











Dr. Umar Saif

Federal Minister of IT and Telecom

It is with great enthusiasm and optimism that I present Pakistan's first ever IT & ITeS exports strategy, a comprehensive roadmap designed to propel Pakistan's information technology sector into new heights of success and global prominence.

As we embark on this transformative journey, our vision is anchored in the unwavering belief that the future of Pakistan's IT landscape is bright, dynamic, and filled with opportunities. We recognize that human capital is our most valuable asset, and thus, we are committing to a monumental upskilling initiative which will ensure that they not only meet the demands of the digital age but thrive in it. Moreover, by tapping into the immense potential of our freelance community, we will foster innovation, diversity, and economic inclusivity while transcending geographical boundaries. To fuel this engine of creativity, we are committed to providing robust funding mechanisms for startups.

Central to our strategic vision is enhancing demand for Pakistan's IT industry through international marketing while pitching Pakistan as an IT hub and maintaining close collaboration with embassies and trade missions for global outreach.

Our strategy also extends its reach to the telecom and wireless sectors. We are dedicated to bolstering the infrastructure, expanding fiber networks, and embracing cutting-edge technologies. Furthermore, the focus on mobile handset manufacturing underscores our commitment to self-reliance and technological autonomy.

I extend my sincere gratitude to all stakeholders – from the dedicated individuals within the Ministry of IT & Telecom, including Pakistan Software Export Board, to the visionary entrepreneurs, skilled professionals, and every Pakistani who contributes to the vibrant tapestry of our IT ecosystem. Let us commence this journey with determination, knowing that the fruits of our labor will not only redefine our nation's technological landscape but also contribute to a brighter, more prosperous future for Pakistan.



Zohaib Khan Chairman, P@SHA

The Information Technology (IT) sector in Pakistan has not only exhibited consistent year-on-year growth but has also emerged as one of the top five net exporters in the country. As the primary contributor to net exports in the services industry, the IT sector plays a pivotal role in shaping Pakistan's economic landscape. With the potential to become the country's primary foreign exchange earner and achieve the ambitious annual national target of over USD 15 billion, it is crucial to embrace a comprehensive approach to propel this sector forward.

In collaboration with P@SHA, the Pakistan Software Export Board (PSEB), operating under the Ministry of IT and Telecom, has intricately formulated a strategic roadmap. Guided by industry insights and thorough research, this roadmap charts a distinct and precisely defined course to establish Pakistan as a global technology hub. It identifies five priority IT/ITeS market segments marked by significant global market growth and equitable competition.

This roadmap aligns seamlessly with P@SHA's core objectives, underscoring the significance of fostering skills development, improving infrastructure, and implementing strategic projects and policies to facilitate the growth of businesses. The overarching goal is to create a well-rounded and thriving environment that fosters innovation, development, and sustained progress within Pakistan's IT industry.

We hold optimism that the valuable insights contained in the report will translate into concrete policies and projects. These insights are anticipated to serve as a guiding resource for policymakers, academia, and the IT industry, furthering our collaborative efforts to position Pakistan as a leading global Techdestination.



Iftikhar Ahmed Moghal

Partner Advisory AF. Ferguson & Co. (Consortium lead) Pakistan's potential for IT/ITeS exports is much talked about. The sector's year on year growth in FY 2021-22 was @ 29%. Can Pakistan sustain such a stellar growth rate beyond two or three years without intervention? Less likely.

This report presents the results of a study our consortium conducted on Pakistan's IT/ITeS exports potential. The study covered at one end, research and analysis of the IT/ITeS global demand and on the other, the state of Pakistan industry to serve such demand. It identified twelve priority sub-segments given their market size, growth trajectory and market saturation and after taking into account industry readiness to serve such segments. A roadmap to accelerate exports is also presented based on three pillars: i) HR and skills development; ii) ecosystem reforms or upgrade; and iii) marketing and branding efforts required. To sustain the sector's growth or to increase further, in total 103 interventions were identified under these pillars as part of industry situational analysis. These were then consolidated into 31 interventions which are expected to have individually an impact greater than 5% on IT/ITES exports.

