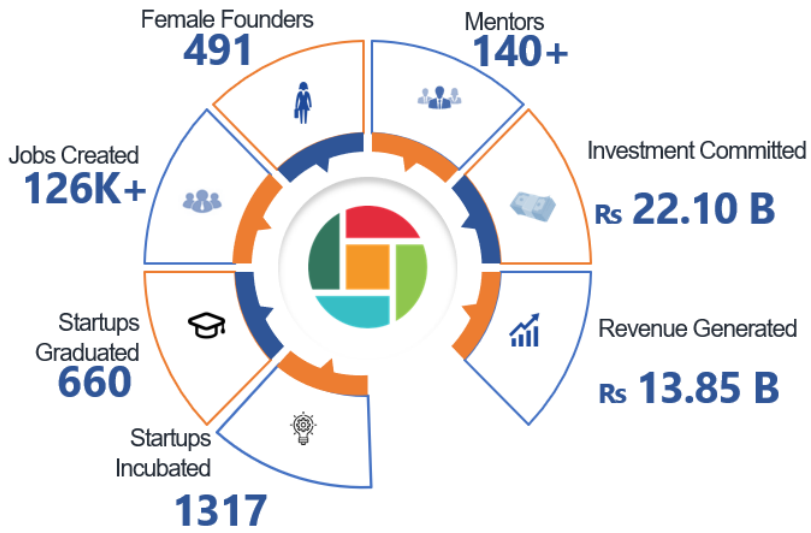

Figure 8. NICs Achievements (March 31, 2023)

Some success stories include Bykea and Farmdar from NIC Karachi, Pakvitae from NIC Lahore, BizB from NIC Peshawar, and MyTM from NIC Islamabad in addition to Integry, Digikhata, and Ezbike from NIC Islamabad.

4.1 Identification of Key Ecosystem Players and Support Systems

A few notable organizations/initiatives have been highlighted below. Some of these have been selected based on their long-standing history, scale of operations across Pakistan, along with the diversity of support that they offer.

Organizations	**Offerings**
NICs in Islamabad, Lahore, Karachi, Peshawar, Quetta, Faisalabad, Hyderabad	1. Set up by private sector organizations/universities and funded by Ignite, the NICs offer incubation, mentorship, networking, investor summits/investor meet ups, co-working space, hackathons, workshops, and community events. NIC Peshawar also offers pre-incubation for 8 weeks. Some interesting programs are highlighted below: 2. Jazz XLR8: Startups exhibit at the prestigious 4 years from Now (4YFN) at Barcelona. They are also provided with open APIs, plus integration with Jazz' payment gateway 3. Gurus at NIC: Talk series with different thought leaders/practitioners 4. Investor Summits: NIC Islamabad, Karachi and Peshawar have all started hosting investor summits to bridge the investor-startup gap and present opportunities to startups to meet and interact with investors 5. Angel Networking Events: NIC Islamabad hosts angel investor meetups and matches investors with startups looking for funding. 6. Startup Pitching League: Spread over the course of 5 months, NIC Peshawar prepared its startups for pitching to investors. 1 million worth of Technical Assistance was offered to the winning startup by Sustainable Energy and Economic Development (SEED) 7. Hackathons: Almost all the NICs are offering different hackathons with different stakeholders/donors such as Ed-Tech hackathon by NIC Peshawar in collaboration with InnovateX and supported by U.S. Mission in Pakistan in Partnership with Pakistan-U.S. Alumni Network; SDG hackathon and Agritech hackathons by NIC Islamabad in collaboration with Jazz, Plastic Road Project #WorldWithoutWaste by NIC Islamabad with Coca-Cola Pakistan & Afghanistan and CDA to make use of plastic waste into re-carpeting of roads; Make Space Hackathons by NICK and PSI Pakistan aimed at empowering people with a passion for impact and change in creating solutions to make Family Planning / Birth Spacing more accessible to people in Pakistan; Built by Her hackathons by NICK, TAF and US State Department focused on empowering young women between the ages of 18 and 35 from Sindh and Baluchistan in building solutions for key developmental challenges present in Pakistan.

