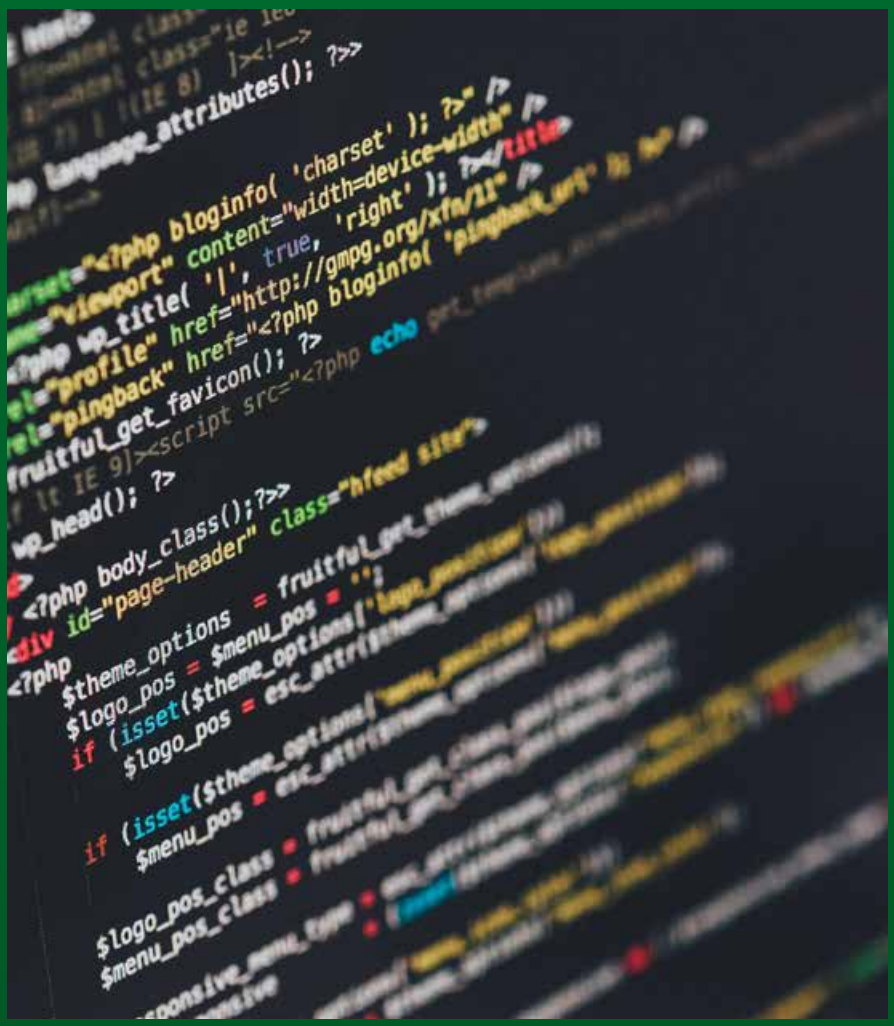
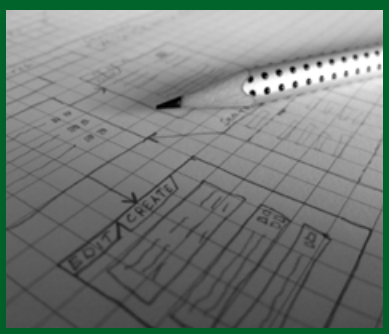
GOVERNMENT OF PAKISTAN

Pakistan Export Strategy Software Development

2023-2027





This Software development sector strategy is part of the National Priority Sectors Export Strategy (NPSES) initiative which contributes to the implementation of Pakistan's Strategic Trade Policy Framework (STPF) 2020-2025.

ITC is the joint agency of the World Trade Organization and the United Nations. As part of the ITC mandate of fostering sustainable development through increased trade opportunities, the Trade Development Strategies Programme offers a suite of trade-related strategy solutions to maximize the development payoffs from trade. ITC-facilitated trade development strategies and roadmaps are oriented to the trade objectives of a country or region and can be tailored to high-level economic goals, specific development targets or particular sectors. This document was developed on the basis of the process, methodology and technical assistance of the International Trade Centre (ITC) within the framework of its Trade Development Strategy programme.

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UKaid from the British people

Pakistan
Export Strategy

Software Development

2023-2027

Forewords

Message from the Ministry of Commerce

Increasing international trade is not only a means of boosting economic growth and the nation's welfare, but also contributing to strengthening international relations. The stabilization of economic and political affairs paves the way for reinforcing friendly relations based on mutual interests with a wide range of trade partners. Trade is thus one of the most important forms of exchange between countries and fostering this will lead to connections such as foreign investments, better employment opportunities, and scientific and technical exchanges, all of which will contribute to Pakistan's growth and prosperity.

The Government of Pakistan has taken a series of initiatives to promote exports to achieve sustainable and inclusive economic growth, poverty reduction and improvement in the living standard of the Pakistani people. This is also aligned with the government's vision of the Strategic Trade Policy Framework (STPF) 2020–25 for 'Pakistan to become a dynamic and efficient domestic market as well as a globally competitive export-driven economy'. In this context, the Ministry of Commerce supported the preparation of the Software Development Export Strategy, a priority export sector under the STPF, which will bring visible benefits to the economy of the country and generate tremendous employment opportunities. This sector export strategy has been formulated with close consultation of all the stakeholders; and the Ministry of Commerce appreciates all those involved in the process, particularly the private sector.

As a priority export product within the framework of the STPF 2020–25, the software sector presents a new export avenue and an opportunity for Pakistan. The strategy encompasses country's existing strengths, constraints, and foreseeable potentials in this sector. All activities in the framework of designing Strategies has outlined a detailed 5-year Plan of Action to tackle issues and facilitate export procedures, and as identified by all the stakeholders of the Software sector in Pakistan.

Despite challenges in the international trade scenario and the global business environment, I am confident that this initiative will serve as an action-oriented blueprint to enhance trade performance and develop a coordinated mechanism with participation from both the public and private sector, increasing its competitiveness in the international market.

To maintain the momentum sparked by the consultations, the Ministry of Commerce is committed to play constructive and facilitative role, while making it our top-priority to execute the activities and reforms proposed in the Plan of Action in consultations with the stakeholders. We are particularly committed to continue keeping the private sector in the driving seat for the implementation process through the Sector Specific Council on Information Technology. The Government of Pakistan is fully committed to promoting export-led economic growth and would encourage all to join hands and work together in making the vision of a flourishing Software sector a reality.

Message from Pakistan Software Houses Association (P@SHA)

As the representatives of Pakistan's information technology (IT) and IT-enabled services (ITeS) sector, we were pleased to see that the Strategic Trade Policy Framework Review (STPF) 2020-25 has identified the IT software exports sector as a priority focus export sector for growth and development for the next five years. This builds on the impressive gains made by our industry in a short period of time, amid unprecedented domestic and global challenges.

Especially as the COVID-19 crisis gripped the global economy, the demand for the services provided by our member firms have been rapidly growing and Pakistan's reputation for delivery of global services is increasing. As a strong industry voice that has lobbied with the government to initiate policies and create an environment that would attract more firms to join the industry, we remain committed to supporting this strategy's implementation, towards improving sectoral competitiveness and global expansion.

Having grown from a nascent industry to a prominent service export sector in a short timeframe, there are now several key issues that require addressing in order to reach the next growth wave. These include improving the sector's global positioning, tackling certain regulatory and policy bottlenecks, improving investor attractiveness, aggressively promoting in key growth markets, enhancing the skilled talent pool and strengthening firms' internal delivery capabilities, to name a few.

The industry has been increasing its presence in regional and international markets. Through implementation of key actions envisaged in this strategy, we expect to strengthen global market penetration, in existing and new segments. Notably, the strategy also puts forward activities to improve firm-level capabilities in the sector, so that software services exporters can be more competitive, more innovative, more productive and more competent.

Unsurprisingly, our surveys have shown that IT sector jobs tend to be higher paid than other export jobs. As such, we believe that, by delivering on this strategy's goals, the industry can play a catalytic role in Pakistan's economic transformation through the creation of good jobs. Even while this is a vision, the shortage of skilled workers is a key risk to current and future growth. As such, it is essential to accelerate efforts to improve both technical/hard skills and soft skills. We recognize the strategy's focus on addressing this, and commit to working with public and private stakeholders to implement feasible and time-bound programmes.

Meanwhile, our industry is a pioneer in recognizing the importance of diversity and inclusion. Having published a framework report in 2021, we look forward to accelerating efforts to improve our firms' commitment to this agenda, as it will not only serve domestic stakeholders well, but will also be a key differentiator in international markets.

This strategy provides an excellent roadmap for the sector's future growth, with a focus on quality, competitiveness, innovation and export market expansion. We welcome recent government initiatives to improve the framework conditions for our sector's growth. Coupled with the measures in this strategy and the private sector's tenacity, we are confident of a bright future for the sector.

As digitalization takes hold across nearly every sector globally, Pakistan's software industry stands ready to be a dominant player in the region and deliver impressive growth performance through exports, capitalizing on emerging trends while continuing to strengthen current competencies.

Badar Khushnood,
Chairman, P@SHA

Acknowledgments

The Software Development Export Strategy forms an integral part of Pakistan's Strategic Trade Policy Framework (STPF). It was developed under the aegis of the Government of Pakistan and the leadership of the Ministry of Commerce (MoC) and the Trade Development Authority of Pakistan (TDAP), in close collaboration with MoITT and the Pakistan Software Houses Association (P@SHA).

The document benefited particularly from the inputs and guidance provided by the sector stakeholders that steered the strategy's formulation, namely the following key sector institutions[1]

Institutions
AABBLL
Asian Development Bank
Brandverse Pvt Ltd
Contour Software
DPL (Pvt) Ltd
Epiphany
Luminogics (SMC-PVT) Ltd
NexDegree Private Limited
Oraan Tech (Pvt) Ltd
Pakistan Software Export Board (PSEB)
Securities & Exchange Commission of Pakistan (SECP)
Sindh Revenue Board
Systems Limited
TPS Worldwide
University of Engineering and Technology (UET), Lahore

Technical support and guidance from ITC was rendered by the following people:

Name	Designation
Tauqir Shah	Revenue Mobilization, Investment and Trade project (ReMIT) project coordinator
Shoaib Zafar	Project advisor
Usama Iftikhar	National sector consultant
Charles Roberge	Senior Officer Export Strategy
Alexandra Golovko	Advisor, Export Strategy and Competitiveness
Anushka Wijesinha	Manufacturing and digitisation strategy specialist
Aishwarya Nahata	International consultant
Shiraj Lye	International expert, software development

1.– The full list of public–private stakeholders that participated in the consultations and their names is available in Annex I.

Note for the reader

In order to boost export growth, the Ministry of Commerce (MoC) has developed the Strategic Trade Policy Framework (STPF) 2020-25, which was approved in November 2021. ITC provided technical support to MoC and the Trade Development Authority of Pakistan (TDAP) to design selected sector export strategies of the STPF priority sectors. This initiative, called the National Priority Sectors Export Strategy (NPSES), focused on 10 of the 18 STPF priority sectors through a consultative process.

The Software Development Export Strategy was developed based on a participatory approach, during which more than 30 Pakistani industry leaders, small business owners and public sector representatives held consultations to reach consensus on key sector competitiveness issues and priority activities. These inclusive consultations were held in a hybrid model owing to the travel restrictions imposed due to the COVID-19 pandemic.

Besides in-depth qualitative and quantitative research and service map analysis, these consultations were complemented by visits and interviews by the national consultants with domestic firms to guide the strategy with insights and market intelligence.

The Software Development Export Strategy builds on the ongoing initiatives in areas of private sector development, regional integration, investment and economic empowerment of youth. Equally importantly, the sector strategy is complemented by an effort to establish the proper implementation responsibilities among key stakeholders early on to ensure timely implementation of activities, whether by the public sector, private sector or international development agencies. This strategy's principal output is an endorsed, coherent and comprehensive document with a five-year detailed plan of action (PoA) and an implementation management framework.

This document was approved as the official export strategy for the Software Sector 2023-2027 by the Software Sector Specific Council and endorsed by the Ministry of Commerce of Pakistan.

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Acronyms and abbreviations

Unless otherwise specified, all references to dollars ($) are to United States dollars, and all references to tons are to metric tons.

AI	Artificial intelligence
BPM	Business process management
BPO	Business process outsourcing
CAGR	Compound annual growth rate
FDI	Foreign direct investment
ICT	Information and communications technology
IDC	Industrial Development Corporation
IoT	Internet of things
IP	Intellectual property
IT	Information technology
ITC	International Trade Centre
ITeS	IT-enabled services
MENA	Middle East and North Africa
MoC	Ministry of Commerce
MoITT	Ministry of Information Technology and Telecommunication
NASSCOM	National Association of Software and Service Companies
P@SHA	Pakistan Software Houses Association
PoA	Plan of action
PSEB	Pakistan Software Export Board
SMEs	Small and medium-sized enterprises
STPF	Strategic Trade Policy Framework
TDAP	Trade Development Authority of Pakistan

EXECUTIVE SUMMARY

The present strategy outlines a proposed path for the development of the software services sector in the Islamic Republic of Pakistan. It is a five-year endeavour that was defined through a consultative process between public and private sector stakeholders. The strategy addresses constraints in a comprehensive manner and defines concrete opportunities that can be realized through the specific steps detailed in its plan of action (PoA). The Software Development Export Strategy is an integral part of Pakistan's Strategic Trade Policy Framework (STPF).

Pakistan's information technology (IT) and IT-enabled services (ITeS) sector's recent advancement points to a strong export potential in the medium term, leveraging the available talent pool, financial attractiveness and existing market entry to major importing locations. In particular, Pakistan's software sector has many of the fundamentals in place to drive faster growth, and the rapid rise in export earnings already seen in recent years is a sign of future prospects. Building on from this would require tackling some key challenges to growth and competitiveness.

The acceleration of digitalization, further spurred by the dramatic shifts brought on by COVID-19, indicate bright prospects for the global IT services industry. This provides ample opportunity for Pakistan, with an already dynamic sector, to leverage this growth and become a leading software services player for regional and global clients. As industry and government stakeholders acknowledge, Pakistan's IT services sector has many of the fundamentals in place to drive faster growth.

The strategy process considered current capabilities, constraints, and future shifts and opportunities for Pakistan's software sector, and industry stakeholders extensively evaluated future orientations and upgrading trajectories. During the strategy consultations and background research, it was revealed that, even as the sector faces new pressures, some compelling residual assets for Pakistan would include the availability of affordable talent, high interest among young people in the industry (including from non-IT backgrounds), continued venture capital interest and continued interest by joint venture partners. Meanwhile, some compelling strategic future shifts for Pakistan's industry – latching on to current trends and innovations – would include:

- Technology and digital transformation consulting;
- Collaborating between larger firms and small and medium-sized enterprises (SMEs) to deliver larger projects;
- More women in IT;
- Strengthening exports in new markets (e.g. Africa);
- Productivity-based remuneration;
- Remote infrastructure monitoring and support services;
- More local firms listing on the stock market;
- More mobile applications;
- Greater emphasis on software products, not just services;
- Digital banking and cashless society providing new product opportunities.

By solving some of the key competitiveness and growth constraints, Pakistan's IT sector and its software firms can position strongly for export growth. It is necessary to set some strategic objectives for the short to medium term to drive sector transformation, and prioritize some key actions. In particular, it will be essential for Pakistan to:

- Build a strong pipeline of tertiary educated and appropriately skilled workers while enhancing women's participation;
- Resolve taxation issues related to sector definition;

- Ensure international expansion and export growth by enhancing the sector's global standing as well as firms' understanding of new market opportunities;
- Transform into more product and IP-led growth, driven by innovation and latching on to emerging technologies and industry verticals.

VISION AND STRATEGIC OBJECTIVES

To achieve the development of the software services sector in Pakistan, the present strategy provides a roadmap and a plan of action (PoA) geared at achieving the following overall vision:

> **"To be the leading export sector in the country, and make Pakistan a preferred destination for global IT products and services and the preferred profession for youth."**

This vision statement, which was agreed on by all the software services stakeholders in Pakistan, delineates this strategy's proposed vision and strategic objectives. The strategy's PoA responds to this vision by addressing the sector's constraints and leveraging opportunities comprehensively. To this end, specific efforts will be made in the following strategic directions.

Strategic Objective 1: Strengthen Pakistan's software sector's global market positioning and international competitiveness	• Develop a compelling brand for Pakistan IT to strengthen international positioning, and to accelerate export firms' market diversification and commercial success abroad.
Strategic Objective 2: Improve talent availability for growth and competitiveness	• Expand the talent pipeline with an eye on inclusiveness, while also improving firm-level managerial and technical competencies to drive competitiveness and quality.
Strategic Objective 3: Improve business climate for software firms to compete and grow	• Improve tax frameworks and streamline compliance complexities, and improve access to capital for software firms.
Strategic Objective 4: Strengthen innovation and upgrading in the software sector	• Encourage new investment in the sector (including fostering start-ups) and improve the enabling framework to drive product-led innovation.

IMPLEMENTATION MANAGEMENT

This strategy has developed a pragmatic and forward-looking roadmap for upgrading and internationalization. To achieve the strategy's targets, stakeholders will need to coordinate actions, monitor progress and mobilize resources for its implementation. Providing business development support to firms, enhancing innovation and creating an enabling business environment are crucial for successful implementation.

Accordingly, a public–private sector specific council for the software industry is established, operationalized and empowered. The software sector specific council should be responsible for overall coordination, provision of rapid solutions to regulatory and procedural bottlenecks, policy guidance and the monitoring of industry development against the strategy's strategic objectives.

The following key areas of intervention are priorities to facilitate the strategy's implementation:

- Improve and increase the pipeline or talent;
- Resolve, on an ongoing basis, tax and other regulatory issues;
- Strengthen international exposure, branding and export market entry;
- Foster a conducive climate for product development, innovation and start-up entrepreneurship.

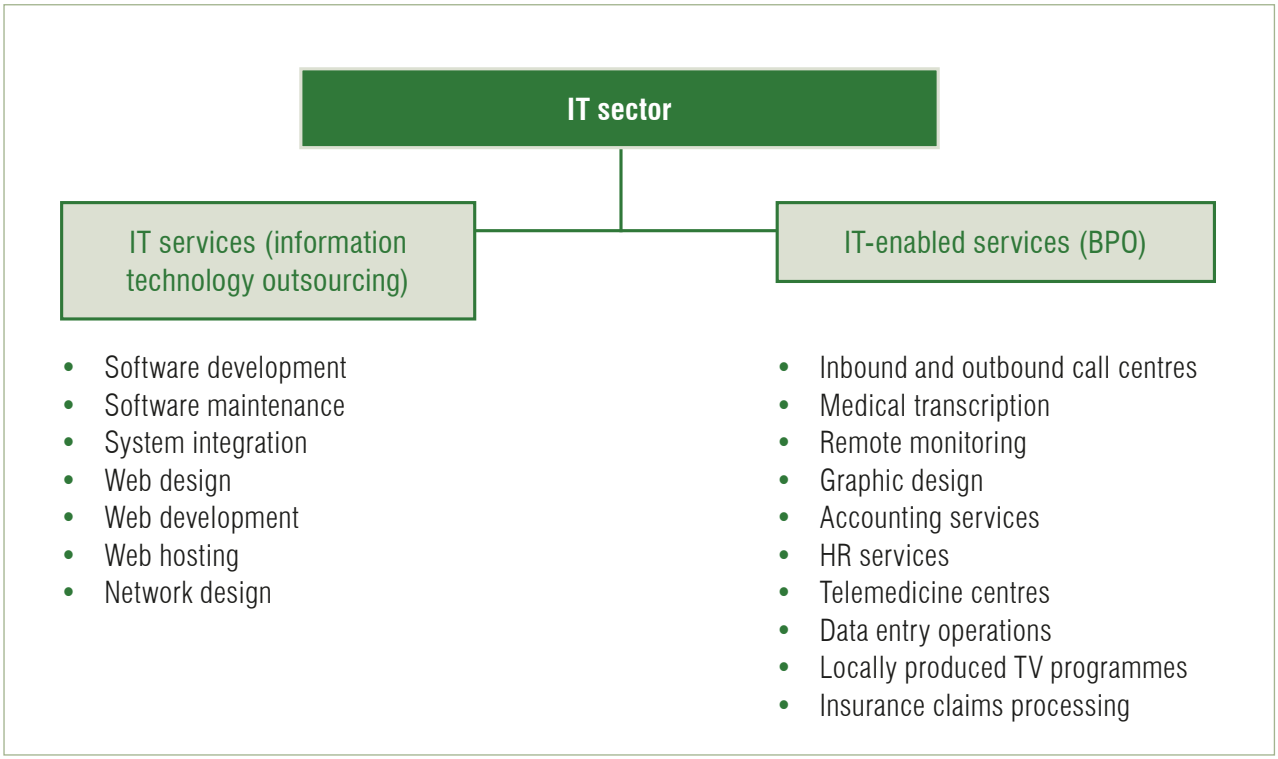
A RAPIDLY EVOLVING GLOBAL INDUSTRY DRIVEN BY HEIGHTENED COMPETITION

The offshore IT services sector can be categorized as follows:

- Information technology outsourcing (ITO): That is centred on the production and use of software.
- Business process outsourcing (BPO): Activities related to the management of business functions, including finance and accounting, procurement, supply chain management and human resources management.
- Knowledge process outsourcing (KPO): Specialized activities that often require professional licensing, such as in the legal, financial, business intelligence and data analytics fields.

For this sector strategy, we focus on the software services (and in an accompanying, but separate, strategy – BPO and KPO) segment within offshore services. Software services in Pakistan can be broadly categorized as outsourced services and product development. Outsourced services is the largest sub-segment of the industry in terms of exports. Figure 1 displays how the Pakistani Federal Board of Revenue (FBR) classifies these services.

Figure 1: Information technology outsourcing (ITO) and ITeS/BPO services classification



Source: Federal Board of Revenue, Pakistan.

IT and software leading global services exports

In the last decade, the global IT sector has experienced significant growth and made large strides in innovation. The 'digital revolution' has enabled new business models, the creation of new consumer-focused products and services, and introduced new possibilities for business efficiency. Telecommunications, computer and information services have experienced increasing export value and are now the largest and fastest-growing services exports globally (Figure 2). While financial services also show up as a prominent services sector, it must be acknowledged that, increasingly, the financial services industry is powered by information and communications technology (ICT) services and the growing fintech industry. Exports of computer services have accounted for a small, but growing share of total services exports. Despite a drop from 3.5% in 2007 to 2.8% in 2008, the share of exports from computer services has seen an increasing trend from the 3.1% level of 2005 to 9.5% in 2020 (Figure 3).

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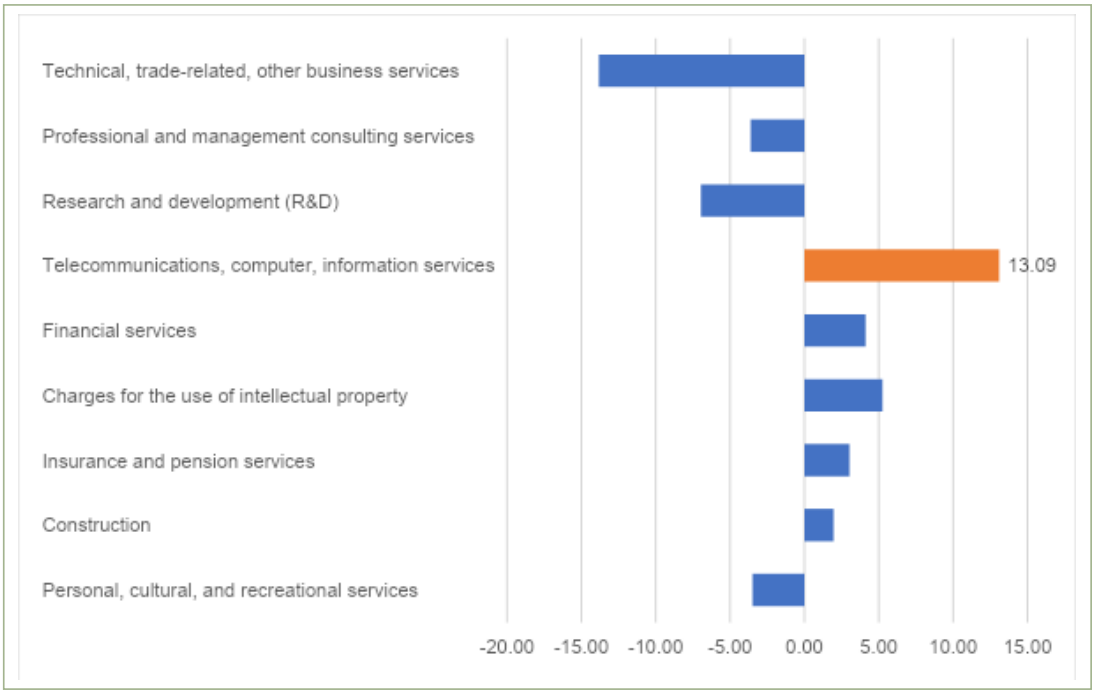
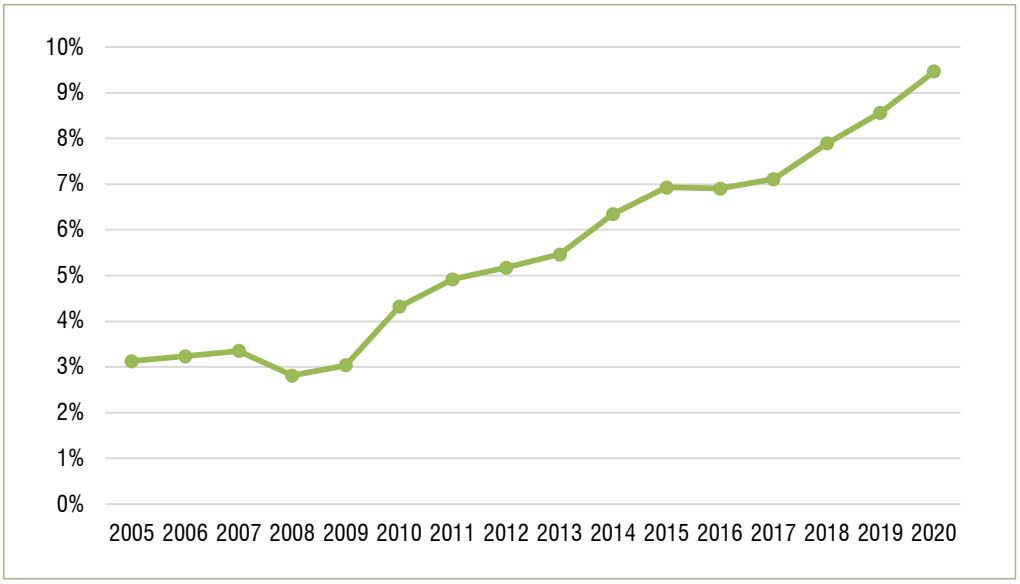
Figure 2: Growth in global services exports (2019)



Sources: ITC, United Nations Conference on Trade and Development (UNCTAD) and World Trade Organization (WTO) trade in services database based on International Monetary Fund (IMF) statistics.