Our study revealed that availability of quality IT graduates and affordable capital are the leading limiting factors for the sector's growth. The number of IT graduates may be increased by channeling bright students to pursue IT/ITeS careers. Additionally, equity/export refinance funds for IT/ITeS startups should be created for expansion and to fuel growth. Ecosystem reform and upgrade of infrastructure will catalyse and also help sustain growth by attracting necessary FDI and integration with international players, customers, suppliers and joint venture partners. To manage this transformative journey for timely achievement of the desired results of the 31 proposed interventions, the setting up of a PMO, supported with strong sponsorship from the IT, planning and finance ministries is a must.



Gerard Newman

Project Director

This study supports the widely held belief that there is a substantial opportunity for Pakistan to grow its IT/ITeS Export revenues — estimated at up to \$15bn per annum in the next 5 to 6 years, It shows how this can be achieved through a strategy of focusing on 5 priority IT/ITeS market segments and — within those, 12 sub-segments which have a combination of high global market growth, significant global market size and relatively few established players. Growing IT/ITeS revenues and capacity will additionally have spin-off benefits for associated industries and the national economy at large — for example e-Commerce, Financial Services or the provision of public services (e-Government).

Although some growth in the Pakistan IT/ITeS Export revenues will flow naturally from the global growth in IT markets, key to achieving the exponential growth the nation is looking for, is creating the conditions to remove the current constraints and penalties, so that the value of IT exports can be realised, the Industry can develop more freely, and so benefit the National economy. To do so, will require an integrated and wide-ranging programme of enabling interventions and reforms, These enabling projects are grouped in eight areas:

- 1. Skills development
- 2. Supporting infrastructure
- 3. Equity and investment
- 4. Debt financing
- 5. Banking reform,
- 6. Legal, regulatory, governance framework improvement
- 7. Tax legislation and harmonisation
- 8. Branding & Marketing

It is important to note that the above are an interconnected set of measures, and <u>all</u> require implementation, supported by a co-ordinating Programme Management Office and strong sponsorship from the highest levels of Government. The prize is significant and transformative for the nation. However, other economies are investing now in a global technology race. Pakistan has the opportunity to be a leading contender, but should seize the moment, before the window of opportunity closes.

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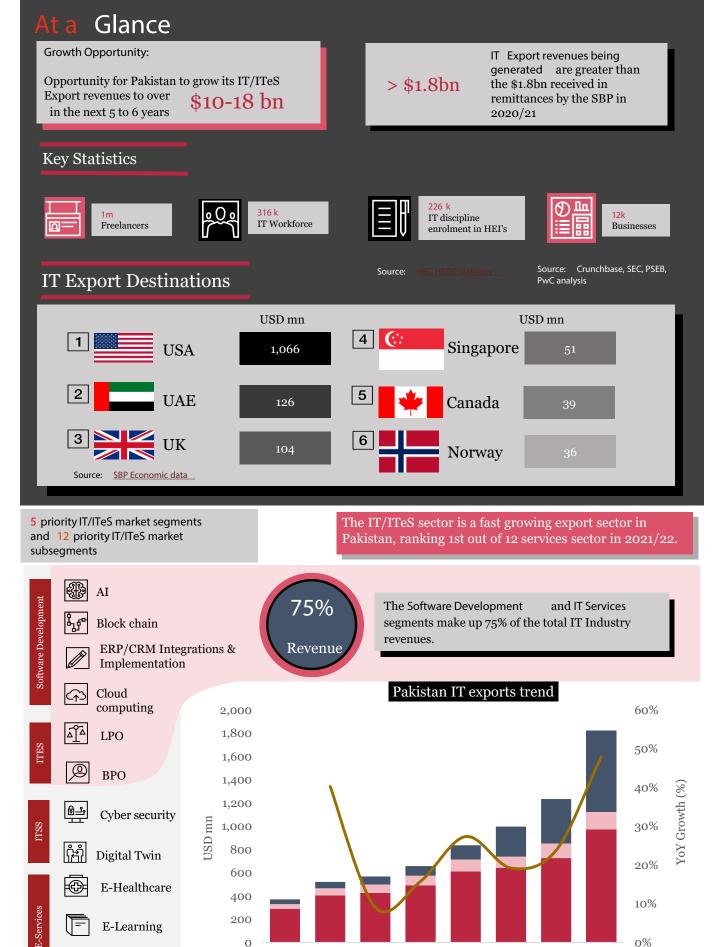