NICs under National Expansion Plan	Set up by Ministry of Information Technology and Telecommunication (MoITT) and Punjab Information Technology Board (PITB), these incubation centers have been set up in collaboration with public universities in Gilgit, Muzaffarabad, Swat, Kohat, Hyderabad, Karachi, Sukkur, Lasbela, Taxila, Rawalpindi, Lahore, Gujrat, Multan, D.I. Khan, Quetta, Lasbela. There are additional incubators as well: Lahore, Rawalpindi, DG khan, Sahiwal, Gujranwala, Multan, Faisalabad, Sargodha, Bahawalpur. The National Expansion Plan aims to create nationwide opportunity for aspiring entrepreneurs to turn their business ideas into viable ventures. Offerings include incubation, mentorship, networking, co-working space, monthly stipend, business development guidance and legal assistance
Durshal	Durshal (meaning "gateway" in pashto) is KPITB's Project to anchor Khyber Pakhtunkhwa's digital transformation by establishing a network of community spaces across the province with the goal of enabling the youth to collaborate, innovate, access training, and launch new businesses. Durshal is a network of 7 incubators in Peshawar, Mardan. Swabi, Bannu, Abbottabad, Swat offering incubation, mentorship, networking, co-working space, and monthly stipend
University incubation centers	29[25] incubation centers at different universities across Pakistan including IBA Sukkur, Institute of Space Technology, Air University, Iqra University, NUML, Bahria University. These centers provide incubation, mentorship, networking, co-working space. They also facilitate final year projects and business plan competitions.
NUST	Pre-incubation, incubation, co-working space, networking, access to investors 1. Hatch 8 is the nurturing space for great minds and brilliant ideas. The pre-incubation program offered at NSTP is a 6-month cohort program offered to selected startups twice a year, which offers curriculum, mentorship, coaching, networking 2. Cube 8 is 24-month running program providing everything that Hatch 8 offers as well as fully enabled dedicated office space, meeting and conference rooms, access to labs etc. 3. Finding Inspiring and Creative Solutions (FICS) is a competition geared towards social entrepreneurship for NUST university students. Mentorship, workshops, and guidance is provided to the teams and they pitch their ideas to a diverse panel of judges
Takhleeq	University of Central Punjab (UOP's) incubator offers incubation, mentorship, networking, co-working space, Takhleeq was part of Frontiers Incubator – a Government of Australia funded "Incubator of Incubators" aimed at capacity building of Takhleeq for social entrepreneurship. Takhleeq designed its curriculum with the support and collaboration with Spring, Invest2Innovate and Unchartered and helped build their local and global investor and mentor networks and work together on investment readiness and social impact. Takhleeq also signed MOU with PEP Foundation to work together for the "Impact Network" with the goal of promoting social entrepreneurship solutions to national development problems primarily in education, health, agriculture, energy and water. Takhleeq is also part of the UBI Global interactive learning network of 700+ business incubators and accelerators in 70+ countries.
NSPIRE	Operated by global tech giant NETSOL Technologies, NSPIRE hosts a five-month program that offers mentorship, advisory, office space, industry and expert linkages, opportunities for investment and consulting and advisory services for startups and businesses.

[25] https://www.hec.gov.pk/english/services/universities/EBIC/Pages/Established-BICs.aspx

The Indus Entrepreneurs (Islamabad, Lahore)	Established more than 14 years ago, TiE Islamabad is part of the global organization established in Silicon Valley. The Islamabad chapter is a robust organization that has been conducting various initiatives to support the eco-system: 1. Pakistan Startup Cup: the competition solicits applications from all over Pakistan. After an initial screening process, the shortlisted applicants go through a training program, and startups are guided on developing their business models, business model scorecards, go to market strategy, after which they participate in a regional round, semi-final round, and the final competition. The winning teams are awarded milestone-based grants, with the largest prize amounting to PKR 3.2 million. Over the years, the competition has expanded to Karachi, Lahore, Islamabad, Peshawar, AJK, and GB. 2. Startup Academy: An incubation program for ideation-stage women entrepreneurs comprising of workshops and mentorship, including topics like business model development, customer development, access to finance, marketing, capacity building, and use of technology, innovation, and bootstrapping techniques 3. WECREATE Center: The Women's Entrepreneurial Center of Resources, Education, Access, Training for Economic Empowerment Center features a coworking space, workshop hall, and board/meeting room. Women entrepreneurs are offered the co-working space at a subsidized rate. 4. TiE University program: In 2022, TiE partnered with HEC and reached out to universities to mobilize student entrepreneurs. A total of 226 applications were received which went through multiple rounds of pitching, leading to the top 12 who would then pitch globally. 5. APWE: TiE Islamabad is implementing an accelerator program funded by US State Department for women entrepreneurs from across Pakistan. Besides rigorous trainings and mentorship, the top women entrepreneurs went on an international visit to the US where they interacted with investors, Pakistani diaspora, and attended startup events.
Founders Institute (Islamabad, Karachi, Lahore,	Founder Institute launched its first chapter in Karachi in November 2014, followed by Islamabad chapter in September 2015.[26] The global organization has a network of chapters all over the world, and helps founders "learn by doing" through its four-month program, with structured training, expert feedback, and support from experienced startup CEOs.
Invest2Innovate	1. i2i initiated one of the first impact accelerators in Pakistan, which graduated 47 startups that have gone on to raise over $7.5M and create over 2000 jobs since 2012. 2. Insights: i2i produces a Dealflow Tracker that provides insights regarding fundraising by Pakistani startups. It also produces Pakistan State of Entrepreneurship Reports every two to three years. 3. WeRaise, an initiative by the World Bank Group, is also being run by i2i. It aims to support high growth capital women-led companies to attract and raise capital to grow their businesses. WeRaise is supporting 30+ women-led Pakistani companies – selected through a competitive process – in raising capital from investors in Pakistan and worldwide through an investment readiness and capital raising coaching and support program. Selected startups benefit from a tailored and bespoke coaching and support program, which includes hands-on guidance from world class investment readiness coaches, access to a pool of local and international mentors & experts, capital raising seminars and topical resources, and connections with investors, all in service to raising funding to grow & scale their companies.