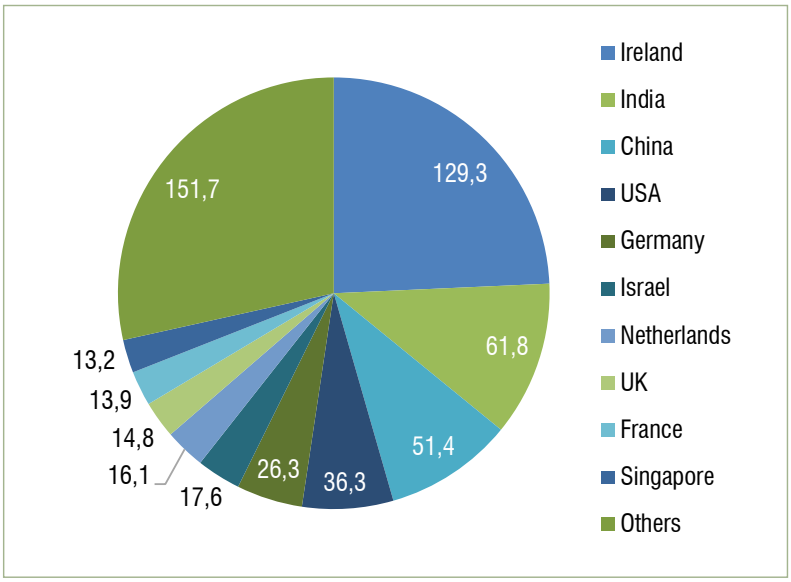
Figure 3: Share of global computer service exports (2005-20) (per cent of total services exports)



Sources: ITC, United Nations Conference on Trade and Development (UNCTAD) and World Trade Organization (WTO) trade in services database based on Eurostat, International Monetary Fund (IMF), Organisation for Economic Co-operation and Development (OECD) and relevant national statistical authorities.

These exports are led by Ireland, the Republic of India, the People's Republic of China, the United States of America and the Federal Republic of Germany, which together accounted for $305.2 billion in exports (57.3% of the world total) (Figure 4). While still one of the leaders in this sector, India's share of the global export market has been declining, from a recent high of 30.7% in 2008 to 11.6% in 2019, due to growth in China over time and a recent recovery in growth in Ireland, Germany and the United States.

Figure 4: Computer and information service exports by exporter (2019) (USD billion)

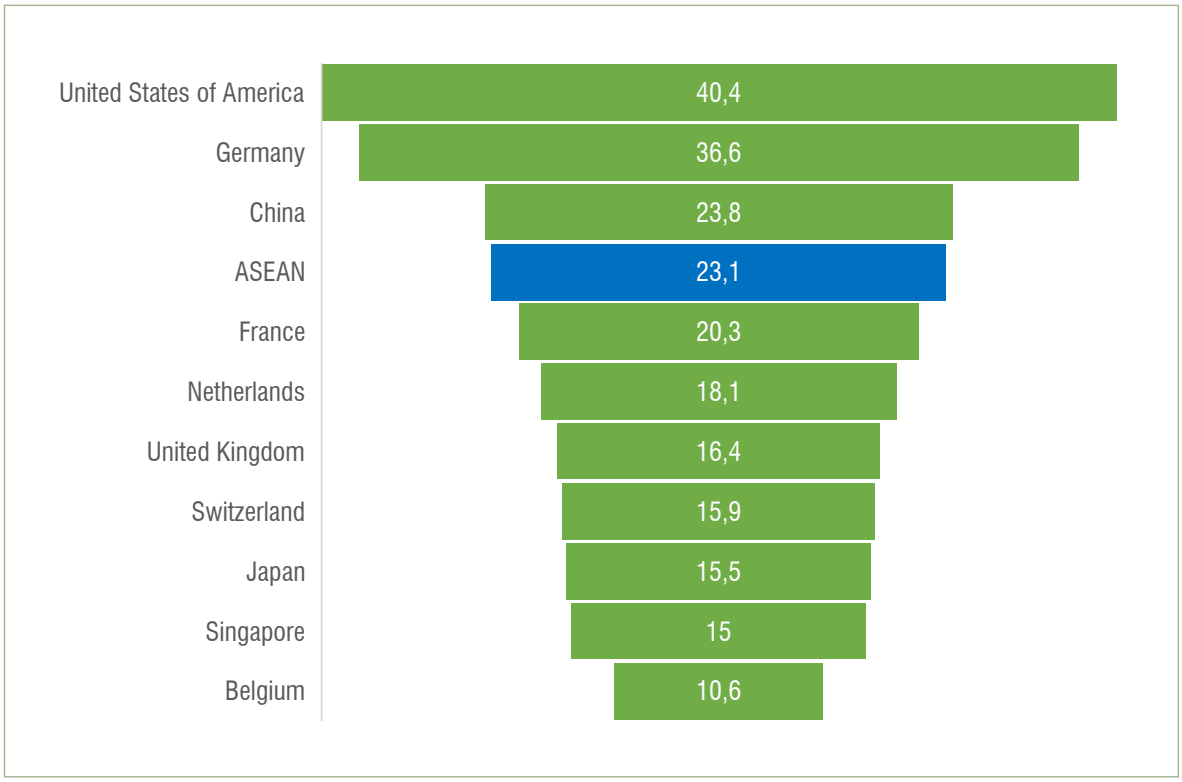


Sources: ITC, United Nations Conference on Trade and Development (UNCTAD) and World Trade Organization (WTO) trade in services database based on Eurostat, International Monetary Fund (IMF), Organisation for Economic Co-operation and Development (OECD) and relevant national statistical authorities.

In 2020, the global IT industry took a small step back in terms of overall revenue. While the tech sector fared better than many other industries during the pandemic, it was not immune to cutbacks in spending patterns and deferment of major investments. In August 2020, the Industrial Development Corporation (IDC) projected global revenue of $4.8 trillion for the year, compared to their original estimate of $5.2 trillion. Moving forward, the IDC projected that the technology industry would reach $5 trillion in 2021. This would represent 4.2% growth, signalling a return to the trend line that the industry was on prior to the pandemic. Looking even further into the future, the IDC expects the pattern to continue, estimating a 5% compound annual growth rate (CAGR) for the industry through 2024.

It is also useful to know which markets show the greatest demand for ICT imports. The United States remains the top destination, while China and the Association of Southeast Asian Nations (ASEAN) regional markets are in the Top 5 markets for ICT demand (Figure 5). This should be of strong consideration for Pakistan's industry, given the strong track record of technology sector linkages with the United States, but also the emerging partnerships with China and other Asian countries. Robust infrastructure and platforms, a large installed base of users equipped with connected devices, and available bandwidth for these devices to communicate are at a more mature stage in the United States than any other country, hence paving the way for such dominance. Studies reveal that the economic impact of the US tech sector, measured as a percentage of gross domestic product, exceeds that of most other industries, including notable sectors such as retail, construction and transportation (Cyberstates, 2021).

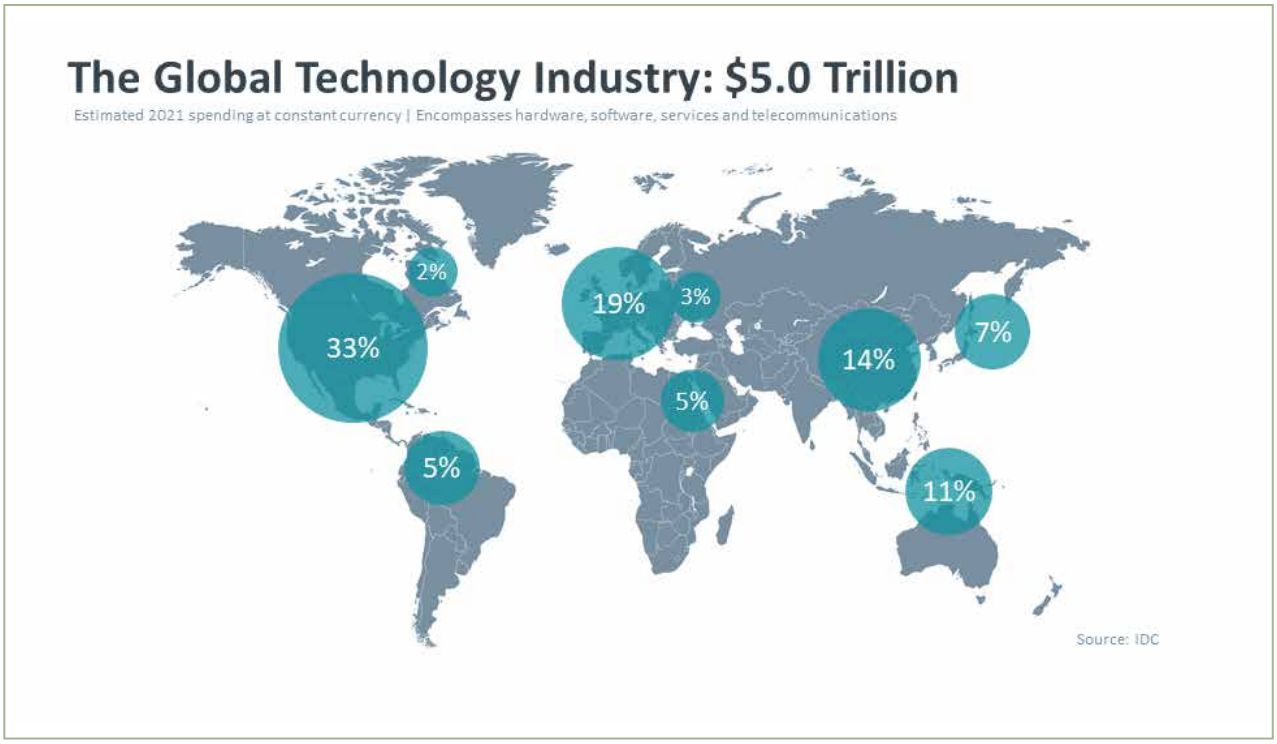
Figure 5: Leading markets for ICT imports (Top 10 + Association of Southeast Asian Nations)



Sources: ITC, United Nations Conference on Trade and Development (UNCTAD) and World Trade Organization (WTO) trade in services database based on International Monetary Fund (IMF) statistics.

Among the other global regions, Western Europe remains a significant contributor, accounting for approximately one of every five technology dollars spent worldwide (IT Industry Outlook, 2021). Furthermore, as far as individual countries go, China has established itself as a major player in the global tech market. China has followed a pattern that can be seen in developing regions, where there is a twofold effect of closing the gap in categories such as IT infrastructure, software and services, along with staking out leadership positions in emerging areas such as robotics and 5G (Figure 6).

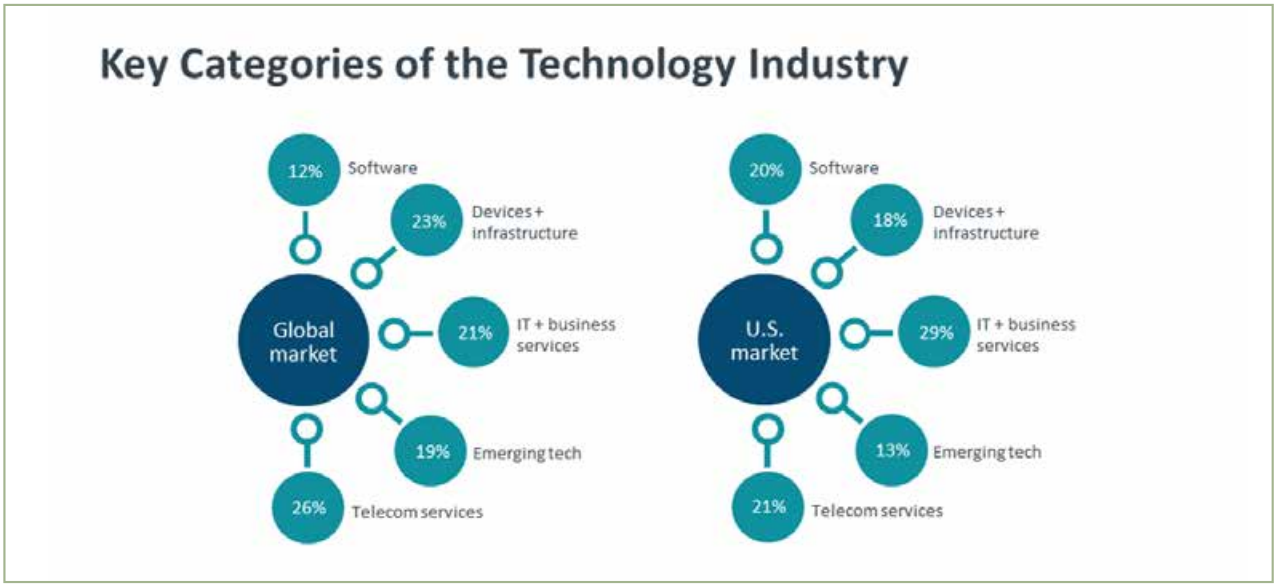
Figure 6: Global technology industry snapshot



Source: IDC.

For the global economy to rebound to the growth trajectory determined during pre-COVID-19, tech spending is expected to be led by digital business transformation. Overall, this would result in the global economy growing at 5.5% and advanced regions such as the United States and Western Europe, which have more than 50% in global IT spending, growing at 3.3%. The industries with the highest growth potential are healthcare, pharmaceutical, medical devices, banking, financial services and insurance (BFSI), and telecom (Figure 7) (NASSCOM 2021 CEO Survey, 2021).

Figure 7: Key categories of the technology industry



Source: IDC.

The majority of demand for IT and business process management (BPM) services (especially from a value generated point of view) is still predominantly concentrated in developed markets such as the United States, United Kingdom and Australia. Demand is also spread, albeit at a lower level, across smaller developed markets such as the French Republic, the Kingdom of the Netherlands, Japan and the Kingdom of Denmark, as well as emerging markets such as the United Mexican States, Hong Kong, China, and the Federative Republic of Brazil.

The Top 3 countries servicing these requests are India, the Republic of the Philippines, and China – covering the full breadth of services from lower order BPO and IT services to intellectual property-led products and high-end product engineering. A brief overview of these countries, as well as emerging destinations, and their service offering are given in Table 1.

Table 1: Competitor country service offerings

Country	Key features of service offering
India	The country is the largest provider of outsourcing services to the global IT–BPM sectors. Representing some of the biggest IT–BPO outsourcing firms in the world, India is home to giants such as TATA Consultancy Services, Wipro BPO, Genpact, and Infosys, to name a few. Popular companies that outsource to India include Oracle, Hewlett Packard, Schlumberger, Accenture, Capgemini, Microsoft and Dell.
Philippines	The IT–BPO sector in the country employs ~1.5 million people and strategies have been developed to further grow the sector. US firms account for nearly 70% of the outsourced jobs handled by the country, with Teleperformance, Qualfon, and Convergys (now Concentrix) being major players. The BPO sector is renowned for contracting work for telecom giants such as AT&T, Sprint, Verizon, British Telecom, and Telstra.
China	Estimated to be the third-largest IT market in the world, while also being one of the largest IT/BPM outsourcing players worldwide. An incumbent IT services and BPO player, China is now driving value-added services through several technology-related partnerships to strengthen international ties.
Malaysia	Malaysian outsourced providers have largely capitalized on governmental, financial services, insurance, manufacturing and design and integration sectors. Niche market opportunities exist for players in hosting, remote management, engineering services for computer-aided modelling (CAM), and prototyping and testing.
Brazil	Brazil has a long tradition in IT–BPM outsourcing. The IT services market is almost thrice the size of the BPM sector, but even the BPM sector has gained traction in recent times. Brazil has an infrastructure to support the industry, such as established IT services firms, a highly educated workforce, a number of engineering graduates and a favourable investment climate – driving the ability to supply higher-end niche services.

Note: Annex I discusses in more detail some examples from those above, which could be relevant to Pakistan.

Accelerated digitalization is driving demand for IT services

Digitalization is transforming the global economy, affecting countries at all income levels to varying degrees. In 2000–17, the total number of global internet users increased from 399.2 million to 3.7 billion, with upper-middle-income countries home to the most users (1.6 billion) (Figure 8). This process is creating increased demand for new services in software development, ICT services (including IT services, software solutions integrators, managed services resellers, telecoms operators, cloud service providers and technological support services), distribution activities, other ICT-related businesses (such as BPO, knowledge process outsourcing and business intelligence services), and e-commerce and fintech. Figure 9 illustrates the forecast global growth in IT through to 2025.

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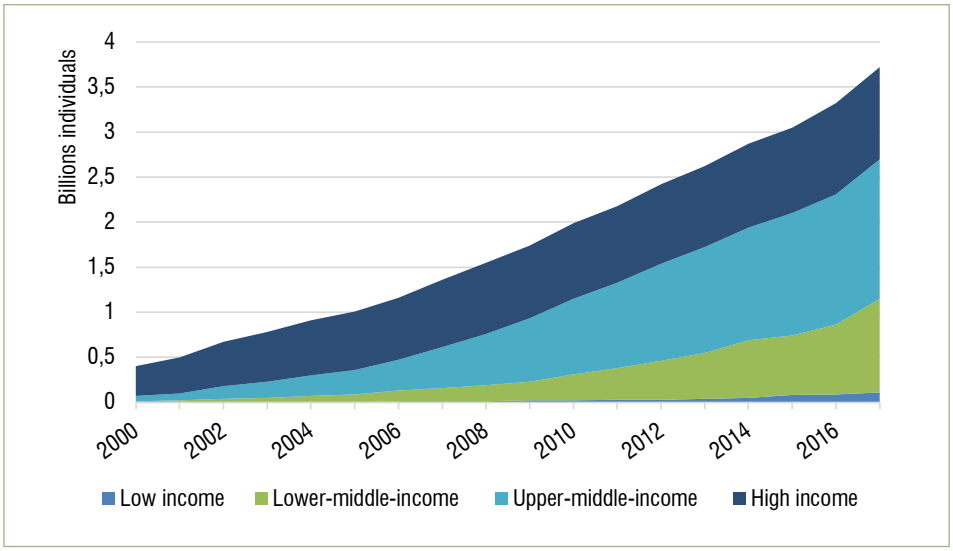
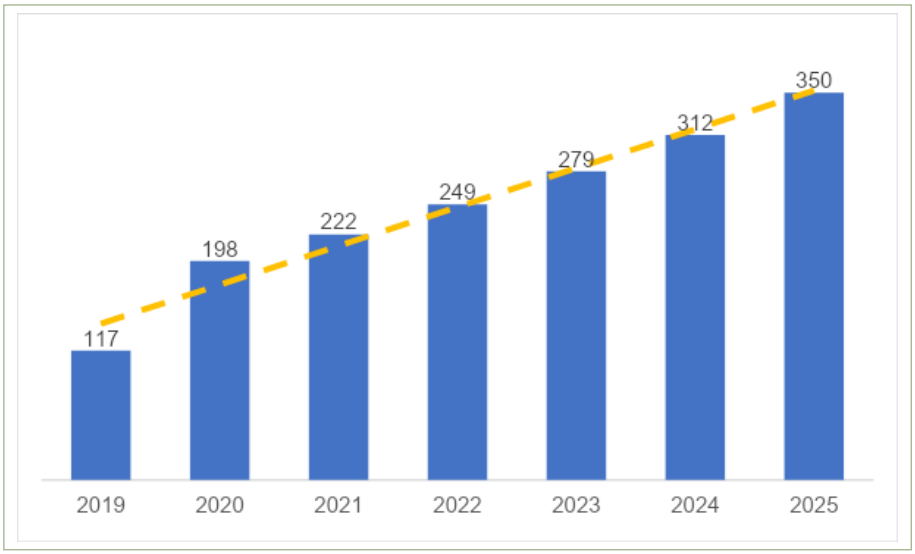
Figure 8: Global internet users by country income group (2000-17)



Source: World Bank, World Development Indicators.

Figure 9: Forecast growth in the global IT/BPM market (2019-25) (USD billion)



Source: National Association of Software and Service Companies (NASSCOM) and Statista.

COVID-19 has accelerated these trends and driven further digital transformations to take place almost overnight. The need for business continuity took centre stage in board rooms, management meetings and operational discussions for weeks, during the mid-first quarter in 2020. Technology and its related services were reshaping the world at a pace unprecedented prior to Q1 2020. Considering the uncertainty that prevailed throughout 2020, the year 2021 further pushed organizations, governments and countries to scale up expenditure on technology. For companies, it has been important to innovate while meeting consumer demand and maintaining steady market share. Governments and public sector enterprises have been pushed to carry out their national duty of health, education, defence and infrastructure all using technology as a 'new normal'.

Prior to COVID-19 and beyond as well, the major technology and business trends affecting the global ICT sector include the growth of cloud computing and online storage, the spread of the internet of things (IoT), increasing use of data analytics and data mining, and growing awareness of data protection. These will accelerate the demand for IT services across the world, and will provide a conducive environment for the further growth of Pakistan's sector.

Box 1: Key trends and outlook for the IT industry (2021)

- Online storage: By offering information technologies as a service, cloud computing and online storage is an innovative business model that can reduce organizations' upfront and maintenance costs of adopting digital solutions, and can offer flexible infrastructure. These traits can make cloud services particularly attractive and relevant to SMEs. Investments in cloud technology, security and risk, networks and mobility are on the priority list for every chief information officer in 2021. As companies place more of their IT architecture in the cloud and consider new options for their workforce, networking performance becomes more critical. A key highlight is the new space created to support and maintain this service to keep systems running without down time.
- Customer focus: Customer retention will take precedence above all and, as per Forrester™, chief marketing officers would increase 30% of their spending on loyalty and retention marketing. Investments and focus on customer service through an efficient call centre will increase through this drive.
- Digital nomads: Work from anywhere became the norm in 2021, with a staggering growth of 300%. Office space could be a thing of the past. The majority of resources and the next generation workforce would set into a work-from-anywhere business environment, with gig culture[1] settling in for good. The trend would expand new opportunities for the freelance workforce across the world.
- Security and compliance: With remote working becoming the standard trend, cybersecurity, and managing risks and compliance, need innovative approaches to proactively test the defences and internal processes that create secure operations. Securely managing the data and responding appropriately poses new challenges that require systems checks and tighter controls to safeguard and protect companies and individuals from cyberattacks. An increase in skills and resources for cyber competencies is a key area that Pakistan should consider as a top priority to harness the upcoming opportunities.
- Privacy rules: Regulatory and legal activity related to employee privacy infringements will double. While European regulators are already enforcing privacy rules to protect employees' personal data, countries such as Brazil, India and the Kingdom of Thailand will soon follow suit. Educating and spreading awareness on privacy policies and rights, primarily to Pakistan's freelance workforce, would be crucial. In addition, having a regulatory framework protecting these individual rights should be considered.
- Cybersecurity frameworks: The Asia-Pacific region will finally catch up on zero trust adoption. Zero trust adoption in the region has lagged behind its global peers, but the acceleration of cloud adoption and an explosion in remote work, as well as changing regulations and consumer behaviours, make it ripe for change. It was predicted that at least one government in the region would embrace a zero-trust cybersecurity framework in 2021.
- Data dominance: Data analytics and data mining can improve monitoring, diagnostic and analytical processes in a wide range of activities across society and the economy, including computer science, statistics, mathematics and logistics. In addition to new methods lowering costs in data collection and storage, it includes approaches for solving problems through the pre-processing, modelling, testing and reporting of data. The integration of data analytics and data mining into organizations' processes allows for improved flexibility and responsiveness, in addition to reduced costs in businesses processes.

Source: CompTIA's IT Industry Outlook 2021. Available from https://comptiacdn.azureedge.net/webcontent/docs/default-source/research-reports/report---2021-comptia-it-industry-outlook.pdf?sfvrsn=18f99ffd _ 0.

1.– A gig culture is one in which 'temporary, flexible jobs are commonplace and companies tend to hire independent contractors and freelancers instead of full-time employees. A gig economy undermines the traditional economy of full-time workers who often focus on their career development' (Investopedia).

New market trends, emerging technologies and COVID-19 shifts

With the strong growth forecast in the industry globally, there is a transition in the user preferences and service offering. Customers are now increasingly shifting towards seeking cost plus value arbitrage, from outsourcing business models that have traditionally relied only on cost arbitrage to survive and grow. Due to this change, companies in the Pakistani IT sector are required to have a sophisticated view of the market and leap into offering outcome-based, 'cost plus value'-based service offerings – as opposed to developing services to cater to the existing view of the outsourcing market. To further clarify this trend, Table 2 expands on the description of the transition and dynamics of people-based, product – and service-based, and outcome-based service offerings.