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2016

Software export (USD)

2017

2015

Others (USD)

2018

2019

2020

Call centers (USD)

Total export (%)

PwC | A Roadmap for IT/ITeS Export Growth

2021

0%

200

O

2014

Source: SBP remittances data

E-Learning

E-Agriculture

AR, VR & MR

Executive

Summary











What does the future hold?

This report confirms that there is a substantial opportunity for Pakistan to grow its IT/ITeS Export revenues to \$10-\$18bn by 2028 and would make Pakistan a Global IT hub, with a commensurate increase in the Domestic industry to over \$6bn per annum.

This is particularly the case in 5 priority IT/ITeS market segments, and within those, 12 priority sub-segments for the Pakistan IT/ITeS Industry which have been identified as having a combination of a high global market growth rate, significant global market size and a large part of the global market available to exploit as there are relatively few established players.

Additionally, an increase of activity, capacity and capability of the IT/ITeS Industry will have spin-off benefits for associated industries and the economy at large – for example e-Commerce, Financial Services or the provision of public services (e-Government).

Growth in Pakistan's IT/ITeS exports will result from the global growth in IT markets, and to support this, the country needs to undertake a significant training and skills initiative over the next five years.

However, the Export market growth will be sub-optimal if the macro-conditions in the country are not also made more favorable - if this is not done, it is likely the level of ambition for IT/ITeS exports will not be met.

The first two components (as listed below) of the strategy build on work and investments already underway.

Significant progress has already been made on these for example in the provision of training, internet penetration and IT parks:

Strategic inputs for export growth

- Skills development for up to 1m people in technical and managerial training, as well as higher education to support the IT/ITeS revenue ambitions.
- 2 Upgrade the quality and extent of the supporting infrastructure which the industry requires, such as reliable high speed internet connectivity, cloud services and technology parks.

Macro interventions for export facilitation

- Availability of credit on the basis of customers contract / receivables and Subsidized credit for setting BPOs and setup of Pvt equity fund.
- Free mobility of foreign currency earned by freelancers and IT enterprises.
- Tax legislation and harmonisation to provide incentives for both Pakistani and overseas organisations to invest in the Pakistan IT Industry.
- Increased equity and investment in IT/ITeS industry, particularly from overseas investors.
- 5 Improvements in the legal, regulatory and policy regime.



Interconnected Measures

The above are an interconnected set of measures. Investing in one or two – for example skills development and infrastructure development, without investing in the others will mean that the investment will be suboptimal and the level of ambition in terms of the IT Exports will not be met.

Annual Growth

The IT sector has grown quite aggressively with an annual growth rate of 25.6% p.a. for the last 7 years. However it is still in its infancy, with a total contribution of USD 3.9 bn (1.5% of the total nominal GDP and 2.9% of the services sector GDP) for FY21 in contrast to India's share USD 194 billion (>51% share of services while services sector contributes over 50%to GDP).

1. PIB press release (MOF India)

Global IT market opportunities and

Pakistan IT industry analysis











Market Segmentation

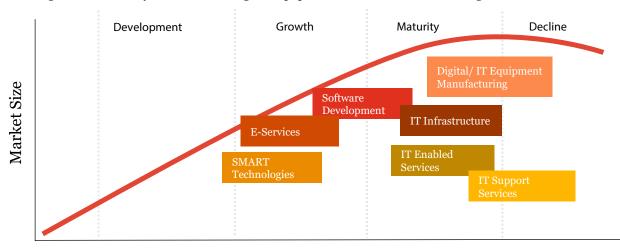
Our Global IT Market and Industry Data Gathering Report identified 7 IT/ITeS's industry segments and 150 sub-segments. Out of these 150 sub-segments, a list of 30 market sub-segments/product offerings were shortlisted in consultation with industry stakeholders. From these, 5 IT/ITeS market segments, and within those, 12 sub-segments offered superior levels of growth, market size and a high level of market opportunity, as summarised below:

Segment	Subsegment & product offering	Growth rate (2023%)	USD B (2023)	Market opportunity (%)	Market* opportunity (USD B)
Software Development	Blockchain	83	23	43	10
	AI	39	71	58	41
	Cloud computing	18	622	30	187
	CRM	12	82	28	23
	ERP	8	51	53	27
ITES	LPO	32	21	72	15
	ВРО	6	344	70	241
ITSS	Digital Twin	55	12	40	5
	Cyber Security	10	160	35	56
E-Services	E-learning	15	393	31	122
	E-health	14	173	65	112
	E-agriculture	11	7	65	5
SMART Technology	AR, VR & MR	112	124	45	56
Total			2,083		900

^{*}M arket opportunity is the amount of the global market in USD that is not taken by the biggest three players in that sub offerin g

Lifecycle curve of IT sector (segmental level)

With respect to the Lifecycle analysis, overall, the segments fall within "growth" or "maturity" stage. SMART technologies offer the greatest number of opportunities, being in the early "growth" stage, offering significant capacity for market growth. Conversely, IT manufacturing and equipment has the most mature subsegments.



⁻segment/ product

The Pakistan IT Industry Situational
Analysis Report noted that the IT/ITeS Industry
in Pakistan has grown 25.6% per annum over the
last 7 years.

Pakistan's IT sector and its IT exports have become a key component of the nation's economy, with IT exports (USD 1.8 bn) contributing 31% of Pakistan's total services export for FY21.

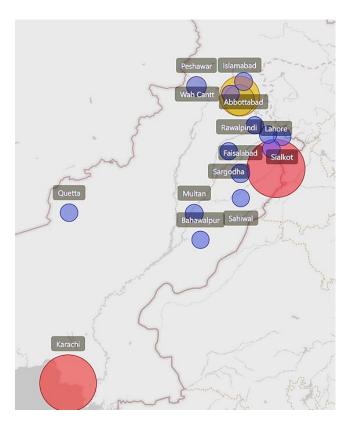
The Software Development and IT Enabled Services segments have been key drivers of this growth, making up 75% of the total IT Industry revenues.

However, Pakistan's FY21 total IT industry revenue of USD 3.9 bn, being 1.5% of the total nominal GDP and 2.9% of the services sector GDP, is still well below other economies - for example India, where the sector comprises 10% of GDP. This indicates significant opportunity - as well as challenge, for the growth of Pakistan's IT Industry.

Results of survey conducted of IT graduates, HEI's, freelancers and IT industry are summarized below:

- Interest in pursuing opportunities abroad is expressed by almost half of the IT graduates surveyed.
- Employability rate of IT graduates within a year of pass out is about 63%, indicating job prospects for IT graduates.
- IT graduates reported their skills to be relevant (54%) or somewhat relevant (38%) to their jobs, indicating a positive correlation between education and job requirements.
- A majority of IT graduates (78%) are working for IT businesses.
- 48% of respondents working in development and programming roles
- HEIs are planning to gear themselves predominantly towards introducing Artificial Intelligence (42%) and Cyber Security (38%) in research and teaching.
- Sourcing suitable faculty is a reported challenge in maintaining quality education for HEIs which they have rated 2.75 on a scale of 1-5
- Almost half of the IT graduates surveyed are interested in pursuing opportunities abroad. Only 9% of the IT graduates were able to get an overseas job, as reported by HEIs.
- HEIs reported a lack of international exposure (~23%) followed by lack of areas of expertise (~15%), lack of partnerships with international institutions (13%) and lack of linkage with industry (11%) as major stumbling blocks.

Out of the total 11,914 IT businesses, location data is available for only 8,516 IT businesses which indicated that circa 90% of these IT businesses are based in four major cities (Lahore, Karachi, Islamabad, Rawalpindi). This trend is also in line with concentration of both infrastructure and human resources in these areas.