[26] https://fi.co/insight/silicon-valley-s-founder-institute-launches-in-pakistan-to-help-employees-launch-startups

CaterpillHers	1. Entrepreneurship Accelerator: A 16-week remote accelerator free of cost, and no equity, with group leadership coaching, 1:1 mentorship, business curriculum, support network, investment-readiness training. The accelerator also connects women social enterprise leaders in Pakistan with business executives from all over the world especially, Silicon Valley. 2. Career Accelerator: Also targeted at women, the career accelerator offers a 12-week program to women to help them embark on their freelancing journey. The program offers vetted curriculum, one-on-one career coaching, and access to an inspiring community of women founders, experts and professionals.
Katalyst Labs	1. Acceleration: The Acceleration Program aims to help startups scale up and offers one on one mentorship sessions with relevant professionals belonging to Katalyst Labs' board of mentors. Startups are also given access to a network of investors and Google for Startups Mentor Network. They are provided assistance on financial, pitching & fundraising strategy. In the founders circles, founders get the opportunity to interact with each other and the startup community. 2. Women Leadership Fellowship Program: WLFP is for women professionals & entrepreneurs who want to accelerate their careers and become leaders in their respective fields. It is focused on goal development, entrepreneurial grit, personality, and leadership development and will help women discover their inner strength and potential.
Epiphany	1. Epiphany Lab: Pre-acceleration and acceleration programs - Business Model Validation and Investment Preparedness 2. Building Boss Ladies: Bootcamp for women entrepreneurs to prepare them for investment raising 3. Entrepreneur Growth & Fundraising Program: Bootcamp for women entrepreneurs 4. Million Women Mentorship Program: Mentorship program for women entrepreneurs with S&P Global 5. AI/ML Reactor[27]: a five-week rigorous virtual accelerator program aimed at driving AI/ML awareness in fast-growing Pakistan's startup ecosystem. The Reactor's objective is to empower selected startups to transform their business via AI/ML implementation, through a series of exclusive workshops, masterclasses, and mentorship with experts and thought leaders from AWS and the tech ecosystem. 6. Developers' Game Jams[28]: Comprehensive bootcamps for aspiring game devs, designers, artists comprising of workshops, mentorship, and technical support to create games 7. Game X[29]: Conference on games, esports, animation, entertainment tech, pitching 8. Wonder Women in the Gaming World: Talk series to highlight women in games and learn from them, attract more women into the industry 9. Smashing It: Talk series to celebrate Pakistani women who have made it, discuss their challenges and how to overcome them 10. Executive Baithak: Meetups between policymakers, professionals, startups and students 11. KP Seed Fund: Structuring and management of a seed fund for early and growth-stage startups in KP

[27] https://epiphanyofficial.co/ai-ml-reactor/
[28] https://epiphanyofficial.co/developers-game-jam-2-0/
[29] https://gamex2021.vfairs.com/

Telenor Velocity	A digital startup accelerator, Telenor Velocity offers different programs to Pakistan's tech-startups to co-create new digital products and services, which are scaled on Telenor's digital assets. So far, the organization offers agritech, edtech and game launcher programs.
Accelerate Prosperity	Active nationwide, with special focus on Chitral and Gilgit Baltistan, AP offers incubation, acceleration, debt financing, coaching, advisory services. 1. ICE equips entrepreneurs with the required skills and knowledge for launching and growing a business, improves investment readiness of a business by adopting sustainable business models, using tools such as Business Model Canvas, Financial Model, Information Memorandum and Pitch Decks and meeting all legal and compliance requirements to help startups secure the required financing to launch their business 2. Venture+ is geared towards existing startups that are looking for capital to grow.
Circle	She Loves Tech: Running for the last few years, Circle offers a women-focused pitching competition, prize money of USD 15,000.
Pakistan Innovation Foundation/Innoventures	Women in Tech Challenge: In collaboration with SCB, this is an annual program for women entrepreneurs looking to grow their business. It offers a milestone-based grant at the end of the program for top performers to the tune of USD 15,000.
Media Matters for Democracy	Founded by a group of journalists geared towards media development and digital rights in Dec 2014. 1. #MediaHack, a hackathon for media sustainability and viability in Pakistan, to support journalists running their own independent media outlets or seeking sustainable business development models for their outlets or startup ideas, or those who have a great media startup idea and want to pursue it. 2. #ChallengingHate, a four-day hackathon aimed at offering technological solutions for combatting online hate and digital violence.
UNDP	1. FERP: In recent years, UNDP has become increasingly focused on entrepreneurship, with programs such as FATA Economic Revitalization Program (FERP) which offered market-based skills development training to over 500 youth, including women, in different marketable skills. 2. Youth COLAB: Co-led by UNDP and Citi Foundation, Youth COLAB is a social entrepreneurship movement in Asia and the Pacific that reached over 200,000 youth participants, benefitted 11,000 young social entrepreneurs, and helped to launch or improve over 1,240 youth-led social enterprises addressing SDG challenges.
Cleantech Republik	CleanTech Republik is a community network focused on clean technologies, innovation and sustainable development. It develops and curates programs for social and climate impact start-ups including ideathons, hackathons, impact entrepreneurship accelerator programs, networking and various other events.