Table 2: Comparison between service offerings for enterprise software

	People based	Product and services based	Outcome based
What is the industry selling?	• People	• Products and services	• Business outcomes
To whom is the industry selling?	• Chief information officer or IT personnel	• Head of line of business	• Strategic partner to chief experience officer and board
What is the business model?	• Fixed cost • Linear to number of resources deployed • Automation can deliver some non-linearity	• Enterprise licence of software as a service (SaaS) subscription • Fixed-term and scope service agreements • Primarily non-linear, with some linear services	• Multi-year subscription pricing and value share • Pricing linked to value • Primarily non-linear, with some linear components
What does it take to deliver?	• Skilled resources • Project managers • Solution accelerators • Automation	• 'Productized' products and services • People with a deep understanding of the product or service problem	• Assembly of components and services that are engineered for specific use cases and people • Digital transformation consulting; third-party software, own software, technical services, data sciences and BPM

Emerging technologies get the interest of business leaders and governments alike. By observing the past, we can see that some technologies inevitably come into mainstream in a matter of years – cloud and mobile technologies started off as leading emerging technologies, which have now become prominent. The pandemic is a testimony to how disruption can pave the way to fast-track technology – remote work depends extensively on cloud and mobile technology. Apart from the already well-known popular emerging technologies, Gartner has identified many more through its Emerging Technologies and Trends Impact Radar, where it has mapped out some that are in use now, some to come short term and others long term (see Figure 10). Moreover, it is now acknowledged that emerging technologies align with three broad themes – interfaces and experiences, business enablers, and productivity revolution (see Figure 11).

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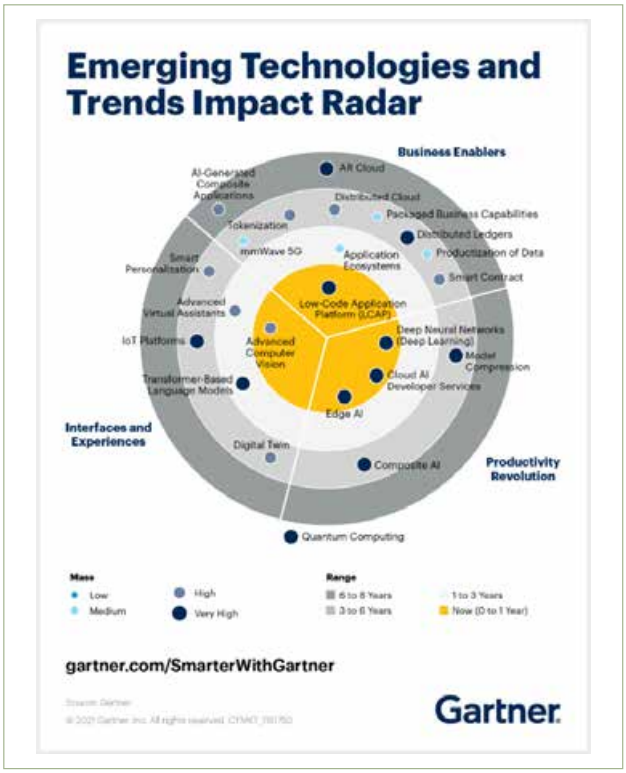
Figure 10: Emerging Technologies and Trends Impact Radar



Source: Gartner (2021).

Note: The rings on the chart represent the range, which estimates the number of years it will take until the technology or trend crosses from early adopter to early majority adopter. The size and colour of the emerging technology – or trend radar blip – represent the technology's mass; in other words, how substantial the impact of the technology or trend will be on existing products and markets.

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Figure 11: Emerging technologies align with three broad themes

Interfaces and experiences

- User and consumer experiences have become a priority for software development, and simple-to-use applications and systems take precedence above everything. What started off with mobile has now been adapted to much more complex enterprise systems.

Business enablers

- Technologies that impact enterprises by changing practices, processes, methods, models or functions, and change the way operations and processors are run in organizations.

Productivity revolution

- This refers to the confluence of multiple technologies and trends that help organizations quickly, accurately and in greater volume classify, predict and solve problems that humans cannot. For example, robotic process automation (RPA), IoT and artificial intelligence (AI) technologies taking the volume, velocity and variance of data and convert them into a relevant information for decision-making. Already, firms have adopted these in carrying out mundane tasks such as inventory check, Levels 1 and 2 customer service, debtor follow-ups automation using systems configurations, chatbots and notifications.

Within a few years, what is now seen as emerging technologies such as IoT, AI, robotic process automation (RPA), autonomous vehicles, mixed reality (virtual reality and augmented reality), 5G, digital twins and voice interfaces, etc. would be adapted to the mainstream and have widespread usage. The same happened with mobile, cloud, video calling, 3 – and 4-step authentication, chat bots and so on. In fact, some enterprise software companies have already built IoT connectors, AI and machine learning into their mainstream software products. For example, a Swedish enterprise software company has integrated drone technology to its back-end resource planning operations and the footage transmitted from distant dangerous locations is processed to identify faults or repairs.

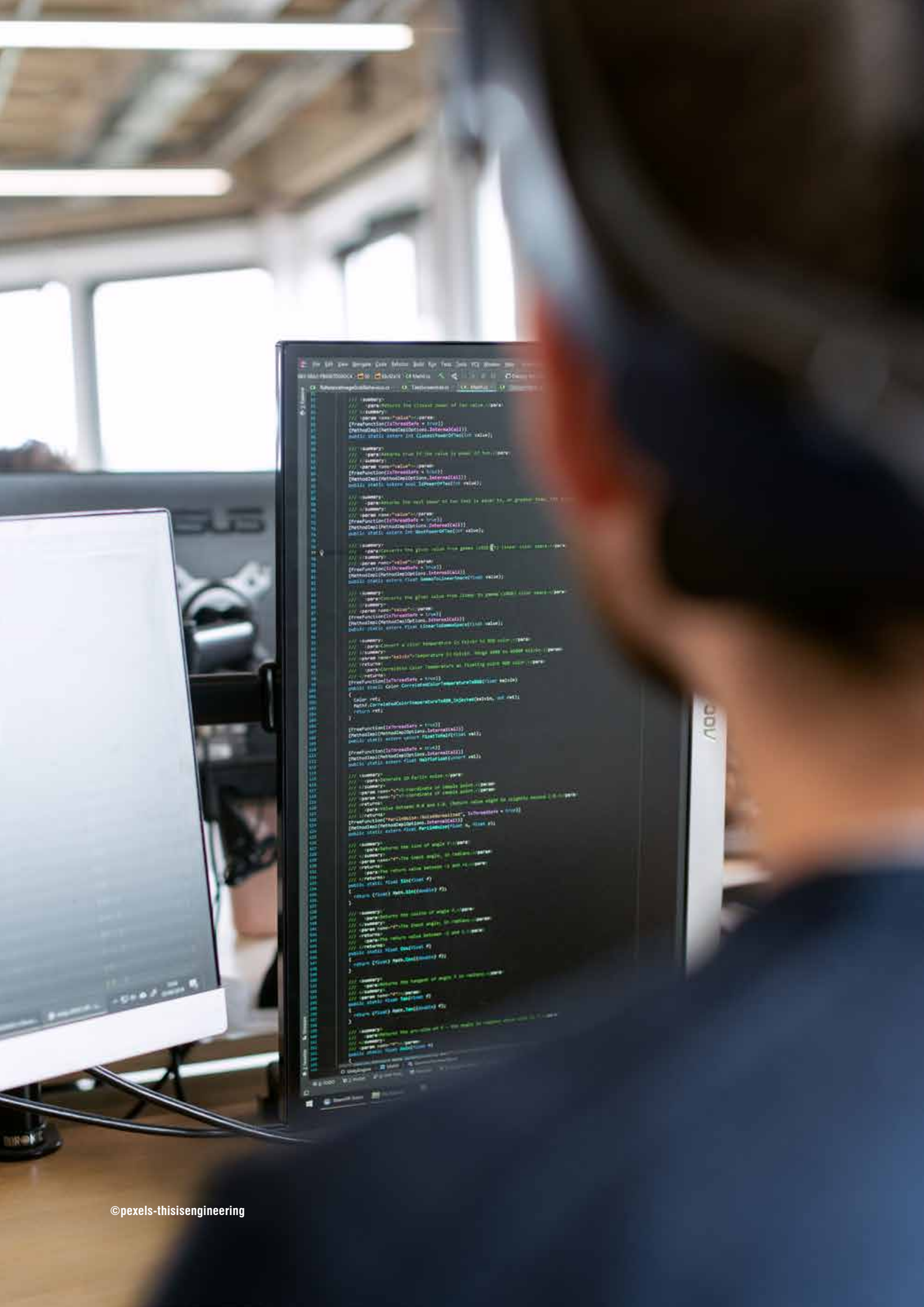
COVID-19 has had implications for the sector's current and future trajectory. As part of the strategy formulation process, Pakistan industry stakeholders were guided in strategic foresight visioning, to identify permanent changes brought on by COVID-19 for the software services sector. Accordingly, industry leaders had to assess shifts across four dimensions. A summary of their deliberations is displayed in Figure 12.

- Growth: Trends that are increasing or succeeding more than before (accelerated by the pandemic), with minimal disruption.
- Collapse: Actors, trends and business models that have experienced catastrophic breakdown, are broken beyond repair and are unlikely to see growth in the future, consequent to the pandemic.
- Constraint: New (or stronger than before) limits, restrictions or boundaries that are being developed, introduced or embraced for the greater good, but have an impact on the sector, brought on by the pandemic.
- Transformation: Fundamental societal, systems, business model changes or re-organized around a new paradigm; essentially bold and previously unthinkable or underestimated ideas and changes.

Figure 12: What will fundamentally change due to COVID-19?

Growth	Collapse	Constraint	Transformation
• Cyber and privacy laws • Improvements to connectivity and bandwidth • Better collaboration between service provicers • Access to growth capital • Digital finance, educational technology (EdTech) and e-commerce • Outsourcing • Regulations on fintech • Global expansion via remote work • Entertainment • Entrepreneurship in the sector • Accelerated digital transformation	• Human resource retention • Social media access restrictions • '9–5 job' model • Bank branches and ATMs • Call centres	• Stricter data privacy and protection laws • Insufficient high-quality human capital • Limited number of approved digital services providers payable outside Pakistan • Difficulty in paying foreign talent for advanced services and support • Insufficient working capital financing options	• Flexibility to work from home • Extra work hours due to reduction of travel • In-house IT services • Online training and education • Team communication • Accelerated doomestic digitization • International marketing • Traditional HR processes

The acceleration of digitalization, further spurred on by the dramatic shifts brought on by COVID-19, indicate bright prospects for the global IT services industry. This provides ample opportunity for countries like Pakistan, with an already dynamic sector, to leverage this growth and become a leading software services player for regional and global clients.



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PAKISTANI SOFTWARE SECTOR EQUIPPED TO TAP INTO DYNAMIC GLOBAL TRENDS

Pakistani software sector leveraging its comparative advantages

Pakistan's IT sector has a promising future, brimming with talent and strong potential to become the country's largest export industry. The sector accounts for a growing contribution to gross domestic product (GDP) of close to 1%, earning valuable foreign exchange for the country and creating high-paying jobs. In recent decades, revenue from the sector increased rapidly, from just $70 million in 2006 to approximately $220 million in 2011 and nearly $2,000 million today. In the past decade, growth averaged 14% CAGR per year. This indicates that, while the sector is still in its early stages, its growth trajectory displays huge potential. The sector has also remained resilient during the pandemic. According to the 2021 Commonwealth Trade Review (July 2021), 'Pakistan's service exports showed a strong resilience during the Covid-19 pandemic … by September 2020 Pakistan's services exports had already rebounded to December 2019 levels (despite falling by 20pc in April 2020)'.

The growth and potential of the IT and ITeS sector, and digital economy generally, have been supported by government policy and investment in infrastructure. The significant investment in ICT infrastructure includes more than 16 IT parks with IT-enabled infrastructure and state-of-the-art facilities, as well as spreading internet access in more than 2,000 cities and towns across Pakistan. The sector now has greater recognition in planning and policy development, with many pro-investment policy initiatives aimed at the sector introduced in national budgets.

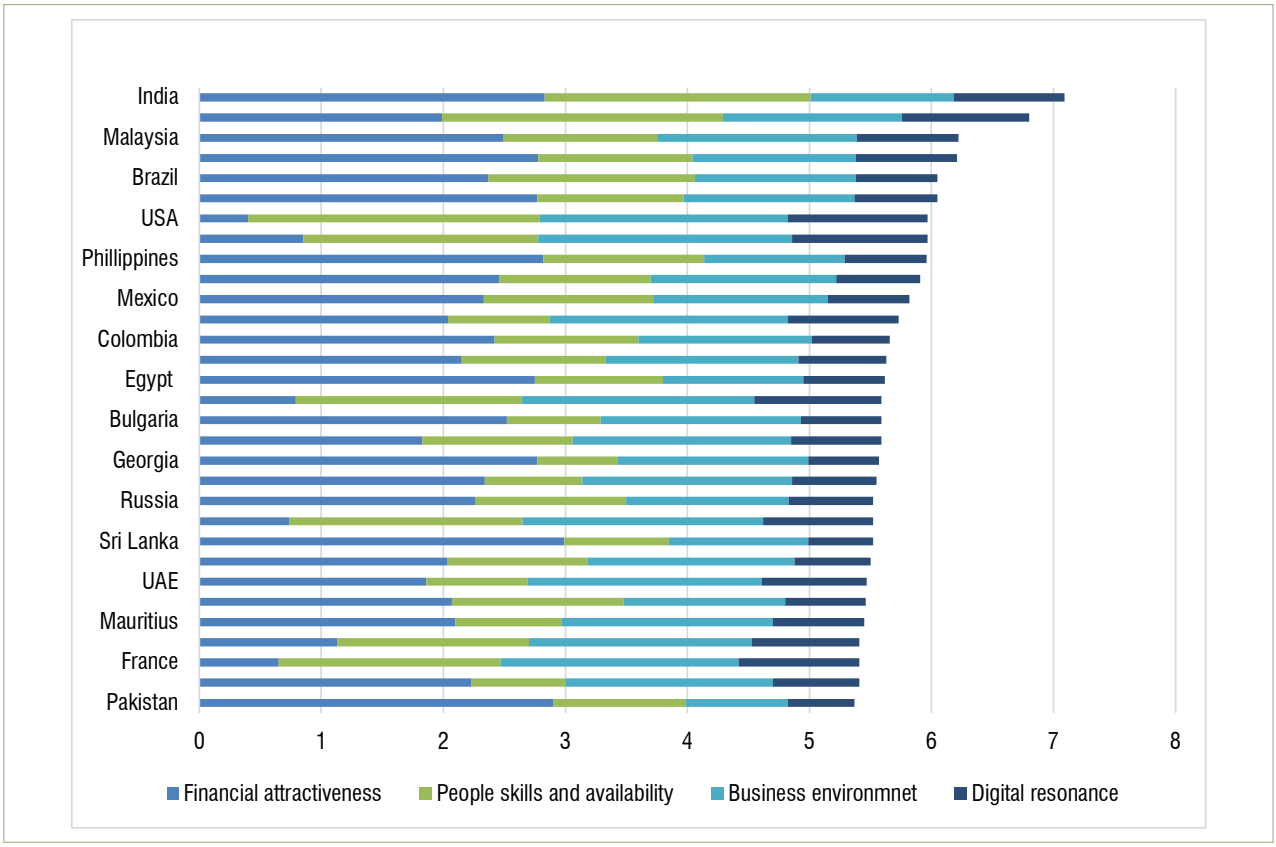
KEY FUNDAMENTALS ARE IN PLACE

Engagement in high-value-added segments remains nascent albeit highly sophisticated, with some companies exporting digital technologies for large industries in the United States such as oil and gas and healthcare.

Despite some areas of weakness, Pakistan ranks among the Top 50 jurisdictions (Rank 31) worldwide in the 2021 Global Services Location Index (GSLI),[1] a measure of competitiveness as a location for export of ICT and other knowledge services. On the pillar of 'financial attractiveness' in the GSLI, Pakistan is scored the second-most financially attractive location in the world for offshoring IT–BPO services (Kearney, 2021). Moreover, in the low-end BPO segment, operational costs are 60% lower than in the Philippines, which is often seen as the world's customer support powerhouse. This edge is favoured by the low competition for labour in Pakistan, due to the sector's relative immaturity (Figure 13).

1.– Kearney's Global Services Location Index (GSLI) now includes 50 countries and is based on 44 metrics from independent sources. Regardless of whether a country is already a successful exporter, the index aims to assess the country's fundamental competitiveness as a location for export of knowledge services, based on four broad factors: financial attractiveness, people skills and availability, business environment, and digital readiness.

Figure 13: Pakistan ranks 31st in Global Services Location Index (2021)



Source: ITC, based on Kearney Global Services Location Index (GSLI), 2021.

The Pakistani IT and ITeS industry has earned recognition and has the established labour pool to win more and bigger contracts to the country. Particularly, it boasts a trainable and competent workforce, most of which (60% of the total population of 200 million) is aged 15–29. This represents an enormous human and knowledge capital to drive the IT sector. Approximately 20,000 IT graduates and engineers are being produced each year. Pakistan is also the world's third-largest English-speaking country after the United States (1st) and India (2nd). Approximately 49% of the population speaks English as a second language; i.e. 94.3 million people (Couto & Fernandez-Stark, 2019). An added advantage –especially for customer-centric services– is that Pakistani IT workers' English pronunciation is relatively more neutral than in competitor countries.

FEMALE PARTICIPATION IN THE SECTOR

Gender dynamics play a significant role in the availability of appropriate skill to meet the industry's labour demands. Compared to developed economies, Pakistan features a slightly lower share of female workers in IT, which is remarkable given the global bias towards male professionals in the field of technology. However, participation of females in IT studies and IT employment remains low and is rooted in concerns for safety, mobility restrictions and traditional family roles. One key factor pertaining to the underemployment of women is the commute to work; the inadequate transportation system is of such significance that females might ignore better job opportunities and go for lower-paid, low-skill jobs. Only 15% of women make up the total employment in software services, which is the largest segment in Pakistan's information technology sector (Table 3). According to a recent Pakistan Software Houses Association (P@SHA) survey, only 16% of female computer science graduates are working versus 83% of male graduates.[2]

2.– Source: https://www.brecorder.com/news/40107362/inclusion-of-women-in-tech.

Table 3: Women in the IT segment: Pakistan vs selected countries

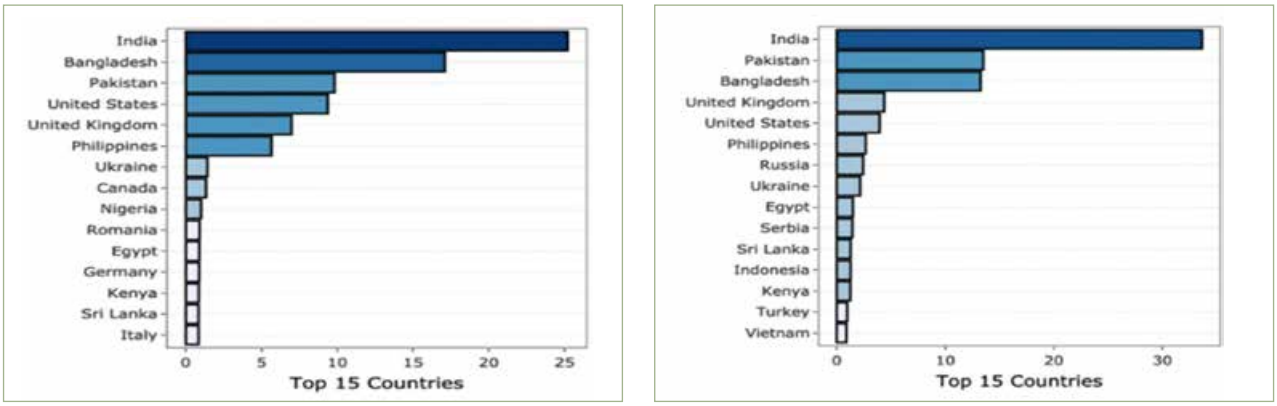
Country	Enrolled in IT college studies	Working in the IT industry	Year
Pakistan	14%	15%	2016
India	45%	30%	2014
United States	22%	25%	2017
United Kingdom	18%	16%	2014
Brazil	15%	38%	2014

Source: Duke Global Value Chains Center (2019). 'Pakistan in the Offshore Services Global Value Chain'.

GROWING FREELANCER COMMUNITY CONTRIBUTING TO EXPORTS

In 2017–21, the number of freelancers increased exponentially in Pakistan as the number of clients and projects increased. Pakistan is ranked in the Top 3 countries for freelancing in the world (Online Labour Index, Oxford Internet Institute, 2019).Transactional IT and ITeS (freelancers) are mainly virtual assistance services such as website development, translation, content writing and schedule management. According to the Pakistan Software Export Board (PSEB) report 'Pakistan's IT Industry, 2020', by 2019-20, freelancers were serving foreign clients in more than 120 countries and earned $150 million in revenue. Pakistan's share of the global online worker population for software development and technology monitored by the Online Labour Index (OLI) has grown from 11.9% in 2017 to 13.9% in 2021 (Stephany et al., 2021; 'New ways to measure the world's remote freelancing market', arXiv preprint arXiv:2105.09148, 2020). This is illustrated in Figure 14, which was produced using OLI 2020 time series data. Most freelancers in Pakistan are aged in their 20s and 30s (more than 60%). In terms of user number, Freelancer.com ranks Pakistan as the third-largest country, accounting for 4% of the total registered users. According to the recently formed Pakistan Freelancers Association (PAFLA), more than 1 million Pakistanis freelanced in 2019–21. According to PAFLA, they billed more than 10 billion hours, with annual revenue of $1 billion.[3] Arguably, this data does not get captured or reflected fully in the official statistics on IT and ITeS exports, as the earnings go to personal accounts.

Figure 14: Top 15 freelancing countries (2017 – left; 2021 – right)



Source: Stephany et al., 2021.

While the growing freelancing community has provided a strong impetus for the growth in export earnings (remittances), there would be strategic considerations for managing freelancers' role and growth when developing a competitive and sustainable IT services destination, as will be discussed in the way forward section.

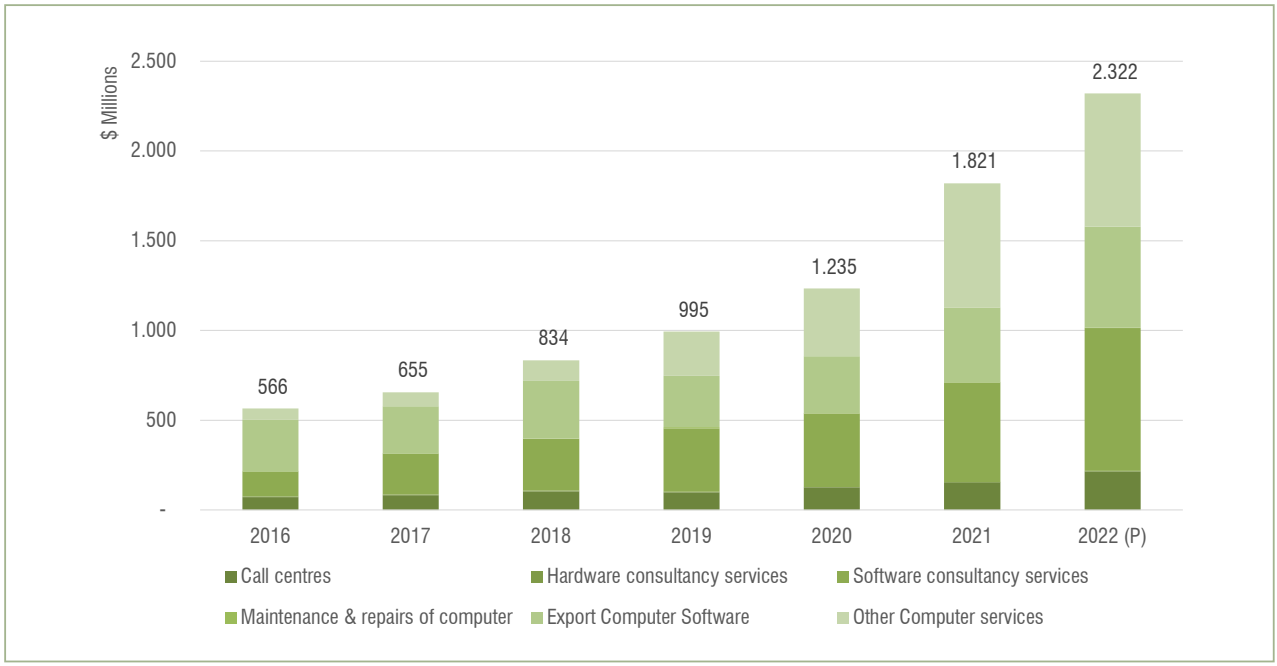
3.– See https://pafla.org.

Positive export outlook confirms sector potential

According to the latest data available, in FY 2021/22, IT and ITES export earnings topped $2.3 billion, up from $1.8 billion the previous year. Although the industry originally targeted $3.5 billion for this year, the government expects the industry to reach $5 billion by 2023. Pakistan has more than 2,860[4] IT enterprises registered with the PSEB, providing services to more than 100 countries.[5] The sector employees more than 300,000 professionals (of which 14% are estimated to be women, according to the industry body, P@SHA), making it an important source of employment for young graduates of higher education with expertise in current and emerging IT products and technologies.

A closer look at the growth pattern indicates that three categories in services had the most consistent growth: i) software consultancy services; ii) other computer services; and iii) call centres (Figure 15).

Figure 15: IT and ITeS export remittances



Source: Trade in Services data, State Bank of Pakistan.
Note: P- Provisional

Pakistan's top export destinations include the United States, the United Arab Emirates, the United Kingdom, the Republic of Singapore, and Canada, generating approximately 90% of total revenues in the sector (Table 4). Of these, the United States is the main market (72%), followed distantly by the United Arab Emirates (11%) and the United Kingdom (10%). While this is a key strength – given the United States' continued steady growth in demand for offshore services – there are strategic considerations around market concentration that need to be considered (and are discussed more in the way forward section).