- There's a lack of adequate IT research programs in HEIs, 55% do not have research programmes which result in fewer publications and limited exposure for Pakistan in international journals
- The lack of experienced staff to deal with international clients for the export of IT services is reported as a major reason for not achieving desired growth by 66% of IT businesses.
- 82.3 % of the IT businesses surveyed in respect of debt financing, remarked their experience of raising debt finance as "very difficult" to "somewhat difficult".
- A mismatch between the skills required by IT businesses and the skills available in the market is reported by 75% of businesses surveyed, highlighting a potential skills gap.
- The average experience of 85% of freelancers is less than 3 years.
- 59% of freelancers reported inconsistency in finding clients and lack of payment gateways (41%) as major stumbling blocks.
- 65% of the freelancers cited flexibility in working hours as the primary reason for freelancing, while 43% cited better pay as another reason.
- 26.5% IT graduates (87/328) reported affordability as their major challenge to education.

Segment and Sub - segment prioritisation











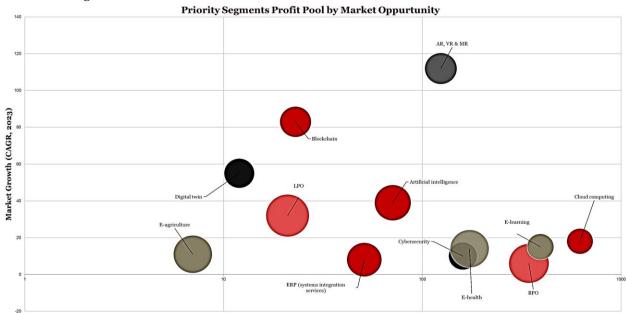
The IT Product Puzzle: Prioritizing Sub-Segments for Success

The long list of 30 globally recognised IT/ITeS products and services (from a comprehensive list of over 150 IT/ITeS products and services) on page 10 were further analysed using the factors set out in the Data Gathering Analysis and Situational Analysis reports as follows, in order to identify a prioritised set of segments and subsegments:



The desk based analysis was taken forward for further refinement and analysis in a workshop, held with PSEB and other key stakeholders, including representatives from PASHA and the Pakistan IT industry in Islamabad on June 16, 2022.

At the workshop attendees were also provided with a four point criteria to assess, identify and prioritise product or service for export growth, Graph below presents the 12 prioritised sub-segments by market opportunity; a function of market size and growth rate:



Market Size (USD Billions, 2023)

List of prioritised IT/ITeS segments and sub-segments for Pakistan



	Lifecycle Stage	Technical Complexity	Industry Type Model	Global Industry Attractiveness Ranking
AI	Growth	High	Safe bet	Med/High
Block chain ERP/CRM Integrations & Implementation	Growth	High	Safe bet	Med/High
ERP/CRM Integrations & Implementation	Maturity	Medium	Industrial Approach	Medium
Cloud computing	Growth	High	Safe bet	Med/High
ΔΩ LPO	Dev/Growth	Medium	Niche/Emer ging Market	Med/High
BPO BPO	Maturity	Low	Industrial Approach	Medium
Cyber security	Growth	High	Safe bet	Med/High
S (ညှို Digital Twin	Growth	Medium	Niche/Emer ging Market	Med/High
E-Healthcare	Growth	Medium	Safe bet	Med/High
E-Learning	Growth	Low	Safe bet	High
E-Agriculture	Dev/Growth	Medium	Niche/Emer ging Market	Medium
AR, VR & MR	Dev/Growth	Medium	Niche/Emer ging Market	Med/High
SMA				

Vision, Mission and Objectives











How to make Pakistan a Global IT Hub



Vision Make Pakistan a global IT Hub



Mission Increase IT exports in the range of \$10-\$18bn by 2028



Objectives :

Skills | IT Ecosystem | Marketing

How can this be achieved?



Develop National Skills Development Strategy



Develop sustainable IT ecosystem strategy



Develop International Marketing strategy

Skills



Key Tasks

- IT certification technical bootcamps and short courses.
- National level IT research projects and competitions.
- Universities IT curriculum (UG/PG) to align with priority segments.
- Engage public and private sector, work placements, apprenticeship and internship programs for IT students.
- Master trainers within organisations.
- Industry upskilling.