Table 3. Existing Key Players in the Startup Ecosyste

Chapter 5. Taxation Framework for Startups in Pakistan

5.1 Identification and Listing of Existing Taxation Rules and Regulations

Definition of Startup as per RFP

Startup, for this study, is an entity incorporated or registered in Pakistan by Securities and Exchange Commission of Pakistan (SECP) not prior to five years with annual turnover less than PKR. 100 million in any preceding financial year with experience in working on commercialization of technology or intellectual property driven products, process or services.

Definition of Startup as per Income tax ordinance

Government of Pakistan inserted definition of startup in Income Tax Ordinance, 2001 (the Ordinance) through Finance Act, 2017. Prior to that, the Ordinance didn't have any specific provisions to provide tax exemptions for startups. This move was intended to promote and encourage innovation and entrepreneurship in Pakistan, particularly in the field of Information Technology. As per Income tax ordinance, section (2) 62A[30]:

[(62A) "startup" means

i. a business of a resident individual, AOP or a company that commenced on or after first day of July 2012 and the person is engaged in or intends to offer technology driven products or services to any sector of the economy provided that the person is registered with and duly certified by the Pakistan Software Export Board (PSEB) and has turnover of less than **one hundred million** in each of the last five tax years, or

ii. Any business of a person or class of persons, subject to the conditions as the 1 [Board with the approval of Federal Minister in-charge] may, by notification in the official Gazette, specify.

5.2 Analysis of Tax Laws for Startups in Pakistan

The following are the key gaps and recommendations which needed to be addressed to create a friendly, implementable and realistic tax system for startups in Pakistan:

i. Insufficient exemptions for Startups

Tax exemption for startups is limited to only three years. If the startup is a company being registered with SECP, it will have to bear very high tax on profits @ 29% (For small companies' rate for 2022 is 21%). This may result in low net profits and low returns and the startup may not be able to absorb returns on initial investments during this time period.

Proposed Recommendation:

Keeping in view of the above, it is hereby recommended that, for startups, either a reduced rate of 10% is offered through changes in legislation or the exemption period may be extended to five years to encourage maximum investors by introduction of tax friendly policies.

Priority Level: Medium

ii. Insufficient Tax exemptions available to VCs

As per existing income tax laws, exemptions on dividends and capital gains of venture capital firms are limited to three years. We have a benchmark of Singapore where the dividend distributions to shareholders are tax free.

Proposed Recommendation:

[30] Section 2-Income tax ordinance 2001

Being high risk investments, the exemptions may be extended to at least seven years.

Priority Level: Medium

iii. Inconsistencies in Sales tax regimes:

During our primary and secondary research, we observed that maximum startups raised an objection that there are variations in tax rates at federal and provincial level. The details are provided in the following table:

Province	Rate	(Tariff Heading)
Federal	5%	9815.6000
KPK	2%	9815.6000
Sindh	5%	9815.6000
Punjab	5%	9815.6000
Baluchistan	15%	9815.6000

Due to changes in tax rate and requirement of multiple registrations at each provincial and federal level, the investors are facing difficulties in management of business. Further, the general sales tax rate on purchase of IT equipment is 17% which is charged on startup on purchase of Imported IT Equipment (Except laptops i.e., 5%). Due to these sales taxes cost of service for end user and startup increases.

Proposed Recommendation:

To encourage startups, the government should limit the rate of sales tax on IT and IT enabled services to 2%. Further, it should develop a single window facility for provincial sales tax registration. Not only the rates of sales taxes must be same but also there must be only one system in place where the taxpayer startup have to follow the guidelines and save maximum time in understanding of laws at each federal and provincial level.

Furthermore, the specific exemptions for startups should be introduced for imported of IT Equipment of startups.

Priority Level: High

iv. Lack of Local Investors

Special tax exemptions for local investors of startups are not available in the Income Tax Ordinance. This may not attract local investors to invest in startups. Tax amnesties are offered as a tool for boosting investments in a specific industry. An example is Tax Amnesty offered by India in 2016 and Indonesia in 2022.

Proposed Recommendation:

Special tax exemptions such as exemptions from Section 111 (unexplained income/asset) (Tax Amnesties) shall be offered to the local investors to motivate investments in startups.

Priority: Medium

v. Cumbersome withholding tax regime

In accordance with section 153 (7) of the Income tax ordinance, any payments by the prescribed person are subject to the withholding of taxes to dispose of its legal obligations. Further, the taxpayer is also required to file quarterly tax returns Withholding requirements from suppliers are onerous from a compliance perspective. In Singapore, there is no requirement of withholding for Tax residents.

Proposed Recommendation:

For startups, the provisions may be relaxed for at least 5 years of time. This may create some operational effectiveness and result in ease of doing business.