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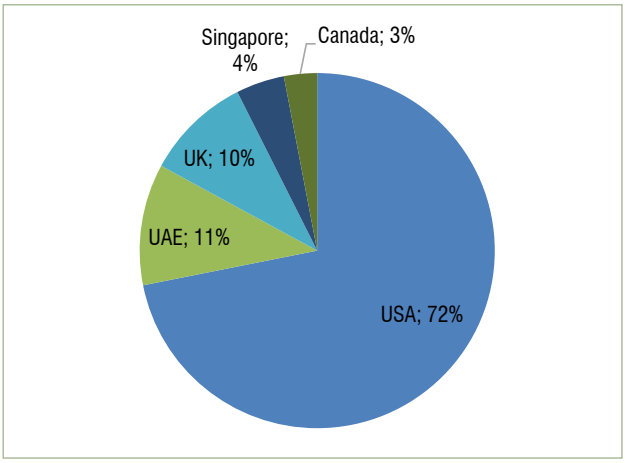
4.– As of 31 December 2020.

5.– See https://startuppakistan.com.pk/it-and-ites-export-remittances-have-increased-by-1-98-billion-in-the-last-11-months/.

Table 4: Top 5 export destinations

Country	FY 2018/19 (USD million)	FY 2019/20 (USD million)
United States	667.19	828.19
United Arab Emirates	96.85	127.4
United Kingdom	80.33	111.23
Singapore	35.14	50.81
Canada	30.97	40.68
Total	910	1 158

Source: Pakistan's IT Industry Report, Trade in Services data, State Bank of Pakistan.



Favourable investment environment being established

Pakistan does not categorize foreign direct investment (FDI) in IT separately and includes it together with telecoms. FDI in IT and telecoms together reached $622.5 million in 2019–20, and $99.8 in 2021 (up to June).[6] Typically, such FDI numbers –when joined with telecoms– tends to be dominated by the telco sector. As such, there is a need to categorize FDI correctly and separately into IT and ITeS to track progress over time.

Some key features of the investment incentives regime for IT include:

- Zero income tax on IT and ITeS exports;
- Zero income tax for PSEB-registered IT start-ups;
- 100% foreign ownership of IT and ITeS companies;
- 100% repatriation of profits to foreign IT and ITeS investors.

Major global brands with a technology presence in Pakistan include SAP, Oracle, Microsoft, Dell and HP.

New moves to create IT parks and software technology zones are expected to solve this problem to some extent, but its accessibility and affordability to IT SMEs was a concern on the minds of sector stakeholders from an SME background and must be taken into consideration.

The recent passing of the Special Technology Zones Authority Act (July 2021) is expected to give a major boost to FDI prospects in the sector. The Act provides for wide-ranging powers for the authority to promote and manage investments in the technology sector, in a single-window approach.[7] Under the new law, investors (IT zone developers and companies) can receive a 10-year tax exemption. It also gives provisions to exempt zone enterprises from all customs duties and taxes on investment goods.

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6.– See https://invest.gov.pk/statistics.

7.– See https://profit.pakistantoday.com.pk/2021/07/25/na-passes-act-to-attract-fdi-in-tech-sector/.

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Box 2: Pakistan's push for special technology zones

In December 2020, the government promulgated the Special Technology Zones Authority Ordinance, 2020 (the STZA Ordinance) with the stated objective of setting up a corporate authority to establish, among others, software and hardware technology parks, high-tech industrial areas, science and technology zones, knowledge cities, technology incubation zones or any sector zone requiring technological intervention. The goal behind the creation of such zones is to provide institutional and legislative support for the technology sector with internationally competitive and export-oriented structures and ecosystem, in addition to developing collaboration between academia, researchers and the technology industry. A STZA Act was subsequently passed in July 2021 by the National Assembly. Zone developers, international 'big tech' firms and the local IT industry are being encouraged to participate in the growth of STZAs. In summary, the STZs allow for cheaper real estate, one-window government facilitation and a tax-free zone. The incentives regime under the STZA is as follows:

- Ten-year break from income tax to zone developers and zone enterprises, including exemption from minimum tax otherwise levied under Section 113 of the STZA Ordinance;
- Ten-year exemption from customs duty, sales tax and withholding income tax on import of capital goods such as plant, machinery and equipment for use within the zone;
- Tax exemption on dividend income and long-term capital gains of any venture capital fund from investment in a zone enterprise(s);
- Complete exemption on income of the Special Technology Zones Authority established under the STZA Act 2021.

The passage of the STZA is expected to usher in an environment conducive to the investments required in high-tech industry, putting the country on fast track to transforming the wider economy and creation of a highly skilled labour force.

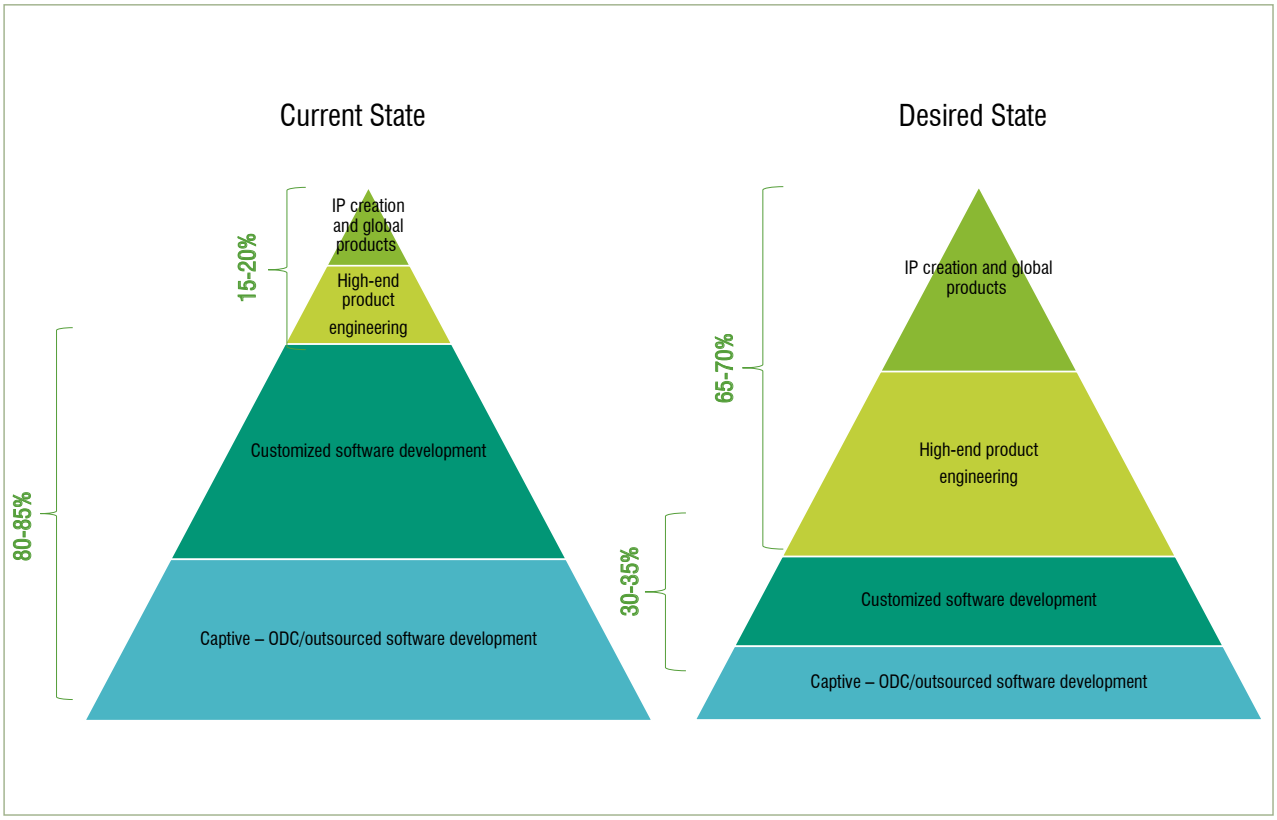
Pakistan's IT services sector has many of the fundamentals in place to drive faster growth, and the rapid rise in export earnings already seen in recent years is a sign of strong export potential in the medium term, leveraging the available talent pool, financial attractiveness and existing market entry to major importing locations. Building on from this would require tackling some key growth and competitiveness challenges.

SERVICE MAP AND COMPETITIVENESS DIAGNOSTIC

Service map overview

Software services in Pakistan include those provided by domestic firms as well as foreign (including joint venture operations). Approximately 2,000 firms exist in the industry, with more new firms entering continually. The majority of firms (approximately 95%), and in turn most of the revenue (approximately 80%–85%) come from software services (both outsourcing software development and customized software development), while approximately 15%–20% comes from higher-end product engineering, and IP creation (with global product sales) is still nascent. It is recognized that the latter segments are higher up the value-added ladder than the former (Figure 16). As the strategy later articulates, the industry has objectives to grow these higher-value segments more in 2022-26.

Figure 16: IT products and services value pyramid



INSTITUTIONAL AND POLICY SUPPORT ECOSYSTEM

Beyond firms, the industry consists of supporting public and private institutions, mostly based in Karachi, Lahore and Islamabad. In the private sector, P@SHA is widely recognized as the most prominent industry-supporting institution. P@SHA has led significant lobbying and advocacy initiatives to drive policy development. Public sector efforts for the IT and BPO industry are coordinated by the PSEB, a government body under the Ministry of Information Technology and Telecommunication (MoITT). Additionally, there are some provincial bodies like the Punjab Information Technology Board, which works specifically on development and delivery of IT services in the province.

Some of the key industry stakeholders/institutions, alongside their capability to support sector development and influence policies and programmes for it, are presented in Table 5, which is based on stakeholders' perspectives and feedback. According to stakeholders, the Federal Board of Revenue, the main body tasked with taxation for the sector, is seen as highly resourced, capable and influential, while the main sector-specific body (PSEB) and MoITT are seen to be moderately resourced, capable and influential. The apex private sector body (P@SHA) is seen to have reasonable resourcing and influence, but to lack capacities. Notably, the intellectual property office scores low on all three parameters and is a strong signal for the need to improve this space if the industry seeks more IP – and product-led growth.

Table 5: Pakistani software services industry stakeholders: Role and capabilities

Name of institution	Type of institution[1]	Role played by the institution	Capability check		
			Resources[2]	Capacity[3]	Influence[4]
Federal Board of Revenue (FBR)	B	Taxation of income and sales at a federal level	1	1	1
Pakistan Software Houses Association (P@SHA)	C	Association of IT firms; advocacy and lobbying to ensure government support	2	3	2
Pakistan Software Export Board (PSEB)	B	Promotion and facilitation of IT exports	2	2	2
Ministry of Information Technology and Telecommunication	A	Development and regulation of IT infrastructure and resources at federal level	2	2	2
Ministry of Finance and Revenue	A	Development and regulation of finance and revenue	2	2	1
State Bank of Pakistan	A	Central bank	1	1	1
Sindh Revenue Board	A	Taxation of services in Sindh	1	1	1
Punjab Revenue Board	A	Taxation of services in Punjab	1	1	2
Khyber Pakhtunkhwa Revenue Authority	A	Taxation of services in Khyber Pakhtunkhwa	2	2	2
Intellectual Property Organisation of Pakistan	B	Protection of intellectual property	3	3	3
Ministry of Commerce	A	Development and policymaking for growth of domestic and international commerce	1	2	2
Trade Development Authority of Pakistan	B	Development of trade activities of goods and services	1	2	3

Source: ITC, based on stakeholder consultations.

Note: [1] A) Public sector ministry; B) Public sector specialized agency/statutory body; C) Private sector chamber or trade association; D) Private sector support service provider; C) Donor agency/aid project; D) Other.

[2] How well financially resourced to support sector development needs: 1. Very well resourced; 2. Somewhat well resourced; 3. Poorly resourced.

[3] Capacities in the institution to support sector development needs: 1. High capacity; 2. Moderate capacity; 3. Low capacity.

[4] How influential is this institution to drive sector development: 1. Very influential; 2. Somewhat influential; 3. Not influential.

Some key laws and regulations relating to the sector are presented in Table 6, including remarks on their implementation status as per the author's estimations. It is noteworthy that a lot of initiatives have been taken on taxation in recent years with respect to this sector – which is natural considering how relatively new the sector is and the required adjustment to industry realities compared to existing tax frameworks. Moreover, the emerging regulations around cybersecurity and data are also to be expected.

Table 6: Other key laws and regulations pertaining to the sector

Name of policy/ law/regulation	Date enacted/ introduced	Relevant responsible government institution	Objectives and purpose	Remarks on current implementation status
Income Tax Ordinance 2001	2001/Revised in every financial budget	Federal Board of Revenue	Taxation of income of individuals and businesses	1. Income tax exemption was given up to 2025 for IT firms bringing 80% of the proceeds back into Pakistan. FY 2021/22 budget converted the exemption to 100% tax credit 2. Indirect tax implication on remittance of export proceeds up to 1% of sales proceeds (under 154A) under withholding tax regime creates cash flow/ documentation problem for IT firms. IT firms are allowed to get withholding tax exemption, but process needs to be facilitative 3. Start-up exemption converted to 100% tax credit will put the burden of onerous documentation on start-ups
Prevention of Electronic Crimes Act (PECA)	2016	Federal Investigation Agency	Prevention of crimes, defamation and fraud committed through the use of internet-based platforms and employing digital identity. Must be read with allied laws for prevention of specific crimes. The law also stipulates methods of prosecution, investigation and adjudication for cybercrimes.	Digital rights groups contest its misuse by law enforcement agencies on protection of civil liberties and freedom of expression using transnational digital platforms. PECA 2016 is gaining prominence in its use due to rapid growth in digital users and social media platforms in Pakistan.
National Cyber Security Policy 2021	2021	Pakistan Telecommunication Authority	New national policy recently approved by the Cabinet aimed at data protection and prevention of cybercrimes. It also provides for the establishment of a new cybersecurity agency.	As this is a very recent policy, implementation status is yet to be seen. The new policy aims to support both public and private institutions, including national information systems and critical infrastructure.
Foreign Exchange Regulation Act	1947	State Bank of Pakistan (SBP)	Regulation of inbound/outbound foreign remittance in Pakistan via correspondent banking subject to review from the State Bank of Pakistan (SBP) and the Federal Board of Revenue.	Progressive measures taken in 2020 to allow software firms to make import-based software vendor payments without approvals from the State Bank of Pakistan (SBP). Further relaxation given retaining export proceeds outside Pakistan for outstation expenses.
Provincial sales tax on services (Sindh, Khyber Pakhtunkhwa and Balochistan)	2010	Sind Revenue Board Khyber Pakhtunkhwa Revenue Authority Balochistan Revenue Authority Punjab Revenue Board	Sales taxation on IT services	IT firms exporting more than 80% of their total revenue are exempt from services tax.

There are numerous sub-bodies under the MoITT or provincial governments that reportedly work in silos, for example, the National Information Technology Board, Ignite and the Universal Service Fund, which are often impacted by severe resource constraints, delayed decision-making and, in some cases, lack of leadership. At the provincial level, there are the Khyber Pakhtunkhwa Information Technology Board and the Punjab Information Technology Board, but other federating units do not have such bodies. This can be confusing, because they can duplicate some of the work, which also seems to be happening at the federal level.

Competitiveness constraints

While recent trends have shown that Pakistan is moving in the right direction and has the potential to foster further growth of the IT and ITeS sector, achieving this growth will require addressing several constraints that weigh on the sector, create uncertainty, raise costs, reduce efficiency and prevent full participation. Fundamentally, these issues arise from constraints on the sector's capacities to compete in the present, connect through accessing and using information and knowledge, and change by adapting to changing conditions and opportunities. A summary of these is presented in Table 7.

Table 7: Longlist of competitiveness constraints

Constraints	Root causes	Ease of resolution (Grade 1-5) 5- very difficult	Urgent action needed (Grade 1-5) 5- very urgent
Firm level			
Shortage of talent and employability issues	• Insufficient annual flow of new talent • Employability among graduates is low due to lack of required skills • University–industry collaboration for upgrading curricula is weak • Government programmes for skill development do not attract quality talent and do not result in employability • Brain drain drives high employee turnover • New talent not sufficiently focused on emerging technology fields like AI, big data, robotics and IoT	2	5
Low participation of females in IT studies and IT employment	• Rooted in concerns for safety, mobility restrictions and traditional family roles • A key factor pertaining to the underemployment of women is the commute to work; the inadequate transportation system is of such significance that females may ignore better job opportunities and go for lesser-value, low-skill jobs	3	4
Physical infrastructure constraints	• Cost of office space in metropolitan areas is expensive and drives up IT firms' operating costs • Rent is regularly rising, pricing out SMEs and start-ups	2	4
Capabilities for product quality, diversification and innovation	• Current focus is on bespoke software development and customization for foreign clients; no emphasis on product development and IP-driven exports • Internal capabilities for continuous improvement of quality and process are weak	3	4
Business environment levels			
Tax treatment	• Tax treatment of IT sector changes from time to time • Current regime of tax credits makes for onerous documentation, adding to costs for businesses • Start-ups are exempt from withholding tax for five years, but procedures are cumbersome and create an environment of exploitation with the tax authorities • Lack of understanding among the industry and tax authorities fosters tax harassment and evasion	4	4

Constraints	Root causes	Ease of resolution (Grade 1-5) 5- very difficult	Urgent action needed (Grade 1-5) 5- very urgent
Access to finance and growth capital	• High reliance on external investment and family capital • Bank credit relies too heavily on collateral-based lending, thus affecting access for IT firms • Founders have to give up equity to international investors in order to simply obtain liquidity • Working capital constraints affect payroll delays and employee turnover • Lack of project finance affects international expansion and investing in internal capability improvement • Lack of specific export/project refinance facility by banks or government, as it exists for other industry sectors	2	4
Government IT departments competing with the private sector	• Limited space for private IT players to build up portfolio from among government contracts due to uneven playing field competition from government • When projects are open, preconditions for bids result in restricting most firms from participating	4	5
Lack of market intelligence to new markets	• Lack of research and market insight in expanding into other territories • Pakistani IT export is limited to where the Pakistani diaspora resides and assists in getting market access; IT firms have poor visibility into opportunities in countries where Pakistani diaspora does not exist	2	5
National levels			
Risk perception and investor attractiveness	• Political stability and national security are key considerations for investors, especially in building a culture of trust and reliability • Risk aversion towards Pakistan affects investor attractiveness	4	5
International branding and marketing	• No concerted effort to brand Pakistan's IT industry against international competition • Consular missions underused as vehicles to promote exports and investment in the sector; limited understanding among international missions about the industry and limited cooperation by industry to use missions	2	4

Deeper discussion of selected key issues

Top issues emerging from the longlist above are presented in a detailed format below. These are based on stakeholder consultations.

SUPPLY-SIDE AND INPUTS LEVEL

Talent shortages, employability and brain drain

- The current talent pipeline is insufficient for the sector's growth needs. Pakistan needs an annual supply of 100,000 IT graduates, while it is currently approximately 20,000. Estimates suggest that the total talent pool currently available for the sector is roughly 75,000 high school graduates and 25,000 university graduates. This shortage will particularly affect SMEs and start-ups in the sector, unlike large firms that can have various talent attraction schemes. Consequently, it will affect the sector's inclusive development.
- The incoming talent is not sufficiently focused on emerging technologies. Talent development and university programmes focus on technology skills related to immediate market needs as opposed to emerging markets around AI, big data/analytics, robotics, IoT and fintech. As an industry player noted, 'Pakistani IT firms are mostly playing catch up to cutting-edge US, EU, Chinese and Japanese firms and are lagging behind by 15 years'.
- There is also a question of employability of talent. The employability rate across the sub-segments in the IT and ITeS services industry remains relatively low at 30% and 50% for high school graduates and IT graduates (Tier II-III universities) respectively. The government has initiated some programmes for skill development, but reportedly they do not attract quality talent and do not result in employability in software development, data analysis and project management. Employers often prefer candidates with engineering degrees. Starting criteria

for employability include basic technical skills, proficiency in the English language and the relevant domain competencies. For information technology outsourcing (ITO), software services companies employ IT graduates from Tier II and III universities, while product development firms engage exclusively with Tier I universities. Although there is interaction between the industry and universities, it does not necessarily result in effective pedagogical changes that represent emerging technology trends or market readiness of the graduating cohorts.

- In addition to the unemployability among some candidates, brain drain lowers the availability of appropriate human capital and increases turnover. Employee turnover has a major impact on service quality and delivery timelines. Local salaries cannot compare with the income Pakistani talent can generate in the Middle East, United Kingdom and United States. This results in good talent being developed in Pakistan, but then moving abroad for higher income and better lifestyles. This presents an opportunity, as expats in markets like the United States have become a strategic asset for Pakistan's offshore services industry. For example, several leading IT firms in Pakistan have been funded by Pakistani Americans.

Access to capital for growth

- The access to finance for IT firms for growth is limited, and most firms rely on financing by way of external investment (giving up equity) or from friends and family. Banks' collateral requirements are not feasible to meet for most technology companies, which have limited immovable assets. Collateral-based credit offerings by local banks prevents IT firms from generating liquidity to expand operations outside Pakistan. IT firms have to generate capital by giving equity to foreign investors in order to scale business outside Pakistan or set up a separate legal identity outside Pakistan and retain revenue proceeds outside Pakistan. Obtaining capital by divestment costs founders 20%–40% of equity.
- There are limited bank or government sector-specific export/project refinance facilities in the way they exist for other industry sectors. Lack of working capital financing (coupled with internal issues like poor cash flow management) creates payroll delays, which increases employee dissatisfaction/turnover. In the medium term, problems with access to capital also affect firms' ability to scale operations and their engineering capabilities, which in turn limits the ability to compete globally.
- The Government has introduced schemes like 'Kamyab Jawan Scheme' and other State Bank of Pakistan financing schemes to incentivize the IT sector. While the FY 2021 budget's SME financing facility of up to PKR 5 million of non-collateralized loans was welcomed, there were concerns about the streamlined eligibility of IT firms and the administration of the facility to ensure better accessibility and disbursement.

Inadequate physical infrastructure

- In major cities such as Lahore and Islamabad, local and foreign companies struggle to find office space aligned to international standards and requirements of the services industry, at an affordable cost; e.g. 24/7 availability, IT-ready infrastructure, reliable power and security. This constraint hinders the growth of small IT product-based companies and freelancers, who lack affordable IT plug-and-play spaces (e.g. co-work) to expand their business and/or provide more complex and sophisticated services. Rising rent in metropolitan areas, especially in Karachi, puts cost pressure on IT firms.
- Industry players assert that metropolitan rents are highest in Karachi, and are nearly 30-40% more than Lahore and Islamabad. This counts for almost 20% of an IT firm's operating expenses. Additionally, rents increase at a rate of 10% each year.

» Relevant activities in the PoA for supply-side and inputs level: Talent – 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.1.7, 2.2.1 and 2.2.2; Access to capital – 3.2.1, 3.2.2 and 3.2.3; Infrastructure – 4.1.3.

BUSINESS ENVIRONMENT LEVEL

Sector recognition and tax treatment

- Industry stakeholders strongly assert that inconsistencies in tax treatment of the sector is hurting the predictability and growth plans of IT firms. As one industry leader noted, 'It's important to recognize IT as a sector and growth/target-oriented tax holidays'. In the government's FY 2021/22 budget, IT was recognized as an industry for the first time. Furthermore, the Economic Advisory Council has created a separate subcommittee on IT growth and digitization of the economy as recognition of the growth potential in the industry. Industry stakeholders assert that, if the textile industry is given reduced minimum turnover tax at 1.5% instead of 3%, the IT industry too – having been recognized as focused

for growth – should be given the same minimum turnover tax rate. While this is a contentious proposition due to various socioeconomic and historical considerations, policymakers would need to seriously consider the tax treatment of this sector given its high net export earning status and potential for high-income job creation.

- The sector recognition also has an implication for allocations under government-supporting financing, for example, in getting a greater allocation of the Export Development Fund and the SME financing and export rebate, as enjoyed by other export sectors.
- Recently, the tax exemption regime has been converted to tax credit for software exports, which opens the door for onerous documentation and harassment by tax authorities. Previously, the export of IT and IT-enabled services was exempt from income tax up to 30 June 2025. The Taxes (Second Amendment) Ordinance 2021 dated 24 March 2021 replaced this exemption with a tax credit equal to 100% of the tax liability, subject to certain conditions. Additionally, the scope of services entitled to tax credit has been enhanced to include cloud computing and data storage services. However, where such credit is not claimable (such as due to non-compliance with any condition requisite), the receipts from exports are proposed to be taxed at 1%, bringing them on par with the export of goods.
- Onerous tax documentation is often cited as a bottleneck for firms in the industry, exacerbated by this new tax credit regime. Exemption qualification requires onerous documentation to get exemption and process export remittances into Pakistan. Start-ups, too, face similar issues. Start-ups are exempt from withholding tax for five years under the Income Tax Ordinance. The procedure for getting the exemption and renewing it every year is cumbersome and creates an environment of friction and exploitation with the tax authorities.
- Further, export of IT and IT-enabled services from Islamabad is zero rated as against its current status of being exempt. This will entitle a service provider to claim a refund for any input sales tax paid on goods and services acquired. This will be relevant only to exporters based in Islamabad, as IT services rendered in provinces are subject to provincial sales tax laws, after the 18th Constitutional Amendment. The provincial differences in tax treatment would also need closer inspection to streamline and ensure that an overall conducive climate across the country is created for the IT exports industry to thrive.

Risk perception and investor attractiveness

Pakistan is generally perceived as a high-risk investment proposition, particularly by US firms, which are the largest IT services importers. The United States Department of State rated Pakistan with the Advisory Level 3[8] (i.e. 'reconsider travelling'), pinpointing terrorism and sectarian violence as the main reasons. Similarly, the 'political stability and absence of violence/terrorism' index from the World Bank's World Governance Indicators ranks Pakistan at 125 out of a total of 126 countries.

- It is widely acknowledged in the industry that national security and political stability have a direct influence on the attractiveness and trust in Pakistan as an IT exporter. As an industry leader noted, 'Continuous government reform/policy irrespective of political changes will create the trust foreign capital and foreign buyers seek to invest in Pakistan and import IT services from Pakistan'.

» Relevant activities in the PoA for business environment: Tax treatment – 3.1.1 and 3.1.2; Investor attractiveness – 1.1.1, 1.1.2, 1.1.3, 4.1.1 and 4.2.2.