IT Ecosystem



Key Tasks

- Improve WIFI connectivity
- Develop IT infrastructure.
- Nationwide IT parks, zones, exhibition and conference centres.
- Research and innovation centres
- Grants and low-cost loans for startups and free flow of foreign exchange.
- Improve ease of doing business, GDPR legislation enactment, FS, & Tax regime facilitation centres.
- Encourage sustainability by improving access to clean energy.
- Improve resilience through cybersecurity and disaster recovery initiatives.

Marketing



Key Tasks

- Develop Brand Pakistan.
- International level tradeshows, events, and conferences to promote Pakistan IT talent.
- Dedicated export facilitation hubs
- Engage Commercial sections of Pakistan diplomatic missions across the world, including setting up IT desks.
- Social Media IT marketing campaigns and online presence.
- International Media
 Engagement and White
 Papers promoting Pakistan.

The Mission is to achieve an increased level of IT/ITeS Export revenue by 2027/28. This is presented as a range of growth in three scenarios, with differing levels of growth, depending on the level of investment - primarily in skills development and training.

	Total Target Revenue	Domestic Revenue	Export Revenue
	2027/28 (\$bn)	2027/28 (\$bn)	2027/28 (\$bn)
Base Case	15.4	5.9	9.5
Median Case	17.9	6.9	11.0
Stretch Case	25.3	6.9	18.4

Objectives

The strategies to deliver the Vision and Mission are split into supply side strategies and demand side strategies, each with their own further division.

Supply Side Strategies

Skills

Skills Development Strategy

IT Ecosystems

- 1. Infrastructure Development Strategy
- 2. Investment and Funding Strategy
- 3. Legislative and Regulatory Strategy
- 4. Tax Reform Strategy
- 5. Sustainability Strategy
- 6. Resilience Strategy
- 7. Organisational capacity and capability and Programme Management Strategy

Demand Side Strategy

Marketing Branding, Marketing and Business Development Strategy

Strategy Components

a) Horizontal initiatives:

Sub-segment agnostic initiatives which have a wide-reaching impact across the entire IT sector. These initiatives intend to build the appropriate foundations and fix structural weaknesses which will help Pakistan's IT sector to be competitive, resilient and productive.

b) Quasi -horizontal initiatives

Initiatives which are agnostic across multiple but not all sub-segments. These initiatives intend to both build foundations and fix structural weaknesses but also build the necessary conditions for growth in multiple sub-segments and would be delivered in the same way across the sub-segments to which it applies. The initiatives under this category are delivered in the same way across the sub-segments to which they pertain.

c) Vertical initiatives:

Sub-segment specific initiatives which have a more focused impact. These initiatives are intended to build the necessary preconditions for sub-segment specific growth and are delivered in different ways in the individual sub-segments to which they relate.

Key interventions in the Roadmap





Infrastructure

- Roll out of improved broadband and internet access
- Increase fiber connectivity and international access
- Roll out of Technology Parks (TPs), Software Technology Parks (STPs) and Special Technology Zones (STZs)
- Further development of cybersecurity policies
- Use of biometrics
- Further development of the PTA takedown services
- Regional cloud hub disaster recovery policy
- Development of disaster recovery plans
- · Roll out of 5G cellular network
- Establish Technology Innovation and Incubation centres within Technology Parks
- · Establish Knowledge Parks
- Establish job centres across Pakistan - potentially in Technology Parks
- Establish and maintain a Pakistan IT industry database
- Incorporation of the highest encryption standards
- · Provision of DNS
- · Build designated data centres

In progress (Need to start)

Additional Investments



Investment & Funding

- Listing of companies on the PSX
- Foreign currency remittance processes
- Foreign currency deposits
- Rationalise foreign currency conversion rates
- SME/Freelancers forex accounts opening
- Repurposing of foreign exchange remittances
- Tax exemptions
- Insurance Availability
- Create Government demand for Tech products
- Create Public Sector IT investment strategies
- · International JVs
- Freelancing facilitation platform
- Partnership Grants
- Private equity funds
- Debt financing
- Grants subsidies and low interest loan
- · Local investment funds
- Capital Markets engagement