Priority: Medium

vi. Retention of Quality human Resource

There is no exemption on individual taxation for salaries of employees engaged in startups.

Proposed Recommendation:

Under section 149 of the Tax Law introduce a tax exemption on salaries of employees engaged in startups or concessional tax rates shall be offered.

Chapter 6. Exit Frameworks for Startups

6.1 Exit Framework from a Legal Perspective

Unlike established companies, where financing is provided for the growth of the company in the hopes for higher dividends or higher stock price, the rounds of financing for startups encourage exits by founders and investors for scaling a business and investment is made in the hopes of higher payouts at the time of exiting. Naturally, all startup transactions focus on exits and all financing instruments factor in the rights and liabilities at the time of exit.

The legal policy relating to exits in the form of IPOs, M&A, etc. directly affects the startup ecosystem and determines the incentives for VCs and angels in investing in startups. The Global Startup Ecosystem Report 2022 published by Startup Genome, reported that 7 out of the 15 top startup ecosystems, were US cities.[31] One of the major factors for the growth of the startups in the US is due to the JOBS Act that created exemptions for startups in their fundraising activities including relaxations for exit choices e.g., IPOs and M&As. There are numerous academic and research works that note the positive impact of JOBS Act on the increase in IPOs.[32] In a report published by Ernst and Young in 2018, startups accounted for 94% of the IPOs in the first nine months.[33] There are also papers that assess the increase in valuations of startups in M&A transactions after the JOBS Act.[34]

6.1.1 Initial Public Offering

An initial public offering (IPO) refers to the process of offering shares of a private corporation to the public in a new stock issuance.[35] Investing in an IPO means investing in a private company that is about to go public. A private company, that has a handful of shareholders, shares the ownership by going public by trading its shares. Once an IPO is completed, the company gets its name listed on the stock exchange and the shares become available for trading publicly.

An IPO is not suitable for every company, and planning must be done by keeping the overall vision of the company, market share, and company assets in consideration before management decides. In this case, ideally, a startup must first scale and grow to the size where it can sustain itself through one or more revenue streams. This is wherein the problem lies in Pakistan. Keeping the requirements of an IPO in mind, the Pakistani startup ecosystem is still nascent, and startups need more time to mature before they can even consider an IPO.

Under section 87 of the Securities Act, no person is allowed to publicly offer securities to the public.[36] The general conditions applicable to public offer of securities have been listed in Regulation 3 of the Public Offering Regulations 2017.

6.1.2 Mergers and Acquisitions

The most popular exit strategy for investors is for the company to be acquired or merged with another company in return for a payout. This is because IPOs are not an option for younger startups seeking finance or keeping investors engaged. There are various recent examples of M&As in the startup sector in Pakistan e.g., Uber's acquisition of Careem, Zoodpay's acquisition of Tez Financial Services Limited, GoZayaan's acquisition of Findmyadventure etc.

[31] GSER 2022 - Silicon Valley, New York City, Boston, Los Angeles, Seattle, Washington DC and San Diego.
[32] Dambra, M., L. C. Field, and M. T. Gustafson. 2015. The JOBS Act and IPO volume: Evidence that disclosure costs affect the IPO decision. Journal of Financial Economics 116:121{143.
[33] Trends in US IPO Registration Statements, EY, November 2018
[34] The Impact of JOBS Act on M&As, J.Aswani et al.,
[35] https://www.investopedia.com/terms/i/ipo.asp
[36] Section 87 of the Securities Act - Offer of securities.—(1) This Part applies to offer of securities other than Government debt securities. (2) Subject to the provisions of this Part, no person shall make a public offer of securities unless the issuer or offeror of the securities has submitted for approval to the Commission, and the Commission has approved prospectus

The main laws applicable to a typical M&A transaction is the Companies Act and the Competition Act 2010.[37] The Competition Act defines a merger and acquisition. An acquisition has been defined as '*any change of control of an undertaking by way of acquisition of shares, assets or any other means*'[38] and a merger has been defined as a "*merger, acquisition, amalgamation, combination or joining of two or more undertakings or part thereof into an existing undertaking or to form a new undertaking; and expression "merge" means to merge, acquire, amalgamate, combine or join, as the context may require.*"[39]

6.1.3 Private Placement

A popular alternative to IPOs is a private placement where securities are not listed on the stock exchange but are offered to a select group of investors. The term has been defined under section 2((xl) of the Securities Act as "*an offer to sell or issue securities to a group of investors (whether individual or institutional) not more than the number prescribed and not using the print or electronic media for inviting offers."* Private placements are a popular option for VCs or a select group of investors without having to go through the entire process for IPOs and at the same time, offer securities to persons outside the company.

Under the Private Placement of Securities Rules 2017, all companies other than a single member company can issue and offer securities through private placement. For the issuance of shares, the company is bound to follow the process in section 83 of the Companies Act.

6.2 Exits in the Ecosystem

6.2.1 PSX and GEM Board

The Securities and Exchange Commission of Pakistan (SECP) approved listing regulations of the Growth Enterprise Market (GEM) Board to enable and facilitate small and medium enterprises (SMEs), greenfield projects, tech start-ups and other companies to conveniently get listed on the Stock Exchange and access capital.[40] This is the closest that Pakistan has in terms of a startup index.