MARKET ACCESS LEVEL

Inadequate market intelligence and international marketing/branding

- Pakistan has not developed a concerted international marketing strategy to effectively position itself as an attractive and competitive offshore services destination. Consular staff around the world are not trained to identify or facilitate opportunities for Pakistani IT firms, and there is no formalized process for IT firms to access Pakistani missions abroad to facilitate business promotion or drive country-specific IT export targets.
- There is also a lack of research and market insight to inform expansion into new markets. Often, Pakistani IT exports are limited to where the Pakistani diaspora resides and thus assist in getting market access. IT firms have less visibility into opportunities in countries where Pakistani diaspora does not exist.

8.– Travel advisory updated on 16 June 2021. Accessed at https://travel.state.gov/content/travel/en/traveladvisories/traveladvisories/pakistan-travel-advisory.html.

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Capabilities for product quality, diversification and innovation

- The lack of strong internal capabilities in some second-tier firms for quality and delivery, including advanced project management, business analysis, data and cybersecurity, legal/international contracts and IT operation best practices can hold back their international competitiveness. International process and quality certifications should be strengthened in order to enhance service delivery and ensure no breaches of service level agreements and loss of contracts.
- Pakistani companies need to strengthen their innovation capabilities to develop IP-driven products, moving up from currently performing bespoke/customization services on existing platforms and software made in the United States, Europe and other markets. The current product portfolio is largely bespoke software development rather than product or platform development. Moreover, companies focus on winning big contracts with high margins rather than investing in or building sustainable products that can scale to different countries.
- A complementary aspect to upgrading to product development should be strengthening intellectual property. While the Intellectual Property Organization Act exists, the process of trademark and intellectual property registration is lengthy (reports of some response times as long as one year). Moreover, there is no section within the Intellectual Property Organization for software patent registration and protection, and the organization is in its nascent stages and lacks efficiency and effectiveness in intellectual property protection.

Competition from government IT departments

- A persistent challenge faced by Pakistani IT firms is the competition for IT services from public sector entities, which have internal IT departments and/or drive digitization efforts. NADRA Technologies Limited (NTL), Pakistan Revenue Automation (Pvt) Ltd (PRAL), the Punjab Information Technology Board, the National Information Technology Board (NITB), the National Logistics Cell (NLC) and the National Radio & Telecommunication Corporation (NRTC) are all public sector-owned institutions set up to digitize essential government services as in-sourced software companies. However, they are highly constrained by their speed to market, lack of innovation, resource constraints, below-market pay scale, outdated management style and poor customer support operations, which limit their ability to respond with the agility required.
- In contrast, private IT firms are innovative, lean and follow emerging technology trends, but unfortunately cannot compete with large government-owned IT firms. Consequently, they do not get the opportunity to develop government technology (GovTech) experience and other eGovernment software development initiatives, which could help them to build a portfolio and then bid for international tenders in other countries. In cases where government projects are open to the private sector, preconditions for bids involve a certain size and experience that only a few private IT firms can meet.
- The government would need to consider options for encouraging domestic players to participate in the government digitization market, and also streamline procurement rules to encourage new players.

» Relevant activities in the PoA for market access level: Market intel and global marketing – 1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.2.1, 1.2.2, 1.2.3, 1.2.4 and 1.2.5; Product innovation and diversification – 4.1.2, 4.2.1, 4.2.2, 4.2.3 and 4.2.5; Government business – 4.2.5.

By solving some of the key competitiveness and growth constraints, Pakistan's IT sector and its software firms can position strongly for export growth. It is necessary to set some strategic objectives for the short to medium term to drive sector transformation, and prioritize some key actions.

THE WAY FORWARD

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The acceleration of digitalization, further spurred on by the dramatic shifts brought on by COVID-19, indicate bright prospects for the global IT services industry. This provides ample opportunity for Pakistan, with an already dynamic sector, to leverage this growth and become a leading software services player for regional and global clients. It is necessary to set some strategic objectives for the short to medium term to drive sector transformation, and prioritize some key actions.

STRATEGIC FORESIGHT

The strategy process considered current capabilities and constraints, and future shifts and opportunities for Pakistan's software sector. Industry stakeholders extensively evaluated future orientations and upgrading trajectories. Figure 17 captures the summary of stakeholders' analysis of future trajectories along two curves – the first assesses the present way of doing things and which of those will remain strong and competitive into the future (i.e. will remain as residual assets for Pakistan). The second assesses the current innovations and trends already seen in Pakistan and globally, and how these will influence the future strategic orientation of Pakistan's software sector (i.e. tomorrow's way of doing things). Some key messages that emerge from this exercise are the following:

- Some compelling residual assets for Pakistan would include the availability of affordable talent, high interest among young people in the industry (including from non-IT backgrounds), continued venture capital interest and continued interest by joint venture partners.
- Some compelling strategic future shifts for Pakistan's industry include latching on to current trends and innovations, including technology and digital transformation consulting, collaborating between larger firms and SMEs to deliver larger projects, more women in IT, strengthening exports in new markets (like Africa), productivity-based remuneration, remote infrastructure monitoring and support services, more local firms listing on the stock market, more mobile applications, greater emphasis on software products, not just services, and digital banking and a cashless society, providing new product opportunities.

Figure 17: Ride Two Curves foresight exercise

Source: ITC.

Key orientations to drive transformation in the sector

To formulate a way forward plan, the strategy process assessed current market and product orientations and obtained strategic input from industry stakeholders on future orientations. Accordingly, several orientations were identified: i) around markets; ii) around products, industries and technologies; iii) around emerging trends, gaps and opportunities; and iv) around emerging new technologies. Each of these are discussed in detail in the following section.

ORIENTATION 1: EXPLORING NEW MARKETS WHILE CONTINUING TO GROW IN EXISTING MARKETS

Currently, Pakistan's Top 5 exports are to the United States (>50%), the United Arab Emirates (>8%), the United Kingdom (>7%), Singapore (>3%) and Canada (>2%).[9] There are some other limited exports to European countries and the Republic of Turkey. Pakistan should aim to reduce the overdependence (of more than 50%) of its revenue arising from a single market. Other regions such as the Middle East and North Africa, Europe and Scandinavia and Asia–Pacific have a growing need for IT products and services, and would be of interest for Pakistan's market diversification efforts. The IDC identifies that a 54% share of the $5 trillion technology industry spend comes from among these three regions: Europe and Scandinavia (22%) and Asia Pacific (32%).

Market focus and strategies

The following section briefly explores an overview of trends and opportunities in some target markets.

Middle East and North Africa (MENA) region: This is a particularly interesting region for Pakistan, where IT sector expansion could be helped by supportive foreign policy (and consequently, trade) allegiances. Gartner forecast IT spending in MENA to reach $171 billion in 2021. According to Gartner (April 2021), 'Business in MENA show renewed interest in IT projects as impact of COVID-19 declines in the region'. Gartner went on to report that the projects that went on hold or were cancelled during lockdowns in 2020 have recommenced with a true understanding of resilient digital ecosystems. Some countries in the region have adapted encouraging policy regulations such as digital nomad visas, remote work visas and Smart Dubai 2021, etc. that would boost investment in IT services. The growth in 2021-22 is expected to reach 4%, amounting to $177 billion. Key expenditure categories are indicated in Figure 18.

Figure 18: MENA IT spending (2020-22) (USD, million)

	2020 spending	2020 growth (%)	2021 spending	2021 growth (%)	2022 spending	2022 growth (%)
Data centre systems	4 940	0	5 274	6.8	5 423	2.8
Enterprise software	6 922	0	7 925	14.5	8 737	10.2
Devices	25 522	-12.2	27 588	8	28 129	1.9
IT services	12 566	0.6	13 657	8.7	14 721	7.8
Communications services	114 031	7.2	116 895	2.5	120 932	3.5
Overall IT	163 981	2.7	171 339	4.5	177 942	4

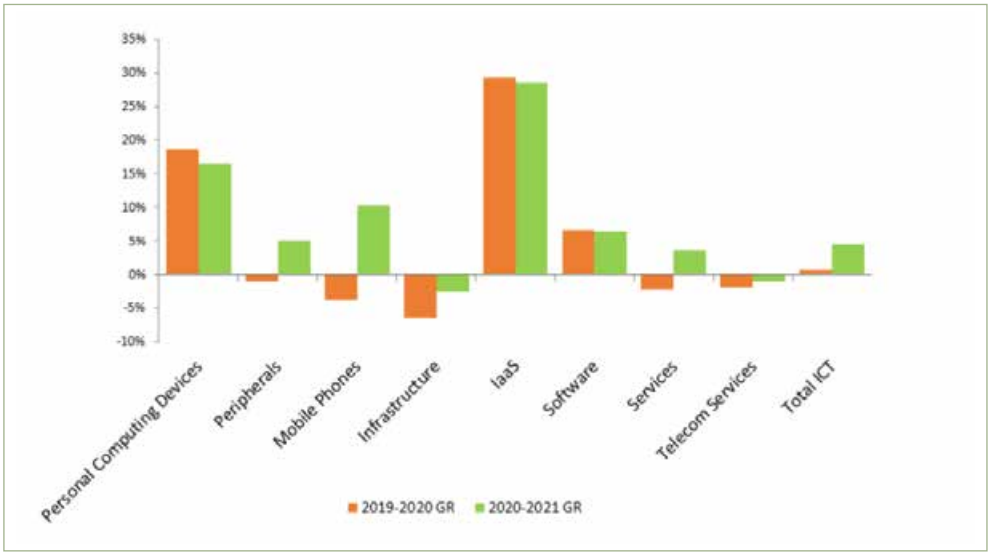
Source: Gartner, April 2021.

Europe: This region is the second-largest market after the United States, with a share of 19% of global spending on IT and forecasts of growth to $988 billion in 2022. According to the IDC, in Europe, 'digitalization processes will continue and even accelerate this year, and this includes cloud adoption. In terms of software, the strong demand for applications related to human capital management, advertising, marketing, and customer service is expected to continue throughout 2021'. The IDC (May 2021) predicted that the European software

9.– Government of Pakistan, PSEB & MoITT, Pakistan IT Industry Overview (2020).

market would post a growth of 6.6% in 2021. Pakistan houses a few European multinational corporations such as Telenor, Jotun, Nestle, Unilever, Ecolean, Standard Chartered, GlaxoSmithKline and British American Tobacco, etc. The industry can push to set up global in-house centres (GICs) of these companies that have not set up in Pakistan already, and advocate for their regional presence to be based out of Pakistan. For example, in India, the offshoring industry got their initial boost through multinational corporations that offshore their onshore requirements first, and then offshore requirements to Indian companies and workforce.

Figure 19: ICT spending growth rate YoY



Source: IDC Worldwide Black Book: Live Edition, May 2021.

Asia–Pacific: Asia is home to half of the world's 3.2 billion population and, by 2030, Asia will be home to 65% of the global middle class and will account for 40% of global consumption. Asia currently accounts for half of the world's 2.2 billion internet users. According to the IDC (April 2021), ICT spending in the region was predicted to grow by more than 4.9% to reach $924 billion in 2021 and is expected to reach $1 trillion by 2024. Due to the disruption to working models (for example, work from anywhere policies), a surge in spend for devices, cybersecurity and user experience, it is likely that cloud-based services will dominate in months and years to come. As per Gartner, mature countries in the region such as Singapore, the Republic of Korea, Australia and New Zealand were projected to spend $174 billion, while China, Hong Kong and Chinese Taipei were expected to spend $498 billion in 2021.

Participants also identified certain risks in the existing and future market orientation mix, for example: Market saturation in the United States; thin profitability, low value and high competition in Gulf and African markets; issues with foreign policy and consequently travel and visas in some target markets.

The analysis above describes the potential of regions other than the United States. While having the United States as the main market, IT BPM opportunities should be explored in other growing regions and countries, building up alternatives in the medium to longer term. Participants in the strategy formulation exercises identified these regions as focus markets, as well as the Republic of Indonesia, Australia, and Malaysia specifically. It is recommended to identify the most potential and high-priority markets in these regions with which Pakistan can do business in IT and BPM and have a focused effort to commence and expand business opportunities there (this is dealt with in the PoA). A thorough analysis of those priority countries needs to be conducted from an 'outside in' approach to identify what would make the target country do business with Pakistan's IT industry (apart from hygiene factors like overall digital, skills, trade and investment, and regulatory policies). Once these high-priority countries for the short, mid and long term are identified, third-party analysts and market-entry consultants could promote engagements and business between the two countries – ranging from bilateral economic partnership arrangements to industry association memorandums of understanding and contracts between companies.

Required investments and skills

Investments would be needed in terms of public resources to help de-risk some of firms' international market expansion efforts, including support for business-to-business meetings, participation in key trade fairs and technology conclaves, support from Pakistan's diplomatic missions in the above markets and regions, and enabling long-term non-collateralized financing for new foreign projects.

On the private sector side, investments would be needed in formulating market-specific business strategies, developing new product portfolios to suit these markets and associated market collateral, as well as investments in new certifications, quality assurance and risk and security processes that might be unique and variable from market to market.

Firms would need to continue to strengthen in-house skills in international business development and sales, contract negotiation, client servicing and advanced project management. Stronger contract (legal) and financial management skills would also be needed as international business relationships proliferate and become more complex for existing firms. Additionally, language skills (aside from English) to cater more deeply and competitively in key target markets that are non-English speaking would be an advantage to Pakistani IT firms looking to break in.

In summary, Orientation 1 would have the following implications for the strategy:

- Markets: Exploring opportunities in new markets while continuing to grow in existing markets, and formulating focused market entry strategies for each market identified as high potential and high priority (see Activities 1.2.1, 1.2.2 and 1.2.3 in the PoA).
- Skills: Improving firms internal go-to-market capabilities (see Activity 1.2.4); improve soft skills (including language skills relevant to priority markets) to support prospecting/business development/international marketing (see Activity 2.2.1 in the PoA).
- Institutional: Improving agencies like the TDAP and PSEB's abilities to promote the software sector in key markets and provide timely market intelligence (see Activity 1.2.5).
- Investments: Availability of affordable financing to support international expansion (see Activities 3.2.1, 3.2.2 and 3.2.3 in PoA).

ORIENTATION 2: STRENGTHENING PRESENCE IN GROWING INDUSTRIES AND EMERGING TECHNOLOGIES

While improving market orientations with a view to expanding export opportunities, there is a need to also improve the Pakistani software sector's positioning from a products point of view and this entails looking at growing industries and technologies in which to operate. Already, Pakistan's IT industry is present in many industry verticals. Participants identified presence in the following:

- Medical and healthcare
- Education
- Defence
- Telecoms
- E-commerce
- Automotive
- Entertainment
- Educational technology (EdTech)
- Fintech
- Games
- Real estate/property
- Digital payment

While continuing to grow in these verticals, the industry envisions growing additionally in the following:

- Agriculture
- Embedded finance
- Oil and gas
- Cybersecurity

In terms of technology spaces in which the industry is currently playing, sector stakeholders identified the following: cloud, robotic process automation, 5G, AI, IoT and big data. In terms of products, services and solutions, Pakistan is in enterprise applications, mobile and web app development and integration, software as a service, database administration services (see Box 3) and infrastructure services. In terms of future

orientations, industry stakeholders felt strongly about positioning in the cloud computing space, while continuing to grow in IoT, AI and 5G-based services. On services and solutions, while growing software as a service and app development are present, there is keen interest in digital financial services, data enablement services and advanced software development services.

Box 3: Data and database administration

A key area where governments and organizations are trying to set up a firm and comprehensive policy and management is the area of data. When the lockdowns started throughout cities and countries, governments and organizations had to take immediate steps to continue the business and to serve as much as possible without interruptions. Data played a pivotal role and became one of the key drivers and focus investments for the coming years. According to industry estimates, spending on database administration takes the lead in investments in the data space, with 61% of forecast new investments going into this, with 56% in data management and policies (CompTIA Industry Outlook, 2021).

Some of the risks in terms of technologies and products, services and solutions that stakeholders identified include:

- Shortage of good-quality programmers;
- Fast and affordable connectivity;
- Changes in developer platforms;
- Buyer preferences for foreign and/or bigger players;
- Lack of risk capital for product development;
- Competition from government in product development opportunities.

Market focus and strategies

Cloud computing, advanced analytics and cybersecurity are clearly top technology priorities globally (see Figure 20). As per NASSCOM, the global cloud market is forecast to grow with a CAGR of 27%, to exceed $1 trillion by 2026, while the cybersecurity market is set to reach $282 billion by 2027, and AI (including advanced analytics and machine learning) is set to exceed $110 billion in 2027.

Cloud computing

The pandemic and work from home transformed the requirement of businesses and governments to strengthen cybersecurity and cloud infrastructure and adopt analytics and AI capabilities much more. Not all companies were equipped with the technological tools they needed to combat these new challenges. For example, pre-COVID-19, most businesses had just begun their cloud migration journeys. Research conducted by Accenture in 2019[10] found that 90% of enterprises had 'adopted cloud technology in some form'. On average, those enterprises only had approximately 20%-40% of their workload in the cloud.[11] The cloud services market includes infrastructure as a service (IaaS), software as a service (SaaS), platform as a service (PaaS), business process as a service (BPaaS), and cloud management and security. Pakistan could explore to expand in services offering on IaaS and BPaaS as a starter.

Cybersecurity

It is now well recognized that cybersecurity is a sector that runs across all industries, and has particularly boomed in the COVID-19 era (see Box 4). A focused effort is recommended to build a formidable cybersecurity industry programme collaborating the entire ecosystem, including the country's defence establishment. Pakistan could venture into exporting defence software and cybersecurity solutions and create its unique strength into a value proposition in the IT industry. As a case in point, the State of Israel had an export revenue from the defence industry of $8.3 billion in 2020, and 5% of it ($415 million) is attributed to information and cyber systems. The industries that would spend the most on cybersecurity are banking, financial services and insurance (BFSI), telecom, government, defence, health, retail, manufacturing, energy and utilities. These industries are dominant in Pakistan and the expertise and experiences servicing them should be considered for export.

10.– See https://www.accenture.com/us-en/insights/cloud/ascend-to-cloud?c=acn_glb_brandexpressionbbc_11635519&n=otc_1020.

11.– Source: http://www.bbc.com/storyworks/future/a-better-tomorrow/the-role-of-cloud-for-companies-in-a-post-covid-19-world/.

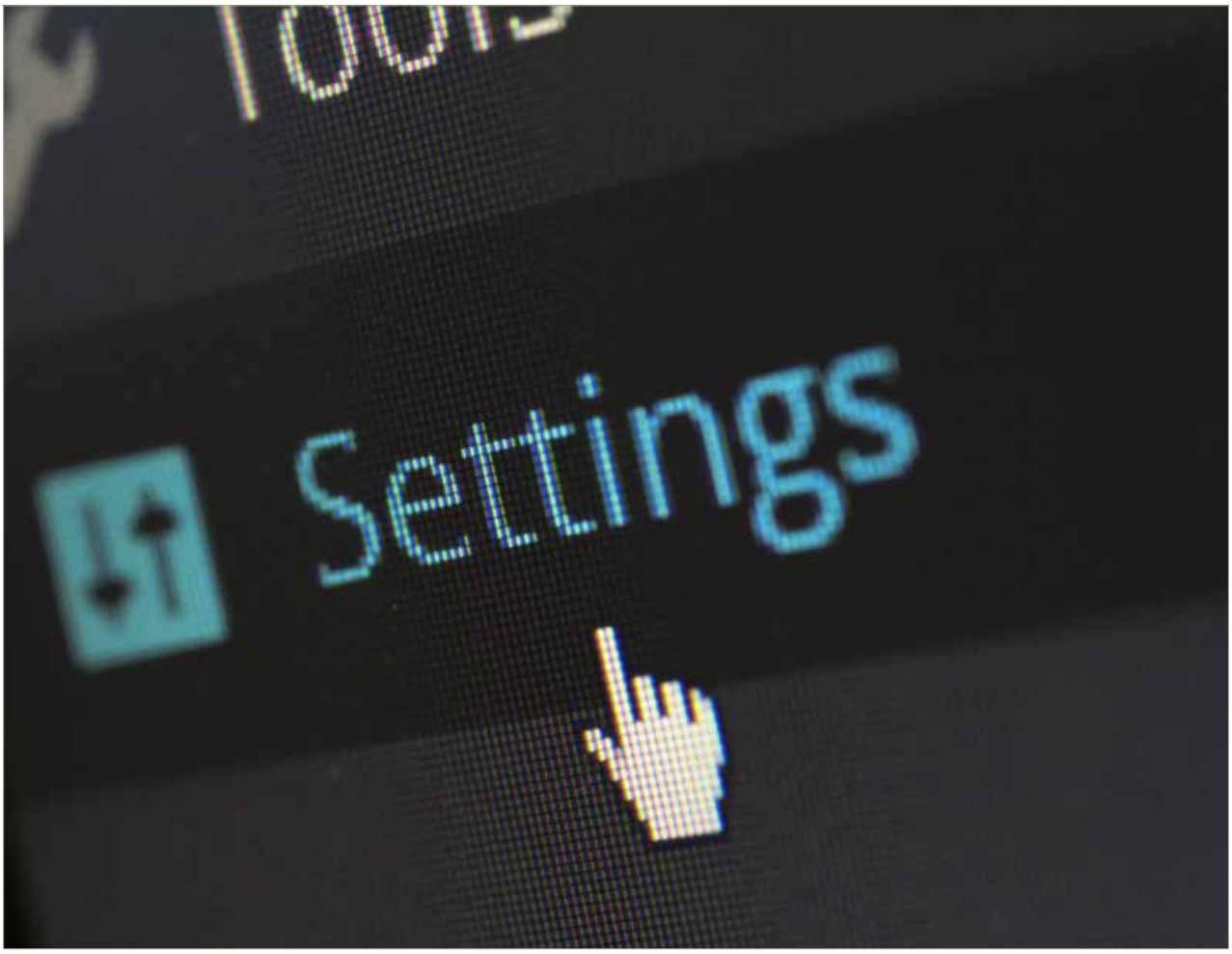


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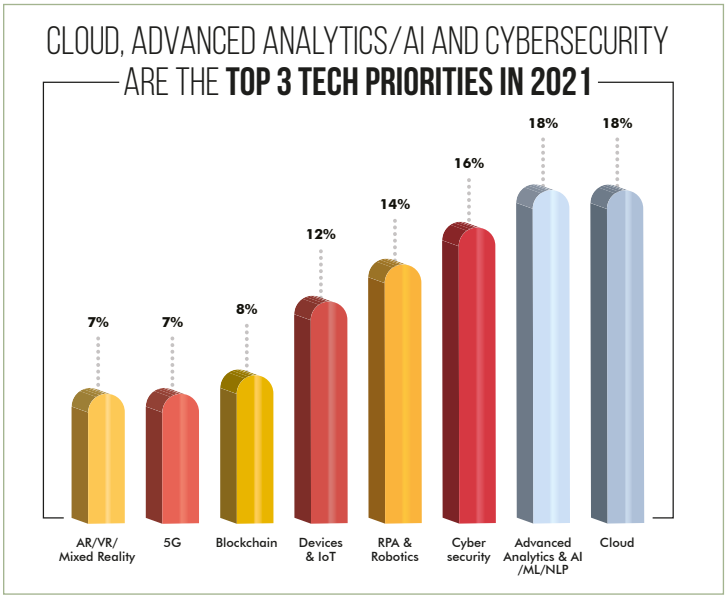
Figure 20: Top technology priorities globally dominated by cloud, advanced analytics and cybersecurity

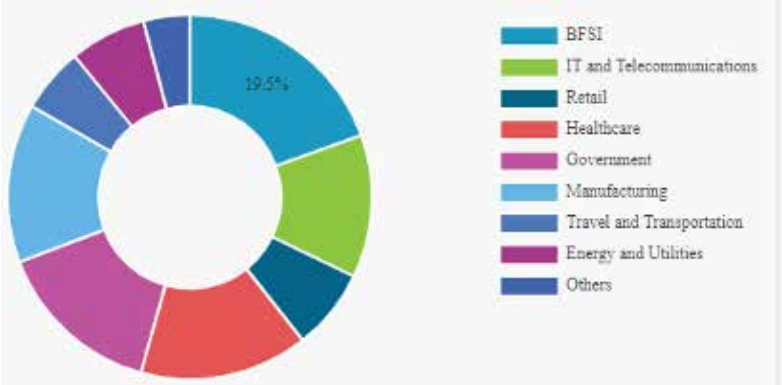


Source: NASSCOM CEO Survey 2021.

Box 4: Cybersecurity spending booms in the pandemic era

It is reported that, in February to May 2020, there were more than 500,000 people globally whose personal data was compromised using video conferencing (Deloitte, n.d). Since working from home became the norm, 47% of individuals become victims of phishing scams. As per the Fortune Business Insights report[1] in March 2021, the cybersecurity market in 2020 was $153 billion (of which North America spent $61.93 billion) and was $165.78 billion in 2021, and is projected to grow at a 12% CAGR to $366 billion in 2028. Banking, financial services and insurance (BFSI), IT and telecommunications, retail, healthcare, government, manufacturing, energy and utility are expected to drive the market growth in way of spending in cybersecurity (see Figure 21).

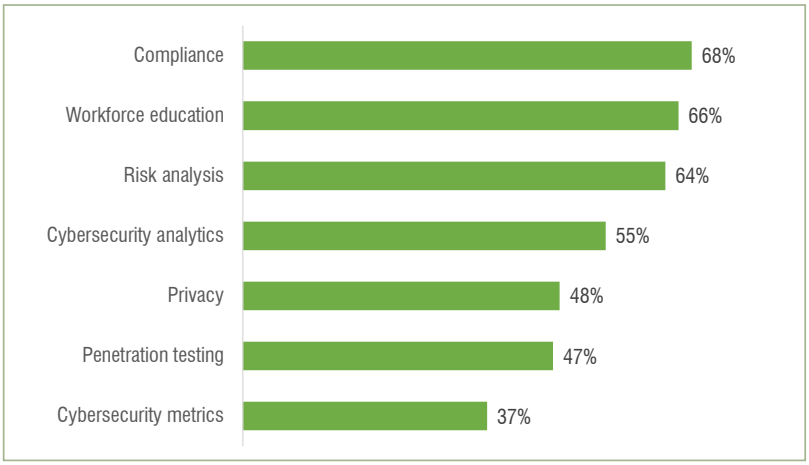
Figure 21: Global cybersecurity market share, by industry (2020)



Source: Fortune Business Insight.