Skills development

- · Bootcamps
- · Short courses
- Capacity Building Portals
- LPO/BPO/KPO Training
- Digiskills training
- · Academia bridge
- $\bullet \ Master \ trainers$
- · IT upskilling
- 2yr Degrees and Internships



Legal, Regulatory & Tax

- Intellectual Property, Patents, Copyrights and Trade Secrets
- Data Protection legislation
- Company set up/foreign interests
- Compliance
- Smart Resource Centre (SRC)
- · Visa Facilitation
- Confidentiality and Data Protection Legislation
- · Income Tax reforms
- · Duties
- Federal Sales Tax reforms
- $\bullet \ OMP/Withholding \ Tax \ reform$
- Provincial Sales Tax and other miscellaneous Tax reforms



Sustainability/ Resilience

- Further develop cybersecurity audit programme
- Policy enablement of regional cloud hubs
- Build designated data centres/cloud hubs
- Network infrastructure with latest cyber security protection
- Specialist cyber security training
- Support for China-Pakistan fiber-optic cable
- Encouraging partnerships with Managed Network
- Service Providers
- Create IT parks powered by clean energy on site
- · Source clean power from grid
- · Reduce energy usage
- Better reconcile energy demand and supply
- Use of ethical hackers
- · Metaverse IP rights
- Virtual copyright infringement
- Alignment of digital penetration
 Establish Innovation and
- Centres of Excellence
- MoITT/PSEB Gap Analysis
- Programme Management



Marketing

- Brand Pakistan
- $\bullet\,36o Degree\ Campaign$
- National and International media
- Academic papers and research
- Online presence
- $\bullet \ Introductory \ video$
- · White paper
- · Diaspora abroad
- · Int'l Business Dev. offices
- Establishing sales launchpads
- · Mentors connect program

- International competition
- Trade events
- Product development
- Market penetrationExport market
- development
 Diversification
- Low price
- Hybrid
- Differentiation
- Focused differentiation
- Tech exchange program
- IBDOs
- Investors

Success

Stories











Journey has already begun

Success Story #1: Snapp Retail

SnappRetail started with a minimum value product implemented at 5 retailers in 2021. In 2022, the product was implemented in 40 stores. Today after just 6 months, SnappRetail has more than 500 retailers in Karachi city and have a team of more than 55 that is leading the journey. Today SnappRetail is the only retail technology that is integrated with multiple industries. The success of SnappRetail is reflected in the remarkable growth that its customers have experienced.



Success Story #2: Phi Consulting

Phi Consulting's success story is not just about their growth rate, but their commitment to partnerships as well. Phi has not only contributed in giving employment opportunities to the youth but have significantly contributed in the country's exchequer by bringing in remittances. Phi Consulting's success story is a true testament to the power of hard work, dedication, and partnerships. They started small but grew exponentially due to their commitment to learning and development, talent acquisition, and providing growth opportunities to their partners. In 2019, the team consisted of only 15 people, but their exponential growth led them to employ 500+ people in less than three years, including engineers, technical sales consultants, account managers, customer success managers, business development experts and digital marketing strategists.



Success Story #3: iHUNAR

After working in the UAE for three years and starting a software company there, which he later sold to a friend, Pardeep returned to Pakistan before the COVID-19 pandemic. Currently, he runs two IT companies and a Digital Learning Academy called iHUNAR, where young people can learn technology skills and freelancing. Through iHUNAR, Pardeep has not only given his community access to the global online market but also provided a platform for young boys and girls to learn valuable skills.

Recognized by the Pakistani government and featured internationally, Pardeep's story showcases the transformative impact of freelancing, offering inspiration to others seeking positive change in their communities. Recognized as the 'Zuckerberg of Desert' by Arab News, Pardeep's story showcases the transformative impact of freelancing, offering inspiration to others seeking positive change in their communities.



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