The relaxations and lower requirements of the GEM board allows startups that have matured to become listed companies by conducting an IPO earlier, enabling the raising of funds and exit of investors.

Typically, our research has shown that investors in the Pakistani market are looking to exit their investment after 7 – 8 years. While not a lot, this gives most startups, that have already acquired funding (angel or otherwise) and moved beyond the seed stage, to grow and mature, especially if they are tech enabled/driven which can enhance their growth.

To date, only 3 companies have been listed on the stock exchange under the GEM board listing. 2 of these 3 are technology enabled or driven. The companies listed for the GEM board have their normal company preceded by GEM. The companies are:

i. **Pak Agro Packaging Limited** (GEMPAPL): Listed under the 'Paper and Boards' sector, the company is engaged in manufacturing of agricultural textile products specifically for use by farmers.
   GEMPAL was Pakistan's first GEM board listing raising Rs 198 million by offering 8 million shares at strike price of Rs 24.75 per share. According to a report by Brecorder [41], the purpose of this IPO was to add 600 MTPA of fish-net manufacturing capacity coupled with working capital requirement.
ii. **Supernet Limited** (GEMSNPL): Supernet Limited was incorporated in Pakistan on March 14, 1995 and the company is a wholly owned subsidiary of Telecard Limited. The company is engaged

[37] The provisions relating to Companies Act have been addressed in Part 2, section B, III of this Report dealing with Issuance and Transfer of shares.
[38] Section 2(a) of the Competition Act
[39] Section 2(h) of the Competition Act
[40] https://www.psx.com.pk/blog/index.php/2021/10/22/gem-board-a-real-gem-of-the-pakistan-stock-exchange/
[41] https://www.brecorder.com/news/40140176

in providing Satellite and microwave communication services and is listed under 'Technology and Communication.'

iii. **Universal Network Systems Limited** (GEMUNSL): Universal Network System Limited was incorporated as a private limited company in Pakistan on December 12, 2005. The principal activities of the company are to act as a cargo forwarder, provide domestic and international courier and allied services, and is listed under the 'Transport' sector. GEMUNSL was the first ecommerce tech-enabled logistics company to be listed on PSX. The company raised Rs 446 million by offering 6.9 million shares at a price of Rs 65. According to Brecorder, the purpose of this IPO was to utilize funds to widen its country-wide network and invest in technology.

However, none of the companies that exited through an **IPO through the GEM board are startups**. Startups generally do not meet the requirements of getting to the IPO stage until they mature over the years and stabilize, be it in terms of revenue or market capitalization or meeting most of the requirements given below:

- Minimum post issue Paid Up Capital of PKR 25 Million.
- Registered with SECP as Public Limited Company.
- Have a working website containing basic business information, information memorandum and quarterly reports.
- Must prepare periodic Financial Statements audited by QCR rated chartered accountants and published on the website.
- Must have a Board of Minimum Seven Directors.

While the GEM board may be designed and aimed at "growth companies" it is still a new initiative and will take time to bear fruit.

Pakistani markets have seen very few significant exits, the most notable being AliBaba's acquisition of Daraz South Asia for an estimated $150- 200 million in 2018.[42] With increased funding being available in the ecosystem there is also an issue of accurate startup valuation. Recently, higher startup valuations have also brought into question the possible exit routes for Pakistani startups, along with investor speculation.

Both initial public offerings (IPOs), and mergers and acquisitions are still largely conceptual for startups in Pakistan. As a result, there is little incentive for founders, especially those with access to foreign VCs, to explore the local IPO route, as they can raise far larger amounts through private channels than via public equity markets. This is best reflected in the massive difference between the highest-ever round ($85 million) raised by Airlift (founded as a mass transit startup in 2019 and pivoted to a grocery delivery model in 2020) versus Airlink, a major mobile phones distributor growing at a CAGR of 66%, securing just $38.5 million through its IPO. Startups would find it difficult to exit via listing themselves on the Pakistan Stock Exchange (PSX) as their existing private valuations are higher relative to those available in the public markets.

[42] https://www.thenews.com.pk/print/314282-alibaba-acquires-daraz-in-estimated-200-million-deal

Chapter 7. Legal, Regulatory & IPR Framework of Startups in Pakistan

Part A: Regulatory and Legal Landscapes

This section covers and maps all laws applicable to startups as corporate entities, identifies gaps in the law, regulations and policy and provides recommendations on addressing the gaps in the law and regulations.

7.1 Background

As of now, there is no independent regulatory regime or regulator for startups in Pakistan. Startups are regulated in the same way as existing entities and therefore the legal regime applicable to Startups will be dependent on the structure and business medium of the startup i.e., whether it is a Sole Proprietorship, Partnership, Limited Liability Company, Limited Liability Partnership or a Joint Venture and the type of business that the Startup is engaging in.