Focus on cybersecurity has indeed leapfrogged, and investments increased in 2020–21. Remote workforce became the norm during the pandemic and many organizations have transitioned into partial or permanent remote working policies. With this has come the need for compliance with organizational policies and swift introduction of standard operating procedures, resulting in time and resources spent on workforce education. This trend is fuelled by the regulations from organizational human resources departments and IT services trying to bring in policies and procedures to safeguard company interests from non-compliant activities that could make data and environments vulnerable from employee breeches within and cyberattacks from outside. Risk analysis, cybersecurity analytics and penetration testing are all areas that are forecast to see more investment in the coming years (Figure 22).

Figure 22: Key investments and focus areas in cybersecurity



Source: CompTIA's Industry Outlook, 2021.

1.– Source: https://www.fortunebusinessinsights.com/industry-reports/cyber-security-market-101165.

Advanced analytics and AI

The use of cognitive analytics/artificial intelligence (AI) systems is set to accelerate, with the expectation that it will be considered mainstream in the next 5–10 years. It will change the way individuals interact with data and systems and the way businesses are run. Large enterprises globally are using advanced analytics for forecasting, data mining, machine learning, learning patterns, semantic analysis, sentiment analysis and simulation, etc. Leading enterprise solutions have included advanced analytics into their mainstream products such as supply chain solutions, customer relationship management (CRM) and human resources (HR), to name a few. Existing trends have been somewhat disrupted due to COVID-19 and historical data that reflects past conditions is quickly becoming obsolete. Consequently, there is now a shift from 'big data' to 'small and wide data', with Gartner predicting that, by 2025, 70% of organizations will make this shift, providing more context for analytics and making AI less 'data hungry'. Services for analytics and data gathered through AI could be a novel offering by Pakistan software houses. Software houses could start using the AI/machine learning technologies to gather information on consumer and organizational demographics, behaviour, sentiments and predictions, etc. and provide the data as a service and/or analytics as a service (data as a service and analytics as a service).

Required investments and skills

Investing resources in network expertise, cloud computing, server administration, storage (data centres) and mobile device management should be given priority to win in the cloud market. Further, help desk and support services should focus on more complex problem-solving services than just first-level services. Human resources need to be oriented towards new skills in cybersecurity, data analytics and AI as well as in higher-order skills (such as competencies for problem-solving rather than mere transactional-level engagement). Additionally, investing in creating a robust talent pipeline in these new industries and technologies will be essential, and the strategy's PoA includes some activities specifically for this purpose.

In summary, Orientation 2 would have the following implications for the strategy:

- Investments: Attracting FDI that will support Pakistan's entry into these new industries and technologies (see Activity 4.1.1 in PoA); investments that build internal capabilities for innovation, improving quality and product upgrading to latch on to emerging technologies and industries (see Activities 4.2.3 and 4.2.4 in PoA).
- Institutional: Updating IP protection, data privacy and other laws that make Pakistan attractive to these new industries that will be increasingly more discerning of issues like cybersecurity and product IP (see Activities 4.2.1 and 4.2.2).
- Skills: Building up the overall talent pool and the specialized technical skilled workforce that is better suited to these new technology trends, as well as to enhance delivery excellence (see Activities 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5 and 2.2.2 in PoA); strengthening internal product portfolios aligned to the growing technologies and industries discussed above (see Activity 1.2.4 in the PoA).

ORIENTATION 3: FOCUS ON KEY TRANSFORMATION AREAS FOR THE SECTOR

This orientation is about focusing on three key transformation areas for the sector, namely user experience, enhancing women's participation in the sector, and building up international giants and IP-driven growth.

Focus and strategies

Focus on user experience and quality

Companies and governments have started using customer experience and user experience to make a difference and to have a competitive advantage. With the explosion of the mobile and apps culture, this trend has become prevalent. Longer cycles of development, including multiple testing and quality checks, is changing into a more agile and dynamic develop, release

and load frequent patches/fixes approach. According to global forecasts, 62% and 60% of investments in IT are expected to be in user experience and quality assurance respectively in the coming years (CompTIA Industry Outlook 2021). Pakistani software firms that focus on improving the user experience of software solutions and are known for high quality in both products and service delivery will be successful in international markets.

Focus on women's participation

According to available data, there is less than 15% female participation in the IT workforce (much lower than India's 35%, Brazil's 40% and the Philippines' 60%), despite nearly 60% female participation in IT education. A safe working environment, reducing mobility restrictions and combating traditional gender roles is needed to narrow this disparity. With the adoption of 'work from anywhere', some constraints (like work environments and mobility restrictions) would increasingly not be constraints anymore. Having laid out policies for recruitment encouraging women to join the IT workforce among the leading IT firms would set precedence for others to follow. Industry association initiatives like P@SHA's Diversity and Inclusion Framework is an excellent start. The government and the IT industry should bring about favourable labour policy frameworks and encourage organizations to recruit more women into the IT labour force.

Focus on building up giants and IP creation

The industry needs to make 10 of the large IT BPM companies become global leaders and have them recognized like India's large software houses, such as TATA Consultancy Services (TCS), Infosys and Tech Mahindra, etc. When the large become transnational, the midsized companies eventually become large, and the small become medium and up the ladder. FDI can help in this upgrading via joint ventures and value chain funding, etc. The recent joint venture between Samsung and Lucky Group to manufacture Samsung mobile devices needs to be marketed to showcase Pakistan's capabilities and to lure other multinational corporations in the technology sector, specifically in software. Pakistan needs to attract FDI to help domestic firms grow, and look at IP creation for locally developed products and offer these on a software as a service (SaaS) basis, which is becoming the default choice globally. Nationally, the government can support increasing scale and also encourage entry into new technologies by better enabling the private sector to participate actively and fairly in new government digitalization programmes that enable experimentation, which can then be scaled up to offer international commercial offerings. Leveraging public investment for advancing private sector development of new technologies is a popular strategy among many global IT hubs.

Focus on improving advanced technical capabilities in emerging technologies

Technologies currently seen as emerging, such as IoT, AI, robotic process automation, autonomous vehicles, mixed reality (virtual reality and augmented reality), 5G, digital twins and voice interfaces, etc., would be adapted to the mainstream in a year or two as the pace of digital adaptation and transformation quickens. While the industry has grown thus far with base level education and trained workers, advanced technical skills are needed in order to latch on to these emerging technologies and be able to be a strong global player. These advanced skills are primarily developed at tertiary level, particularly through university education that rewards research and post-doctoral work. To build a solid cohort of young people in these new technologies, there needs to be a sound knowledge and research base. A targeted effort to build up domestic academic talent along with welcoming international (including Pakistani diaspora) talent will be required. Internal investments by firms – by allocating teams and funding pools – to explore and experiment on these technologies can also help generate new ideas and seek new profitability while not risking core growth and revenues.

Required investments and skills

For the above focus transformation areas, investments will be needed at both firm and national levels. At the firm level, investing in better workforce and human resources frameworks that encourage and reward quality and service excellence and encourage greater female participation and retention will be needed. At the national level, too, better labour market frameworks that not only build the pipeline of women with IT education, but also ensure conversion into software sector employment and lowers attrition. Meanwhile, for building up giants and moving to IP-led growth, firm-level investments in scaling their business, aggressively promoting in key growth markets, investing in skills for international expansion and new product development will be important. National-level initiatives that support and incentivize this trajectory – by way of matching grants, targeted and time-bound schemes, and non-collateralized financing tools to help de-risk global expansion – would help firms accelerate this shift.

In summary, Orientation 3 would have the following implications for the strategy:

- Investments: Attracting FDI that will grow the scale of domestic firms (see Activity 4.1.1 in PoA); investments that build internal capabilities for innovation, improving quality and product upgrading to latch on to emerging technologies and industries (see Activities 4.2.3 and 4.2.4 in PoA).
- Institutional: Updating IP protection frameworks and encouraging greater IP-led growth for domestic firms (see Activity 4.2.1 in the PoA); introducing an incentives regime to encourage domestic firms to build product companies and scale globally (see Activity 4.2.3 in the PoA).
- Skills: Introducing training programmes to upgrade delivery capabilities towards better quality (see Activity 2.2.2 in the PoA); enhancing women's participation in the sector (see Activity 2.1.6 in the PoA); upgrading tertiary education capabilities in emerging technologies like AI, machine learning, big data and robotics, etc. (see Activity 2.1.5 in the PoA).

The strategic framework

THE VISION

Industry stakeholders deliberated at length in crafting a vision for the sector's five-year strategy, considering key strategic orientations and transformation areas identified. Key words were identified, and several permutations of a vision statement were developed and discussed. A word cloud that visualizes the key words introduced by them is provided in Figure 23.

Figure 23: Word cloud of key vision areas

The following statement was selected and delineates this strategy's proposed vision and strategic approach to develop the software exports sector.

> **"To be the leading export sector in the country, and make Pakistan a preferred destination for global IT products and services and the preferred profession for youth."**

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Some key parts of this statement that are compelling are:

- The vision of becoming the leading export sector, which provides a strong signal to the private sector on the goal being chased and a signal to the public sector on the industry's ambition and focus;
- The vision to make Pakistan a preferred global destination, which is important to signal for exports as well as foreign investment;
- The mention of products (not only services) signals the desire to move up the value ladder and become more IP-generating;
- The mention of the preferred profession for youth is a strong signal on the goal of creating more good jobs to meet rising youth aspirations.

THE STRATEGIC OBJECTIVES

The PoA will respond to this vision by addressing the sector's constraints and leveraging opportunities in a comprehensive manner. The PoA will be structured around the following strategic objectives, agreed on by sector stakeholders.

Strategic Objective 1: Strengthen Pakistan's software sector's global market positioning and international competitiveness	• Develop a compelling brand for Pakistan IT to strengthen international positioning, and to accelerate export firms' market diversification and commercial success abroad.
Strategic Objective 2: Improve talent availability for growth and competitiveness	• Expand the talent pipeline with an eye on inclusiveness, while also improving firm-level managerial and technical competencies to drive competitiveness and quality.
Strategic Objective 3: Improve business climate for software firms to compete and grow	• Improve tax frameworks and streamline compliance complexities, and improve access to capital for software firms.
Strategic Objective 4: Strengthen innovation and upgrading in the software sector	• Encourage new investment in the sector (including fostering start-ups) and improve the enabling framework to drive product-led innovation.

IMPLEMENTATION FRAMEWORK

The objective of the Software Development Export Strategy for Pakistan is to create an enabling environment for the industry to realize its potential and benefit the country. Achieving this ambitious objective will depend on the industry's ability to implement the activities defined in this strategy. To structure sector development, it is recommended that the following interventions be implemented with priority:

- Improve and increase the pipeline or talent;
- Resolve, on an ongoing basis, tax and other regulatory issues;
- Strengthen international exposure, branding and export market entry;
- Foster a conducive climate for product development, innovation and start-up entrepreneurship.

MANAGING FOR RESULTS

The translation of priorities into implementable projects will contribute to achieving the substantial increase in export competitiveness and export earnings envisaged under the strategy. These will be driven by reforming the regulatory framework, optimizing institutional support to exporters and strengthening private sector capacities to respond to market opportunities and challenges. Allocation of human, financial and technical resources is required to efficiently coordinate, implement and monitor overall implementation.

Successful execution of activities will depend on stakeholders' abilities to plan and coordinate actions in a tactical manner. Diverse activities must be synchronized across public and private sector institutions to create sustainable results, and it is therefore necessary to foster an adequate environment and create an appropriate framework for the strategy's successful implementation.

Key to achieving the targets will be coordination of activities, monitoring progress and mobilizing resources for implementation. To that effect, industry representatives recommended that a public–private sector specific council for the software export sector be rapidly established, operationalized and empowered.

The sector specific council will be responsible for overall coordination, provision of policy guidance and the monitoring of industry development along the strategic orientation.

SOFTWARE SECTOR SPECIFIC COUNCIL

It is recommended that a software sector specific council be rapidly established by the MoC and effectively organized by the TDAP and MoC to support the industry with the capacity to steer its development strategically. The sector specific council will be facilitated by a secretariat coordinated by the TDAP, supported and advised by P@SHA.

Industry representatives recommend that the sector specific council be composed of the following members:

- Ministry of Commerce;
- Trade Development Authority of Pakistan;
- Ministry of Information Technology and Telecommunication;
- Pakistan Software Export Board;
- Ministry of Federal Education and Professional Training;
- Small and Medium Enterprises Development Authority (SMEDA);
- Federal Board of Revenue;
- Securities and Exchange Commission of Pakistan;
- Board of Investment;
- P@SHA;
- University of Engineering and Technology, Lahore.

It is recommended that the sector specific council be empowered to meet quarterly and to implement the following functions:

- Create a shared understanding of key market challenges and opportunities facing the sector;
- Set goals and targets that, if achieved, will strengthen the sector's competitive position and enhance Pakistan's overall capacity to meet markets' changing demands;

- Propose key policy changes to be undertaken and promote these policy changes among national decision makers;
- Support the coordination, implementation and monitoring of activities in the sector by the government, private sector, institutions or international organizations to ensure alignment to goals and targets, as required to contribute to resource identification and alignment.

KEY SUCCESS FACTORS FOR EFFECTIVE IMPLEMENTATION

During stakeholder consultations, several participants reiterated the need to focus on implementation to ensure the strategy's success. Some of the comments are mentioned below.

'Stakeholders need to identify who will do what when a final plan of action has been decided on. Without laying out clear roles and responsibilities, we might not get anywhere. All sectors will need to work together.'

'While the strategy is comprehensive and looks good so far, the outcome can only be determined as long as the stakeholders and their responsibilities are clearly defined.'

'One cannot rely on a single institution or the government alone. The tasks need to be clear, and everyone's role needs to be assigned and cross-checked so it can be seen through. The industry needs support, the government is willing to provide it and, if assembled, applied and monitored properly, it will set us on the right track and enable the industry to achieve its true potential.'

'It is imperative that [the strategy] lay great stress on meeting the timeline set for the laid-out goals. Delays due to procedural issues and communication pipelines tend to make things less effective and are a hindrance to implementation of rectifying measures.'

'It is imperative that stakeholders from both government and the private sector are involved in [the] plan of action, because the implementation would require equal effort from both sides.'

The presence of the sector specific council to oversee the strategy's implementation is a key success factor, but it is not sufficient to effectively fulfil its assigned functions.

Private sector support and participation in implementation

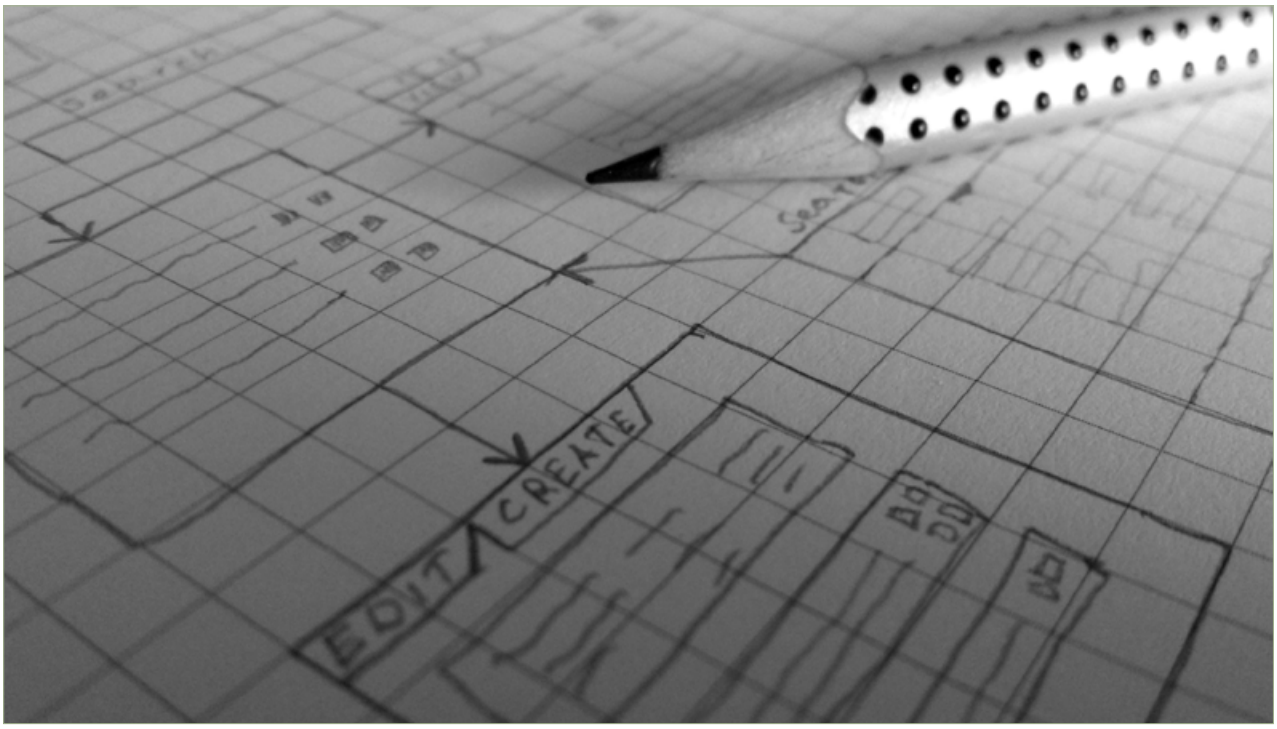
The private sector clearly expressed its willingness to contribute, directly or in partnership with public institutions, to the strategy's implementation. Their implementation efforts can range from providing business intelligence to institutions to contributing to project design, promotion and branding, and policy advocacy, etc. In brief, the private sector's practical knowledge of business operations is essential to ensuring that the strategy remains aligned to market trends and opportunities.

Proactive networking and communication

The key implementing institutions detailed in the PoA need to be informed of the strategy's content and the implications for their 2022–26 programming. This networking and communication is essential to build further ownership and provide institutions with the opportunity to confirm the activities they can implement in the short to long term. It will be important for the TDAP, MoC and members of the sector specific council to reach out to relevant institutions nationally to create awareness and support for the development of the software services industry.

Resources for implementation

The sector specific council, in collaboration with the TDAP and the Secretariat at MoC, will need to leverage additional support for efficient implementation. Effective planning and resource mobilization is



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indispensable in supporting strategy implementation. Resource mobilization should be carefully planned and organized.

As the software export industry is a priority sector strategy of the STPF, the Government of Pakistan should define annual budget allocations and support to drive the industry's growth. This commitment will demonstrate clear engagement towards strengthening the sector and encourage private partners to support development. In addition to national budget support, resource identification will require the Board of Investment to effectively target foreign investors in line with the strategy's priorities. Investment flows to Pakistan should also be considered as a valuable driver of strategy implementation and overall industry development.

The various implementation modalities detailed will determine the success of the strategy's implementation. However, high-level support from the government, in collaboration with strong championship by the private sector, will be the real driver of successful strategy implementation.

To achieve the vision and strategic objectives discussed, a robust, actionable and realistic strategic plan of action (PoA) is required. This is provided in the section below, and constitutes the heart of this strategy.

The PoA is structured along the four strategic objectives and the operational objectives described above. For each objective, the PoA outlines detailed activities and their implementation modalities, which include:

- **Priority level:** Priority 1 being the highest and 3 the lowest.
- **Period:** The desired time-frame of the activity.
- **Reform or project:** Defines whether the activity entails a legal action.
- **Targets:** Quantifiable targets that allow completion monitoring of the activity during the implementation stage.
- **Leading implementing partners:** One single accountable lead institution per activity. (The institution can also have a technical role or can solely have an oversight and coordination role.)
- **Supporting implementing partners:** Any institution that should be involved at any stage of the activity's implementation.

PLAN OF ACTION (2023-2027)

Strategic objective	Operational objective	Activity	Priority (1=highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2026	2027				
1. Strengthen Pakistan's software sector's global market positioning and international competitiveness	1.1 Develop and promote a credible and persuasive brand positioning for Pakistani software IT exports	1.1.1. Develop a 'Pakistani IT' unique and credible brand positioning jointly among the industry association and the PSEB/TDAP through a series of industry consultations with expert facilitation, alongside global trends and competitive pressures.	2						Project	• Sector country brand developed through consultative process	PSEB	• TDAP • P@SHA
		1.1.2. Develop media collateral and launch publicity campaign to promote the brand and develop marketing materials (featuring Pakistan's software capabilities, sector development initiatives and incentives, and top business profiles/case studies of success), and branding guidelines based on the above identified brand positioning, to be used for all domestic and international industry events.	1						Reform	• Media collateral developed • Brand guidelines developed	MoITT	• PSEB • TDAP • MoC
		1.1.3 Train Pakistan's commercial counsellors in diplomatic missions abroad on the new brand positioning, conduct information sessions and identify priority countries on which to work.	2						Project	• 10 overseas missions trained • Pakistani software exporters report improved support from commercial counsellors	Pakistan Institute of Trade & Development (PITAD)	• MoITT • PSEB • P@SHA • TDAP
		1.1.4. Identify and participate in the most relevant IT sector international fairs and business-to-business opportunities (initially virtually).	1						Project	• 5 trade fairs attended • 50 business-to-business matchmaking opportunities pursued	TDAP	• P@SHA • PSEB
	1.2. Accelerate market diversification and improve commercial success in new markets	1.2.1. Conduct detailed analysis on high-potential and high-priority markets and drive awareness among software firms to focus their business development efforts.	1						Project	• Analysis completed and publicized • 60% of existing software firms have used the analysis to target their business development efforts	PSEB	• P@SHA • TDAP
		1.2.2. Develop detailed market entry plan for the MENA region, including specific approach on how to break into identified specific markets, regulatory conditions, listing of potential partners and holding business-to-business matchmaking, etc.	1						Project	• MENA market entry plan developed • At least 20 firms have won MENA region business	MoC	• PSEB • TDAP • Trade missions • P@SHA

Strategic objective	Operational objective	Activity	Priority (1=highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2026	2027				
1. Strengthen Pakistan's software sector's global market positioning and international competitiveness	1.2. Accelerate market diversification and improve commercial success in new markets	1.2.3. Develop detailed market entry plan for the Asia–Pacific region, including a specific approach on how to break into identified specific markets, regulatory conditions, listing of potential partners and holding business-to-business matchmaking, etc.	2						Project	• Asia–Pacific market entry plan developed • At least 20 firms have won new Asia–Pacific region business	MoC	• PSEB • TDAP • P@SHA • Trade missions • MoITT
		1.2.4 Conduct capacity-building programme for firms to review and refine their product portfolio and internal go-to-market strategies for identified market opportunities (as per 1.2.1, 1.2.2 and 1.2.3).	2						Project	• Capacity-building programme developed and implemented • At least 60% of firms report refinements to product portfolio and/or improved go-to-market abilities	PSEB	• P@SHA
		1.2.5 Improve capabilities in key government agencies (e.g. the TDAP and PSEB) through a series of briefing programmes from the industry to promote the software sector (including in understanding market segments/definitions and gathering data/insights on them, conducting and providing market intelligence to the sector, how to identify and support forging business-to-business linkages and other partners for sector growth, in collaboration with sector association).	3						Project/reform	• At least two rounds of government agency capability improvement programmes conducted • At least 50% of firms report improved relevance of services by relevant government agencies	PSEB	• TDAP
2. Improve talent availability for growth and competitiveness	2.1 Increase the talent pipeline for software firms and enhance inclusion	2.1.1. Expand provision of IT skills through existing tertiary institutions and IT vocational schools to introduce dedicated software sector-relevant programmes.	2						Project	• Tertiary institutions and vocational schools introduce new dedicated programmes for IT sector	Ministry of Federal Education and Professional Training	• MoITT • PSEB
		2.1.2 Introduce short-term conversion courses for tertiary graduates of other subjects to transition to the IT sector and obtain the required skills and become employable.	3						Project	• Short-term conversion programmes introduced • 3,000 students undergo programmes	Ministry of Federal Education and Professional Training	• MoITT • PSEB

Strategic objective	Operational objective	Activity	Priority (1=highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2026	2027				
2. Improve talent availability for growth and competitiveness	2.1 Increase the talent pipeline for software firms and enhance inclusion	2.1.3 Establish a programme to place university graduates into IT firms, including expansion of internships. Announce a '1,000 internship' programme and obtain commitment from at least 20 software firms to accommodate 10 interns a year and conduct outreach in the provinces to on-board candidates.	1						Project	• Sector-specific internship programme established • At least 20 firms accommodate at least 10 interns annually • At least 30% of inductees are from non-typical cities/towns	MoITT	• PSEB • Ministry of Federal Education and Professional Training
		2.1.4 Conduct and publicize a skills survey on emerging skill requirements of software firms in order to reduce skills mismatch, inform youth education choices and influence tertiary institutions' curriculum, and provide continual industry guidance/input on the curriculum to ensure industry relevance and employability.	2						Project	• Emerging skills survey conducted and published • Survey publicized in traditional and social media, and presented to 80% of tertiary institutions	MoITT	• PSEB • P@SHA
		2.1.5 Engage selected suitable tertiary education institutions to introduce new courses aimed at building the talent pool for emerging technology opportunities (e.g. in AI, machine learning, big data, cybersecurity, robotics and IoT, etc.	3						Project	• At least 50% of tertiary institutions engaged introduce new courses in emerging skill areas	MoITT	• PSEB • P@SHA • Ministry of Federal Education and Professional Training
		2.1.6 Introduce a special programme to enhance women's participation in the software sector by spreading awareness of career opportunities in the sector, showcasing female role models in the sector, and improving internal systems to foster a female-friendly work environment. (Aligned to P@SHA's 'Diversity and Inclusion Framework' report.)	1						Project	• Women participation programme rolled out • Women employees in software firms increase by 25% • Share of women employees reporting improved work environment increase 30% from baseline	MoITT	• PSEB • P@SHA • Ministry of Federal Education and Professional Training • National Commission on Status of Women (NCSW) • Provincial departments for women development