7.2 Relevant Laws

The discussion below identifies and explains the existing legislations, laws, and regulations that are directly or indirectly relevant to the Startup and entrepreneurial ecosystem in Pakistan.

7.2.1 Companies Act, 2017

The Companies Act is the primary legislation applicable to body corporates and companies. The Companies Act is also the legislation that has recognized Startups as a separate category of companies that require certain exemptions for the ecosystem to develop and grow.

This is an overarching piece of legislation that governs companies that are registered or incorporated under the provisions of the Companies Act and includes within its ambit, Public Unlisted Companies, Public Sector Companies, Private Limited Companies, Single Member Companies, Companies Limited by Shares, Companies Limited by Guarantee and Unlimited Liability Companies.

Other than incorporation and compliances, the Companies Act is also important in the context of access to finance and particularly when Startups raise capital for the business i.e., through equity and debt financing.

i. Companies (Amendment) Act, 2021
ii. Non-Banking Finance and Notified Entities Regulations, 2008 and the Non-Banking Finance Companies (Establishment and Regulation) Rules, 2003
iii. Companies (Further Issue of Shares) Regulations, 2020
iv. Private Fund Regulations, 2015[43]

7.2.2 Central Depositories Act, 1997

The Central Depository Company of Pakistan Limited ("**CDC**") was established under the Central Depositories Act of 1997 ("**CDA**") passed on 10th June 1997. The Central Depository Company of Pakistan Limited Regulations and Central Depositories (Licensing and Operations) Regulations, 2016 were developed and approved by the SECP to supplement the framework provided in the CDA.

7.2.3 Securities Act, 2015

The Securities Act was enacted as the primary law for the capital market and securities industry, thereby amalgamating the legal provisions related to primary and secondary capital markets, which were dispersed in various laws previously. The reason for its enactment was to promote investor confidence, through provision for safekeeping of investor assets. It provides for the regulation of licensing and operations of securities exchange including the Pakistan Stock Exchange, clearing houses, central depositories companies,

[43] Discussed further in Section B of Part 2 in the context of VCs and Angels.

regulated persons/market intermediaries, customer assets, public offer of securities, trading by directors and substantial shareholders in listed companies, listing of securities, takeovers, insider trading and other market abuses, supervision and investigation, and disciplinary actions etc.

The regulations below are pertinent to the Securities Act:

i. Private Placement of Securities Rules, 2017
ii. Public Offering Regulations, 2017

7.2.4 Foreign Exchange Regulation Act, 1947

Foreign Exchange Policy and its operation in Pakistan is regulated under the provisions of the Foreign Exchange Regulation Act, 1947. The Foreign Exchange Regulatory Authority ("**FERA**") empowers the State Bank of Pakistan to regulate payments, transactions in foreign exchange, securities and the import and export of currency. Under FERA, specific directions are issued by the Government of Pakistan and the State Bank vide notifications which are published in the official Gazette. Directions that have general application are issued vide public notices, F.E. circulars and circular letters etc.

The State Bank is empowered under Section 20 subsection (3) to give directions to bankers as authorized dealers, other authorized dealers, travel agents, carriers, stockbrokers, and other persons authorized by the State Bank under the FERA, in connection with payments and other activities.

The main document that expands on the provisions of FERA as a delegated piece of legislation is the Foreign Exchange Manual ("**FE Manual**"). The FE Manual contains the State Bank's instructions, conditions, terms issued on occasion to Authorized Dealers, travel agents, bankers etc. for engaging in transactions under the Manual. Additionally, the FE Manual contains chapters regulating inward and outward remittances, commercial remittances, exports, imports, private remittances, loans, overdrafts and guarantees, securities etc.

7.2.5 Electronic Transaction Ordinance, 2002

All electronic communications and transactions undertaken online are covered by the Electronic Transactions Ordinance, 2002 ("**ETO**") which was enacted to provide recognition and facilitation of documents, records, information, communications, and transactions in electronic form, electronic signatures and to regulate the functions of accredited certificate service providers. The objective behind the legislation is the establishment of legal obligations for the parties involved and the recognition of electronic records.

The ETO is particularly relevant to the startup ecosystem, especially for technology-based startups since it gives recognition to electronic transactions, signatures, seals etc. without the need to physically replicate the documents for validity and authentication.

7.2.6 Competition Act, 2010

The Competition Act 2010 and the Companies Act are the main statutes regulating mergers, and enforcing prohibitions/restrictions on anti- competitive behavior in Pakistan.

7.2.7 Prevention of Electronic Crimes Act, 2016

Before the enactment of the Prevention of Electronic Crimes Act ("**PECA**") in 2016, the ETO 2002 criminalized illegal and unauthorized access to information. However, the provisions of ETO did not empower the authority to directly regulate data privacy and protection.

PECA was enacted by the National Assembly in 2016, to provide a legal framework for different kinds of electronic crimes and the procedures for investigations associated with the same. It criminalizes actions such as unauthorized access or copying or transmission of data or an information system with the intention of injury, wrongful gain or wrongful loss or harm to any person. Furthermore obtaining, selling, possessing, transmitting, or using an individual's identity information without authorization is also a punishable offence.