Strategic objective	Operational objective	Activity	Priority (1=highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2026	2027				
2. Improve talent availability for growth and competitiveness	2.1 Increase the talent pipeline for software firms and enhance inclusion	2.1.7 Conduct provincial-level awareness-raising sessions for school-going youth on high-potential career opportunities in the software sector, so as to expand the pipeline of available talent at an early stage.	2						Project	• At least 20 provincial-level awareness-raising sessions held	MoITT	• PSEB • Ministry of Federal Education and Professional Training • Provincial education departments
	2.2 Improve internal skill capabilities for export business growth	2.2.1 Introduce/expand training to improve soft skills of employees in software firms (e.g. negotiation, communication and interpersonal skills), especially among the business development and prospecting, marketing and client engagement teams.	3						Project	• Soft skills training programmes rolled out yearly • At least 30% of employees in firms participated in soft skills training	PSEB	• P@SHA
		2.2.2 Introduce training programmes to upgrade project management capabilities (Scrum, the Information Technology Infrastructure Library and project management professional) in order to enhance productivity and quality of service delivery.	3						Project	• Project management training programmes rolled out yearly • Share of project management certified employees increase 30% from baseline	PSEB	• P@SHA
3. Improve business climate for software firms to compete and grow	3.1. Improve tax framework for software sector	3.1.1 Conduct periodic industry–government engagement sessions to reduce uncertainty/opacity of tax rules, resolve operational issues in tax compliance, address procedural inefficiencies, and build confidence and trust between tax authorities and the software industry. (A sub-working group under the Sector Specific Council and/or a dedicated Working Committee on Tax at P@SHA could be established)	1						Reform	• Two engagement sessions held per year • At least 70% of firms report improvement in tax compliance experience and procedural efficiency • At least 60% of firms report improved confidence in tax authorities	Federal Board of Revenue (FBR)	• P@SHA • MoITT • PSEB
		3.1.2 Review and reduce tax procedural complexities, especially for start-ups and SMEs in the software sector.	1						Reform	• Required reforms passed • Start-ups and SMEs reporting complex and cumbersome tax procedures decline by 30% against baseline	Federal Board of Revenue (FBR)	• P@SHA • MoITT • PSEB

Strategic objective	Operational objective	Activity	Priority (1=highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2026	2027				
3. Improve business climate for software firms to compete and grow	3.2. Improve access to capital for software firms	3.2.1 Introduce project financing windows (including government refinancing facilities) for software firms to enable international market expansion.	1						Project	• Dedicated project financing window introduced • At least 60% of software firms seeking project finance for international expansion activities receive it	State Bank of Pakistan (SBP)	• PSEB • P@SHA
		3.2.2 Federal financial sector authorities and banks to collectively identify and develop new loan products and lending modalities to suit software export business.	3						Project/reform	• New dedicated loan products and/or modalities introduced in at least three banks or non-bank financial institutions	Ministry of Finance and Revenue (MoFR)	• MoITT • PSEB • MoC • State Bank of Pakistan (SBP)
		3.2.3. Improve banks' internal credit scoring and credit appraisal of software businesses.	2						Reform	• At least three banks introduce credit scoring models suited to software businesses	State Bank of Pakistan (SBP)	• Ministry of Finance and Revenue (MoFR) • PSEB
4. Strengthen innovation and upgrading in the software sector	4.1. Encourage new investment in the sector and start-ups	4.1.1 Launch a time-bound investment promotion effort to attract FDI into the software sector, with focused attention on market segments that Pakistan desires upgrading into and building positioning in.	3						Project	• FDI into software sector increases by 30%by 2024 and by 50% by 2026	Board of Investment	• TDAP • PSEB
		4.1.2 Assess current ecosystem for software start-ups and introduce a time-bound and focused programme to address bottlenecks and launch a '1,000 start-ups' programme to boost new entrepreneurship in the sector from across the country.	3						Reform	• Ecosystem assessment conducted and at least 50% of identified bottlenecks resolved by 2023 and 80% by 2026 • 1,000 start-ups programme launched and 60% achieved by 2026	MoITT	• PSEB • P@SHA
		4.1.3 Introduce subsidized rent scheme for first six months in the new special technology zones to encourage start-ups and SME software firms (eligibility to be defined by relevant authority in consultation with the industry).	1						Project/reform	• Subsidized rent scheme introduced • Share of start-ups and smaller software firms reporting infrastructure as a constraint declines 25% against baseline	Special Technology Zones Authority Ordinance, 2020 (STZA)	• MoITT • PSEB

Strategic objective	Operational objective	Activity	Priority (1=highest)	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2023	2024	2025	2026	2027				
4. Strengthen innovation and upgrading in the software sector	4.2. Improve enabling framework for product-led innovation	4.2.1 Update intellectual property protection frameworks and their implementation to protect Pakistani software product innovation and encourage IP-led growth in the sector.	1						Reform	• Intellectual property protection framework updated to international standards	MoITT	• PSEB • Intellectual Property Owners Association (IPO)
		4.2.2 Align data protection, information security and privacy laws to global best practices to build trust in Pakistani IT as a brand and ensure that Pakistani software firms win and retain business from customers in countries that have increasingly tighter laws and heightened information security concerns.	1						Reform	• Relevant laws alignment completed • Share of international customers reporting increased trust and confidence in Pakistani IT data security and privacy increased 20%	MoITT	• PSEB
		4.2.3 Introduce a targeted export incentive scheme for software firms that build and sell (globally) IP-led software products (and move on from customized software service provision) to encourage moving up value chain.	2						Reform	• Export incentive scheme introduced • At least 10 firms generate more than 60% of export revenue from (IP-led) product exports	MoC	• TDAP • PSEB • MoITT
		4.2.4 In order to help build product portfolio and strengthen export potential, ensure that Pakistan software firms have equitable access to government IT projects by levelling the playing field with internal IT departments, and simplifying preconditions/enabling conditions in bids. Consider carving out certain projects (by types/size) exclusively for private sector players to foster innovation.	1						Reform	• Share of private software firms reporting better and fairer access to government projects (led by better bid conditions) improved by 20% • At least 30% of new government IT tenders granted to private players by 2024 and 50% by 2026	MoITT	• PSEB • MoC
		4.2.5 Establish collaboration with innovation ecosystems in friendly countries and connect Pakistan's tech ecosystem to accelerate product-led growth and innovation of Pakistani software start-ups and SMEs.	1						Project	• At least three international ecosystem collaborations forged	MoITT	• PSEB • P@SHA • Small and Medium Enterprises Development Authority (SMEDA)

ANNEXES

Annex I:
List of participants in the public-private consultations

Name	Designation	Organization
Jamil Ahmed	TDAP	Director Services
Adeel Ahmed	Systems	Manager
Farzana Noshab	Asian Development Bank	Senior economist
Imran Moinuddin	NexDegree Private Limited	CEO
Zaroon Farrukh	TPS Worldwide	Pre-sales consultant
Aamir Waheed	Securities & Exchange Commission of Pakistan (SECP)	Director
Zunair Minhas	Luminogics (SMC-PVT) LTD	CEO
Hira Zainab	P@SHA	Senior director – industry engagement
Yusra Gilani	AABBLL	Legal advisor/consultant
Abdul Rahim Ahmad	Securities & Exchange Commission of Pakistan (SECP)	Chief information officer
Halima Iqbal	Oraan Tech (Pvt) Ltd	CEO and founder
Roohi Khan	Systems Limited	Chief financial officer
Muhammad Shoaib	University of Engineering and Technology (UET), Lahore	Professor
Asif Raza	TDAP	Law officer
Awais Hassan	University of Engineering and Technology (UET), Lahore	Associate professor
Asif Peer	Systems Limited	CEO
Samar Hasan	Epiphany	CEO
Syed Ali Abbas Hasani	Pakistan Software Export Board	Director, operations and administration
Raza Matin	Brandverse Pvt Ltd	CEO and founder
Shahzad Shahid	TPS Worldwide	CEO
Shahid Ul Ghani	Sindh Revenue Board	Deputy commissioner, IT
Barkan Saeed	P@SHA	Chairman
Syed Ahmad	DPL (Pvt) Ltd	CEO
Rohail Nazir	TDAP	Assistant director
Syed Bilal Mahmood	Contour Software	Managing director
Saima Azhar	TDAP	Deputy director
Sumair Ahmad	Ministry of Commerce	Research associate

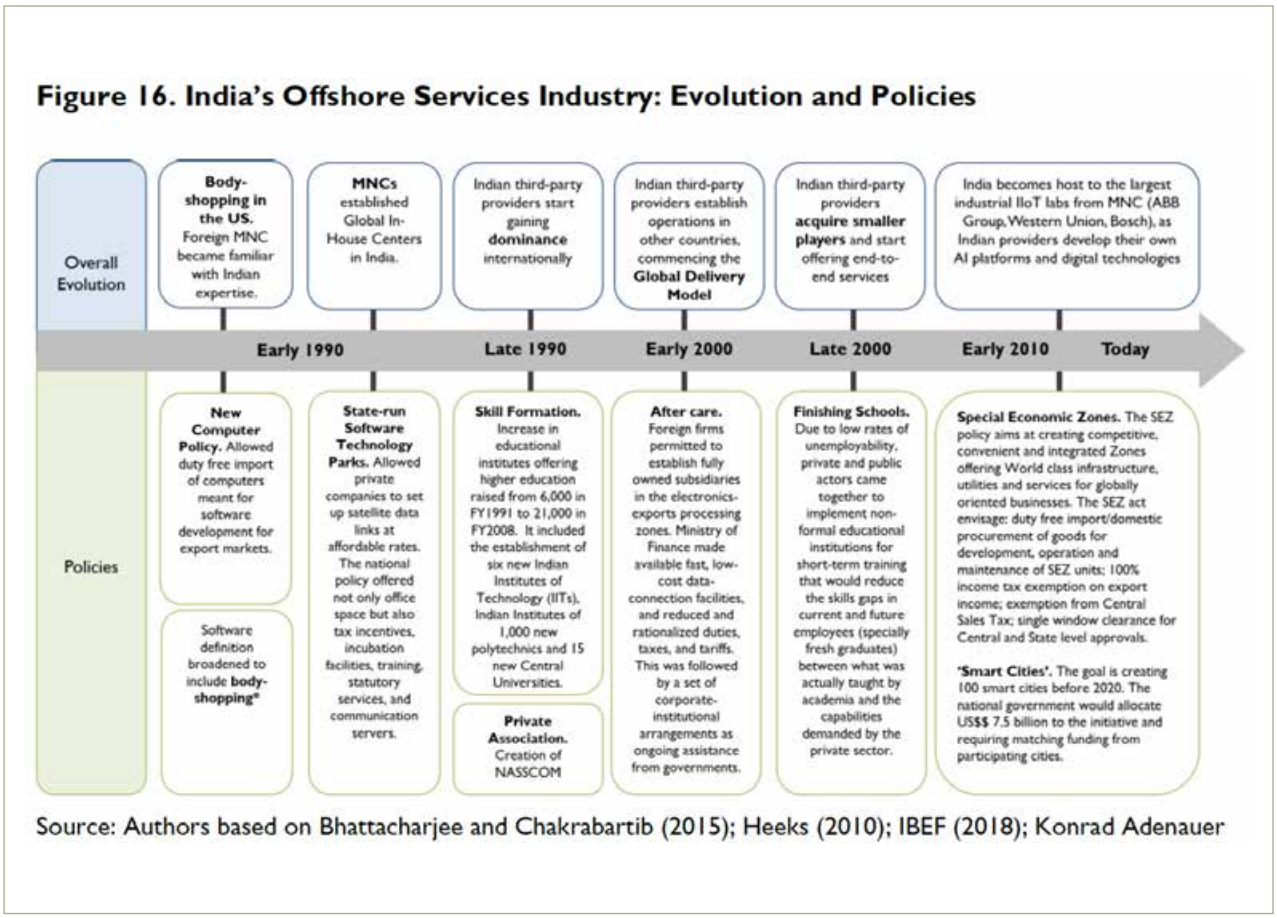
Annex II:
Country examples

LESSONS FROM A GLOBAL LEADER: INDIA

India is a leading global player, owning 55% share of the global IT services market. In 2017, offshore services totalled $116.8 billion, equivalent to 20% of foreign exchange reserves. IT services exports rose at a CAGR of almost 13% in 2009–17. BPO follows, accounting for 22.2% of exports. The Indian IT–BPO industry comprises more than 15,000 firms. While larger firms generally offer bundled end-to-end solutions that encompass the entire offshore services global value chain, small and emerging players excel in niche services/verticals (Bhattacharjee & Chakrabartib, 2015).

The IT–BPM industry in India started off as voiced-based call centres for telemarketing, which followed after sales support and non-voice-based data entry operations in the 1990s. The sector has now moved into department collection, equity and bond analysis, accounting, filing income taxes and clinical drug research, etc. Much of India's success can be attributed to the abundant supply of technically skilled professionals, extensive expenditure to resolve the Y2K problem, and the broadening and deepening of IT activities combined with greater emphasis on higher-value-added services in the financial and health care industries, among others.

Figure 1: India's offshore services industry, evolution and policies

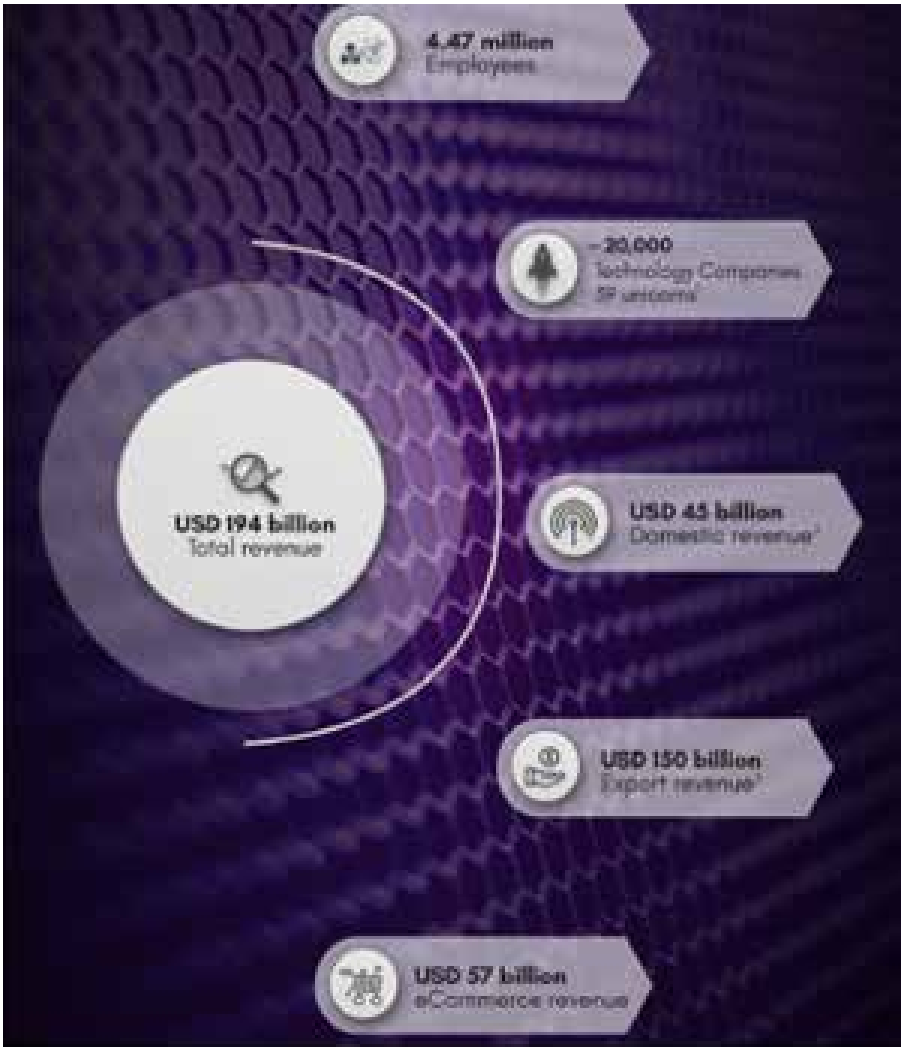


Source: Authors based on Bhattachrjee and Chakrabartib (2015); India Brand Equity Foundation (IBEF) (2018).

Having a large multinational corporation presence in the country has helped India to attract many global in-house centres and pushed others to invest in open captive centres in the country. Nearly half of the global captive centres are based in India, followed by other sourcing functions such as finance and accounting, human resources, procurement and live streaming BPO, etc with a dominant share. Operations in the sourcing industry are poised to scale up significantly compared to other players in the market.

India has now transformed and positioned its IT–BPO or earlier known 'call centre' industry to IT–BPM to thrive off the competition and add value to its offering. Asian regional peers such as the Philippines and the Socialist Republic of Viet Nam came into the fray and started carving off market share on the typical 'call centre agent' business with the language fluency and, most importantly, the relationship these countries had with the global leader in BPO, the United States. Adding to that, the cost arbitrage has been replaced by value addition. More than customer service, now consumers and companies are looking for user/customer experience, or in other words, total solutions. India changed its game from by offering knowledge process outsourcing (KPO) services such as accounting, legal, research and digital services, etc. This was beyond the typical 'call centre agent' services that were the hallmark of BPO business. India then transformed and positioned its outsourcing business as BPM, adding more value-added and specialized services such as managing entire business processes such as employee on-boarding, expense reporting, complete account management, invoice management, loan management and compliance management.

Figure 2: India's technology profile (2021)



Source: NASSCOM (2021).

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The IT and BPM industry's revenue was estimated at $194 billion in 2021, accounting for close to 8% of the country's GDP. Of this, nearly 77% revenue estimates are from the export of IT and BPM services. Moreover, 54% of IT and BPM export revenue is expected from IT services exports ($81 billion), while BPM is 23% and another 23% from engineering services and R&D of software products. The IT and BPM sector, with 4.47 million employees, is the largest private sector employer in India. In 2020 alone, there were more than 138,000 new recruits to the sector. India also has more than 12,500 tech start-ups and has established delivery centres in more than 80 countries with more than 1,000 units.

As per NASSCOM's report in December 2020, out of 4.47 million employees in the tech sector in India, 1.6 million (36%) are women, and 62% of large to medium-sized organizations have implemented programmes on diversification.

As per the Department of Promotion of Industry and Internal Trade, FDI for the IT–BPM sector was the second-highest ranked in 2020. The India Brand Equity Foundation (IBEF) notes that the computer and hardware sector attracted $69 billion in April to December 2020. According to IBEF (May 2021), in 2020, private equity investments in the sector were $7.5 billion, and IT–BPM led venture capital investments (380 deals in 2020), contributing 71% to the total deal count (IBEF, May 2021).

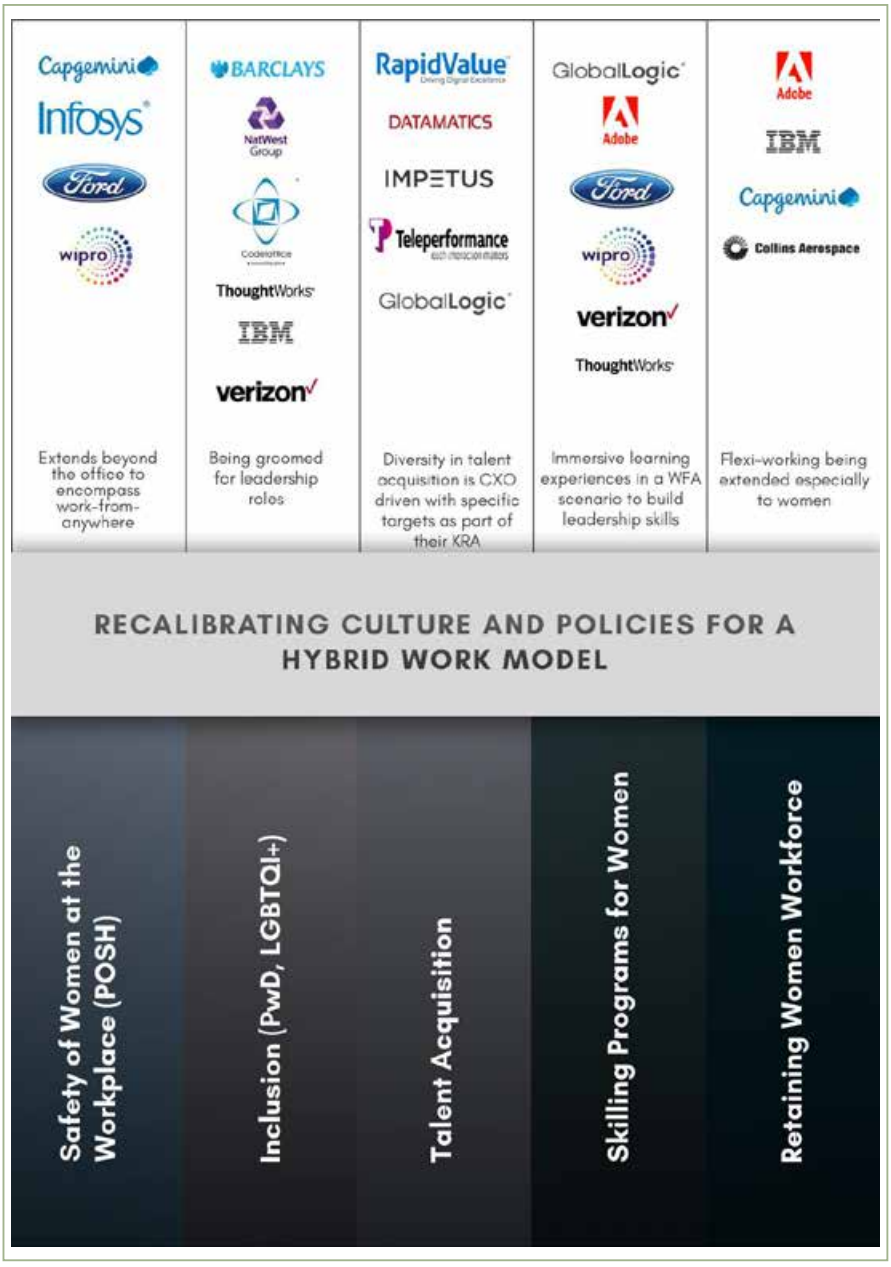
Fuelling its growth trajectory, Indian IT and BPM companies have expanded their operations to on shore and near shore, taking advantage of local regulatory frameworks and being close to its clients to serve better. Leading IT and BPM companies such as TATA Consultancy Services and Infosys are expanding headcount in the United States and Canada. As per NASSCOM's Tech Bytes monthly industry report in April 2021, the TCS is expanding its delivery centre presence in Montreal and Ohio, with plans to hire more than 500 employees (in the next three years) and 800 employees (by 2022), while Infosys plans to double its Canadian workforce to 4,000 employees by 2023. The TCS announced in February that they plan to recruit 1,500 in United Kingdom in the next year. Further, and quite uniquely, Infosys has an employee base of more than 2,000 working from the Philippines, taking advantage of the market and its reach and showing the strength of collaborative rather than competing mindsets. The operation commenced as early as 2007 and now houses several centres of excellence such as accounting, customer service and service desk.

On emerging technologies, Everest Group, on behalf of NASSCOM, reported that more than 400 start-ups are AI related. India is the leading country for robotic process automation development. Patent filing across emerging technologies is gaining pace in India according to a NASSCOM study. It is reported that more than 6,500 intellectual property patents were created in the United States by Indian companies in 2015-19. Already, India is driving towards making the country a global AI innovation hub. As per the *Economic Times* (18 June 2021), India ranks 8th in terms of AI patent filing and 4th in terms of AI research papers globally.

The cohesion of the industry, government and academia in India gives rise to the dominant IT–BPM sector. Having identified the role of an inclusive workforce to meet the growing demand, the organizations and regulatory framework adapt a well-rounded approach to keep the resources engaged.

Figure 3 shows some of the initiatives and programmes that inculcate a culture of inclusiveness and encouragement for women to join and expand in the IT–BPM industry. The figure presents the leading establishments that have adapted and executed these programmes, such as safety of women at the workplace, including persons with a disability and lesbian, gay, bisexual, transgender, queer and intersexed community (LGBTQI), talent acquisition, skilling programmes for women, and retaining a women's workforce.

Figure 3: Recalibrating culture and policies for a hybrid work model



Source: NASSCOM (March 2021). 'Rising Together: Diversity, Equity & Inclusion in a Changing World'.

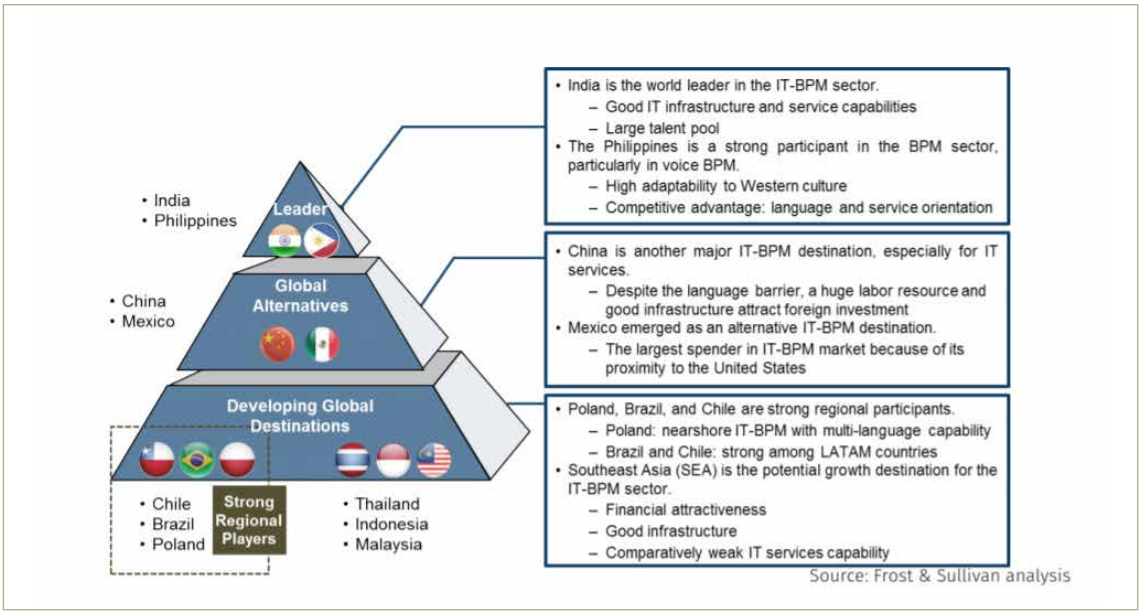
THE PHILIPPINES

According to the IT Business Process Association of the Philippines (IBPAP), the country overtook India in voice-based sourcing services in 2010. According to the Department of Information and Communications Technology, the IT–BPM sector contributed an export revenue of $26.7 billion in 2020, employing 1.32 million resources.