7.3 Regulators of Startups

Unfortunately, there is no single regulator for Startups and depending on the activity, transaction, parties involved etc. the regulator's jurisdiction is triggered.[44]

- Securities and Exchange Commission of Pakistan
- State Bank of Pakistan
- Competition Commission of Pakistan
- Intellectual Property Organization
- Central Depository Company
- Electronic Certification and Accreditation Council
- Punjab Information Technology Board
- National Information Technology Board
- Pakistan Software Export Board

Part B: Intellectual Property Rights

7.4 Introduction

This part of the Report identifies the laws that generally protect and regulate Intellectual Property Rights ("**IPRs**") in Pakistan as well as the current legal regime that governs and facilitates the registration of intellectual property of startups in Pakistan. The existing laws and procedures for registration of intellectual property have been critically analyzed to identify shortcoming and gaps impeding timely registration of intellectual property of startups, by performing comprehensive benchmarking with neighboring and well-functioning IP jurisdictions, including in the domain of grant of patent, registration of copyright, trademark, etc.

7.5 Importance of Intellectual Property Rights for Startups

Before a discussion on the current Intellectual Property Rights regime in Pakistan is initiated, the importance that intellectual property rights hold for a well-functioning Startup Ecosystem needs to be assessed. Intellectual Property is the expression of ideas such as inventions, symbols, marks, artistic and literary works, and images used in commerce. For a startup, the main types of intellectual property that can be protected is patents, copyrights, trademarks, and trade secrets. In Pakistan, intellectual property has been defined in the Intellectual Property Organization of Pakistan Act, 2012 (the "**IPO Act 2012**") under section 2(g),[45] as including a trademark, patent, industrial design, layout-design (topographies) of integrated circuits, copyright and related rights and all other ancillary rights.

The intellectual property of a startup is one of its most valuable assets, specifically tech-based startups. Hence protection of a startup's intellectual property ensures that it continues to get funding, investment, and competitive advantage while preventing competitors from exploiting the ideas and brand value of a startup. The driving force behind a startup is its novel idea and in any competitive and dynamic Startup Ecosystem, intellectual property can be a unique selling proposition for a startup[46]. The main purpose of intellectual property laws is to protect that idea and the property that stems from that idea, that form the foundation of a startup. One of the main points considered by investors when investing in a startup is how well defined and well protected its intellectual property is. According to the Startup Genome Project[47], the most critical step in gaining competitive advantage in a relevant market is intellectual property, being even more crucial for tech-based Startups.

[44] We have not covered the tax authorities and regulators in Pakistan.

[45] IPO Act, 2012; *2. Definitions. --- (g) "Intellectual Property" includes a trademark, patent, industrial design, layout-design (topographies) of integrated circuits, copyright and related rights and all other ancillary rights.*

[46] WIPO (2021). Enterprising Ideas: A Guide to Intellectual Property for Startups. Geneva: World Intellectual Property Organization.

[47] Upcounsel; Intellectual Property for Startups: Everything You Need to Know.

7.6 Intellectual Property Rights Regime in Pakistan

Intellectual Property Rights are regulated and enforced by the Intellectual Property Organization (the "**IP Organization**"), in Pakistan. It ensures the enforcement of IPRs with the help of enforcement agencies such as the Federal Investigation Agency (the "**FIA**"), the FBR or the local police. Additionally, it is within the mandate of the IPO to create awareness on IP rights and advise the Federal Government regarding the implementation of any IP Policies[48] that may aid the IPR regime in Pakistan. The main types of intellectual property that the IP Organization deals with are patents, layout design of integrated circuits, industrial designs, copyright, trademarks, and geographical indications.

Currently, the IPR regime is governed by an integrated piece of legislation, called the **IPO Act, 2012**. The regime governing trademarks, copyrights, patents, and designs comes under the umbrella of the integrated Intellectual Property Organization, attached with the Commerce Division.

7.7 Existing Intellectual Property Legislation in Pakistan

Intellectual property specifically relating to Startups is mainly divided into patents, copyrights, and trademarks. The laws that regulate these divisions are the Patents Ordinance 2000, the Copyright Ordinance 1962 and the Trademarks Ordinance 2001 respectively, which will be discussed in detail below. These laws have been enacted in order to ensure Pakistan's compliance with international IP legislation to which it is a signatory. The IP Laws in Pakistan are a reflection of the treaties and agreements listed hereinafter, most notably the Paris Convention for the Protection of Industrial Property ("**Paris Convention**"), the Berne Convention for the Protection of Literary and Artistic Works ("**Berne Convention**"), and the Agreement on Trade-Related Aspects of Intellectual Property Rights ("**TRIPS**").

[48]IPO Act, 2012; *"S. 13. Powers and functions of the Organization. --- The powers and functions of the Organization shall be to, (xviii) initiate and monitor the enforcement and protection of intellectual property rights through designated law enforcement agencies of the Government, Federal or Provincial. and collect related data and information."*

Annexures

I Disclaimers

We disclaim our liability, to the fullest extent possible, on the basis of the following:

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