From 2010, the Philippine IT–BPM sourcing business remains in the leadership position along with India while having a larger market share in voice-based services due to the language fluency, soft skills and historic relationship with the United States. Currently, the country enjoys an 18% market share in the voice-based service market.[12] The workforce of full-time employees is projected to increase from 1.3 million in 2019 to 1.8 by 2022, a CAGR growth of 7.8%.

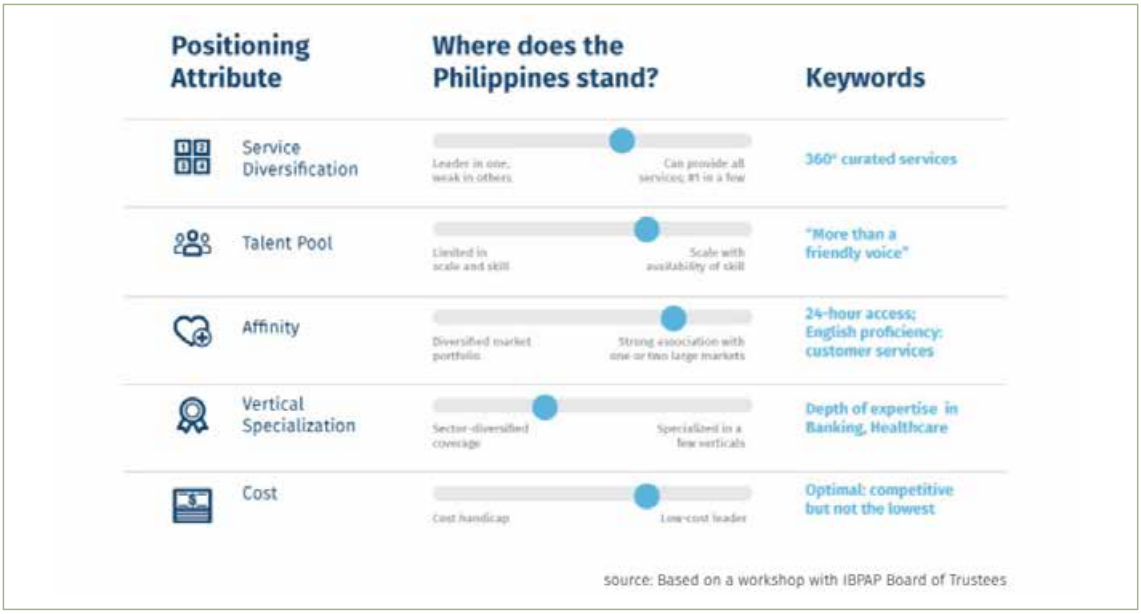
12.– Source : https://www.bworldonline.com/government-dropped-the-ball-in-the-it-bpm-industry/.

Figure 4: Competitive positioning of IT and BPM centres



Source: Frost & Sullivan analysis.

Figure 5: Assessment of the Philippine IT-BPM sector



Source: Based on a workshop with IBPAP Board of Trustees.

Figure 5 shows the strength of the language proficiency, tone of voice (friendly) and the cost leadership position. The country, however, is moving up from cost leader position to offer value servicing as more regional countries, for example Viet Nam and China, are entering the sphere with low-cost services.

Moving up the value chain, the Philippines identified the following offerings and services to grow in the six years starting in 2016.[13]

1. Contact centre and BPO subsector:
   - » Engineering services outsourcing (ESO), data analytics, performance management and legal process outsourcing (LPO).

2. Information technology services subsector:
   - » Application development management (ADM), system integration, automation enablement, IoT-enablement languages (e.g. Python programming).

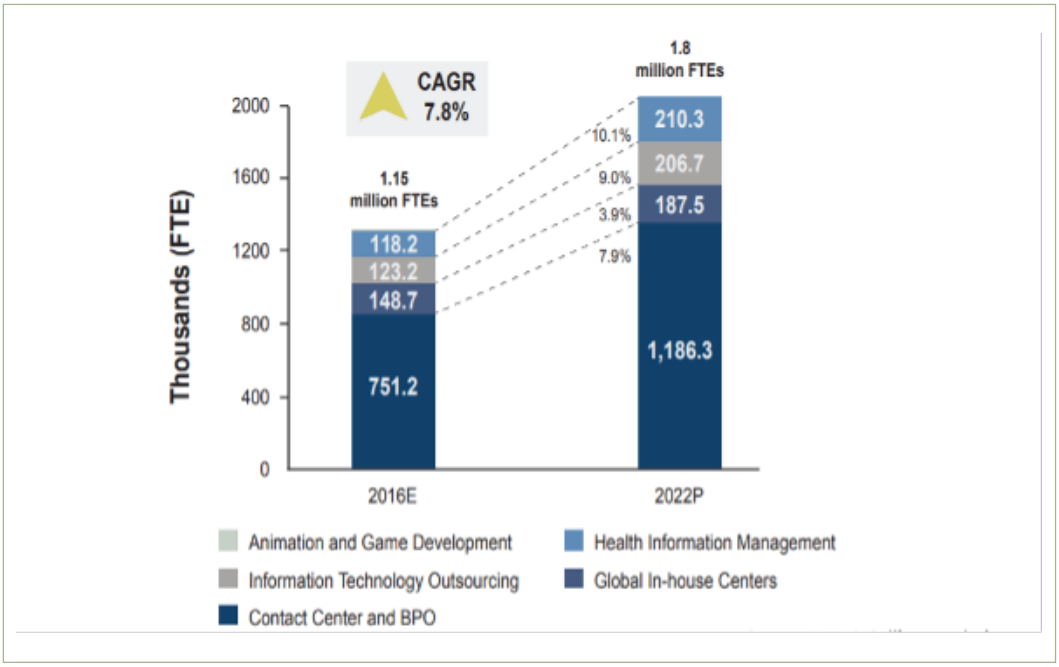
13.– Source: Roadmap 2022, The Philippine IT–BPM Sector, by IBPAP and Frost & Sullivan (2016).

3. Health information management subsector:
   - » Preventive health, remote healthcare management and provider services.

4. Animation and game development subsector:
   - » 3D animation, augmented and virtual reality (AR/VR) and gamification.

5. Global in-house centre subsector:
   - » Industry-specific services for telecom, healthcare, insurance and pharmaceuticals.

Figure 6: Current and projected headcount of the Philippine IT–BPM sector



Source: Philippine IT–BPM Roadmap, 2016.

Taking note of the changes in technologies, especially the threat of emerging tech such as robotic process automation, IoT and machine learning, to Philippine dominant voice-based services, the country plans to drive multiple programmes to compete and retain its leadership position in the sourcing business.

Following are a few of the high-impact programmes:

- Human capital: Interventions to expand, upgrade and attract the supply of fresh graduates and career shifters, as well as retain and develop the existing workforce.
- Inclusive growth: Interventions to create more diversified, nationwide growth of the IT–BPM sector and the improved capabilities of local government units to attract and sustain IT–BPM sector investments.
- Country competitiveness: Interventions to enhance international competitive positioning of the Philippine IT–BPM sector.
- Government support: Interventions to strengthen government–industry collaboration.
- SMEs and start-ups: Interventions to create a vibrant SME and start-up ecosystem contributing to the IT–BPM sector.
- Impact of technology: Interventions to enable increased adoption of technology with a view to drive the sector's productivity and competitiveness and ensure the development of a future-ready workforce.

VIET NAM

Oxford Business Group states that Viet Nam is still a boutique market when it comes to outsourcing and lags behind its regional peers such as India and the Philippines. However, Viet Nam overtook India to become Japan's second-largest software outsourcing partner after China, accounting for approximately 21% of the market. Viet Nam has 20,000 employees working for Japanese companies providing BPO services (Kearney, 2019).

Viet Nam has 55.5% of the population younger than 35 years (World Bank, 2021), a literacy rate of

98.5% and more than 60% of internet users and 55% smartphone users, having connected 99% of the provinces with 4G. It comes 47th out of 127 in the Global Innovation index (G11-2017) and was ranked 67th most competitive nation in the world out of 140 countries, by the World Economic Forum's Global Competitive Report in 2019. Hanoi and Ho Chi Minh City are among the Top 10 dynamic cities in the world according to the City Momentum Index. Gartner recognized Viet Nam as the 'Tier 1 Emerging Offshore Outsourcing Location in APAC' in 2015 and the KPMG stated its attractiveness as a destination for IT outsourcing service thanks to its young and highly trainable labour force, competitive cost structure and a stable business environment (2015).

Viet Nam's IT–BPM industry is relatively new, but is catching up fast. Though the sourcing services from Viet Nam don't cover end to end, as only a limited set of companies have more than 1,000 full-time employees and the majority of companies have less than 500 employees, they are able to provide application development and testing, customization, maintenance and support (Oxford Business Group, 2017).

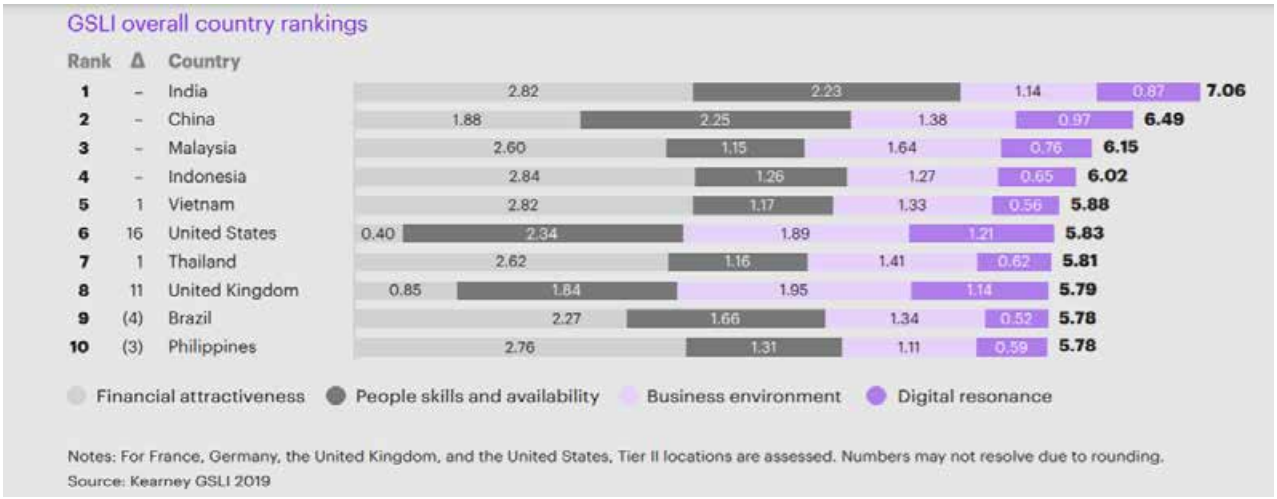
Viet Nam is rapidly moving up the ranks to position itself as an outsourcing destination in South-East Asia. Multiple initiatives and regulatory frameworks have been introduced to catch up market share. These include a 98% tariff reduction within the Association of Southeast Asian Nations (ASEAN) for cross-border trade and investment, infrastructure improvements driven by large multinational corporations setting up plants, adherence to international standards of doing business, and pledge and execute creating more business-friendly policies for foreign enterprises and investments. Outward-looking, market-oriented economic policies has seen an influx of private enterprises and foreign investment in recent times. The drivers have paved the way for Viet Nam to become a dominant player in the BPO industry along with following accolades.

- Ho Chi Minh City as a top outsourcing city for eight consecutive years (2009–16) by Tholons;
- Top-ranked pioneering location and cost environment for BPO services in BPO and Shared Service Location Index by Cushman & Wakefield;
- The next BPO giant according to Spotlight on Viet Nam by PricewaterhouseCoopers;
- Ranked 5th in Top 10 Global Locations for Offshore Services by Gartner in 2016;
- Ranked 5th in Global Services Location Index by Kearney in 2019);
- Ranked 67th Most Competitive Nation in the World by the World Economic Forum in 2019.

Source: Outsource Asia, September 2020.

Viet Nam entered the BPO market late when compared to other Asian countries, which jumped into the BPO services frenzy in the mid-1990s. However, it got attention and now is ranked as the 5th topmost outsourcing locations in the world (Figure 7).

Figure 7: Kearney Global Services Location Index 2019, Digital Resonance



Note: For France, Germany, the United Kingdom and the United States, Tier II locations are assessed. Numbers may not resolve due to rounding.
Source: Kearney's Global Services Location Index (GSLI), 2019.

Viet Nam has the following competitive sourcing factors:

- Strategic location: Gateway to East Asia and the Pacific.
- Integration into the global economy: Part of global trade agreements such as the implementation of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and ratification of the European Union-Vietnam Free Trade Agreement (EVFTA).
- Improving business regulations: Ranked 70th among 190 economies for Ease of Doing Business 2020.
- An emerging middle class with increasing purchasing power: Forecast to be among the Top 20 economies in the world by 2050.
- Young population with growing skill set: The median age is 32.5 years, which comprises 70% of all Vietnamese, while the emerging middle class, which comprises 13% of the population, has a literacy rate of more than 95% and more than 77% labour participation.
- Fast, stable economic growth: Export-oriented manufacturing and processing industry, robust domestic demand, rising FDI flow and high fintech investments.
- Competitive labour cost: Salary in 2020 was $132–$190 per month.

Source: Outsource Asia, September 2020.

To summarize, Viet Nam has convincingly taken over the cost leader position in BPO services using its political stability, literate younger population, connectivity, geopolitical relations, ease of doing business regulatory frameworks and geographic location for near shore and on shore services in the East Asia and Pacific market. In 2021, the industry was poised for a rapid growth trajectory alongside the forecast economic growth rate of 6.6% (World Bank, 2021).

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Annex III:
Detailed plan of action description

STRATEGIC OBJECTIVE 1: STRENGTHEN THE PAKISTANI SOFTWARE SECTOR'S GLOBAL MARKET POSITIONING AND INTERNATIONAL COMPETITIVENESS

Operational Objective 1.1: Develop and promote a credible and persuasive brand positioning for Pakistani software IT exports

1.1.1 Develop a 'Pakistan IT' unique and credible brand positioning jointly among the industry association and the PSEB and TDAP through a series of industry consultations with expert facilitation, alongside global trends and competitive pressures.

As Pakistan's software sector has been growing steadily, it is an opportune time to engage all stakeholders in a sector branding exercise, which not only signals internally –within Pakistan– as to the sector's ambitions and orientation, but also signals externally to potential partners as to the sector's readiness to compete for business. Developing a compelling proposition will require a combination of internal stakeholder discussions to home in on the unique elements that partners would find competitive, coupled with expert input from outside that helps sense check and refine, them. While the brand must primarily be articulated by the industry, as it must have strong commercial relevance, the exercise must have public sector input and ownership as well in order to ensure longevity and credibility.

1.1.2 Develop media collaterals and launch publicity campaign to promote the brand and develop marketing materials (featuring Pakistan's software capabilities, sector development initiatives and incentives, and top business profiles/case studies of success), and branding guidelines based on the above identified brand positioning, to be used for all domestic and international industry events.

According to the brand positioning developed, it is important to have strong media collaterals developed, which will be used by all industry stakeholders in their daily dealings with partners as well as in international expansion efforts (like trade fairs and business-to-business meetings). Government agencies (Ministry of Foreign Affairs, etc.) should use the media collaterals developed. All this is to ensure consistency in branding and grow recognizability among international partners. A mix of media outputs need to be developed – ranging from trade fair stall guidelines to case study and promotional videos, to logos free to use by all industry players in their communications, and an active virtual presence (website and social media).

1.1.3 Train Pakistan's commercial counsellors in overseas diplomatic missions on the new brand positioning, conduct information sessions and identify priority countries on which to work.

In order to leverage the extensive network of Pakistani diplomats in key focus countries, commercial counsellors would be trained in the sector's new orientation as per this strategy, the new sector branding developed and what it encompasses, as well as focus segments and markets that the industry wishes to target. When new diplomats are nominated, and prior to their taking up posting abroad, they should receive a briefing from the industry. As such, commercial counsellors would become much more adept at advocating for the sector's investment and business partnerships abroad, using credible and compelling materials and armed with the right facts and positioning. Such training can be conducted by the industry association, in partnership with the key trade and foreign affairs authorities.

1.1.4 Identify and participate in the most relevant IT sector international fairs and business-to-business opportunities (initially virtually)

Trade fairs will remain an important element in international business promotion of the industry, albeit a greater virtual presence during the pandemic. Government authorities involved in trade and investment promotion should partner with the private sector to identify the most relevant and useful fairs and business-to-business opportunities – especially those that match the new orientations set out in this strategy. They should also help meet the targeted growth objectives (e.g. in the new emerging technologies or in the new markets prioritized), and facilitate participation in them. A special focus on SME players in the industry is important to ensure that those otherwise unable to participate in such opportunities also get a fair chance. Government

schemes that subsidise or otherwise support such participation would be important in initial years, especially for SMEs.

Operational Objective 1.2: Accelerate market diversification and improve commercial success in new markets

1.2.1 Conduct detailed analysis on high-potential and high-priority markets and drive awareness among software firms to focus their business development efforts.

Although this strategy document has already suggested some priority markets (based on available analysis and stakeholder inputs), it is important to conduct more deep-dive analyses to identify specific potential and drive that awareness among the industry. Typically, this analysis would be done by organizations like the PSEB, in partnership with P@SHA, with support from external sources (including foreign missions). These analyses should inform the basis of firms' international expansion strategies and internal resource allocations. This would be particularly useful for SMEs in the sector, who have limited resources to undertake exploration, and can help ensure resource efficiency. In the five-year period of the strategy, ideally, the majority of firms in the sector would have used, or at least referenced, such detailed analysis in deciding their own international expansion and market exploration.

1.2.2 Develop detailed market entry plan for the MENA region, including specific approach on how to break into identified specific markets, regulatory conditions, listing of potential partners and holding business-to-business meetings, etc.

1.2.3 Develop detailed market entry plan for the Asia–Pacific region, including a specific approach on how to break into identified specific markets, regulatory conditions, listing of potential partners and holding business-to-business matchmaking, etc.

The two activities relating to detailed market entry plans for MENA and Asia–Pacific are indicative only, and could include other markets as well. Essentially, based on the deep-dive priority market and potential analysis conducted as per Activity 1.2.1, step-by-step market entry plans would be developed to guide firms looking to enter these regions and markets. Typically, such plans would include pre-competitive details like regulatory procedures, how to navigate entry and listing of potential partners, etc. The objective of such plans would be to de-risk as much as possible the new market entry efforts, and ensure maximum chances of success for firms.

1.2.4 Conduct capacity-building programme for firms to review and refine their product portfolio and internal go-to-market strategies to identified market opportunities (as per 1.2.1, 1.2.2 and 1.2.3).

Refining product portfolios and strengthening go-to-market strategies – especially to new markets – can often be done by a specialized skill. Some products may be relevant to some markets more than others, while some market entry strategies would be better suited to some markets more than others. Accordingly, this activity envisages providing capacity building to support firms to do that, delivered by experts as well as through peer learning. Once again, the purpose here is to de-risk as much as possible the new market entry efforts and ensure maximum chances of success for firms.

1.2.5 Improve capabilities in key government agencies (e.g. TDAP and PSEB) to promote the software sector (including in conducting and providing market intelligence to the sector, how to identify and support forging business-to-business linkages and other partners for sector growth, in collaboration with sector association).

While one-off market identification is done upfront, it is vital to build capabilities in the system to continually conduct such assessments in order to regularly provide the industry with guidance and updates on shifts in existing markets and trends in new ones. This market intelligence typically has 'public good' characteristics in that no individual firm may be willing to pay for it, and as such the leading government trade support institutions need to provide it.

IMPROVE TALENT AVAILABILITY FOR GROWTH AND COMPETITIVENESS

Operational Objective 2.1: Increase the talent pipeline for software firms and enhance inclusion

2.1.1 Expand provision of IT skills through existing tertiary institutions and IT vocational schools to introduce dedicated software sector-relevant programmes.

2.1.2 Introduce short-term conversion courses for tertiary graduates of other subjects to transition to the IT sector and obtain the required skills and become employable.

2.1.3 Establish a programme to place university graduates into IT firms, including expansion of internships. Announce a '1,000 internship' programme and obtain

commitment from at least 20 software firms to accommodate 10 interns a year and conduct outreach in the provinces to on-board candidates.

The purpose of the above three activities is to grow the talent pipeline available to support the sector's future growth ambitions. It is often the case that ambitious growth goals become constrained by the lack of available skills, and planning now and building up the capacities early can help avert a crisis later. IT tertiary education provision through all channels needs to be increased, while supplementing and complementing with vocational training as well as skills development. Especially for the industry's planned shift to higher-value-added business, simple skills development would not be sufficient, and a concerted effort to grow IT tertiary education numbers is vital. In order to address short – to medium-term constraints, introducing high-impact conversion courses for those who study other disciplines to enter the industry can be very useful. Meanwhile, introducing well-structured internship programmes can not only help provide an additional entry point for young graduates (with lower commitments from firms), but can also help bridge the employability gap.

2.1.4 Conduct and publicize a skills survey on emerging skill requirements of software firms in order to reduce skills mismatch, inform youth education choices and influence tertiary institutions' curriculum, and provide continual industry guidance/input on the curriculum to ensure industry relevance and employability.

It is important for the industry to signal to educational institutions as well as young job seekers as to the emerging skill requirements and demands in the IT sector. Accordingly, a popular tool is to conduct a skills survey generated by the industry and use that to spread wide awareness on the industry's needs. Additionally, to ensure continual alignment and realignment to industry needs, this skills survey needs to be conducted periodically and engage industry leaders in shaping IT curriculum in tertiary institutions.

2.1.5 Engage selected suitable tertiary education institutions to introduce new courses aimed at building the talent pool for emerging technology opportunities (e.g. in AI, machine learning, big data, cybersecurity, robotics, and IoT, etc.

As one of the industry's main medium-term objectives is to upgrade its product offering by latching on to emerging technologies (ref: Orientation 3 earlier), it is vital that the necessary skilled talent pool is developed. Unlike simple re-skilling or upskilling, working on emerging technologies requires core competencies taught in tertiary institutions, as well as proliferation of research and post-doctoral work. New courses in tertiary education institutions, built up with industry input and global expertise, will be vital. Public funding for new degree programmes and departments should also be considered.

2.1.6 Introduce a special programme to enhance women's participation in the software sector by spreading awareness of career opportunities in the sector, showcasing female role models in the sector and improving internal systems to foster a female-friendly work environment.

A key transformation area identified for the sector's sustainable growth is enhancing women's participation. This is unlikely to entirely happen organically, and needs support and incentives. This activity envisages embarking on a special and targeted programme – a multi-pronged approach – to not only spread awareness of entry points and career opportunities for women, but to also showcase female role models and improve internal human resources practices that favour women's participation. P@SHA's work on publishing a 'Diversity and Inclusion Framework' serves as a strong foundation from which to build.

2.1.7 Conduct provincial-level awareness-raising sessions for school-going youth on high-potential career opportunities in the software sector, so as to expand the pipeline of available talent at an early stage.

Often, young people away from the main cities may not always know of the opportunities in the sector or know of the entry points to get in. This activity is similar and linked to 2.1.4 above, but with an explicit focus on provincial job creation and ensuring greater geographical inclusion of the IT workforce. In particular, this recognizes the strong multiplier effects of IT worker incomes and the role it can play in improving household prosperity in provincial economies.

Operational Objective 2.2: Improve internal skill capabilities for export business growth.

2.2.1 Introduce/expand training to improve soft skills of employees in software firms (e.g. negotiation, communication and interpersonal skills), especially among the business development, prospecting, marketing and client engagement teams.

2.2.2 Introduce training programmes to upgrade project management capabilities (Scrum, the Information Technology Infrastructure Library and project

management professional) in order to enhance productivity and quality of service delivery.

Both these activities are aimed at improving firm-level capabilities for business growth, with a special focus on export revenue. As the industry evolves and new clients are on-boarded from existing and new markets, the pressure to perform and delivery high quality and reliability becomes a key success factor. Accordingly, improving skills within the firms to deal better with clients and improve delivery projects to clients becomes important. These two activities are aimed at this – where the training programmes can happen at the firm level, at an industry-wide level (led by the association), at professional training academy level or a combination of all of these.

STRATEGIC OBJECTIVE 3: IMPROVE BUSINESS CLIMATE FOR SOFTWARE FIRMS TO COMPETE AND GROW

Operational Objective 3.1: Improve tax framework for software sector

3.1.1 Conduct periodic industry–government engagement sessions to reduce uncertainty/opacity of tax rules, resolve operational issues in tax compliance, address procedural inefficiencies and build confidence and trust between tax authorities and the software industry.

3.1.2 Review and reduce tax procedural complexities, especially for start-ups and SMEs in the software sector.

The above activities are aimed at addressing the frequent issues industry players face with taxation, and are aimed at introducing a more regular mechanism for resolving issues as well as a specific and focused effort to ease pain points for start-ups and SMEs. Often, tax authorities do not understand the sector well, given the different business models and operating modalities compared to other sectors – this leads to tensions, poorly designed tax administration frameworks and weakened compliance.

Operational Objective 3.2: Improve access to capital for software firms

3.2.1 Introduce project financing windows (including government refinancing facilities) for software firms to enable international market expansion.

3.2.2 Federal financial sector authorities and banks to collectively identify and develop new loan products and lending modalities to suit software export business.

3.2.3. Improve banks' internal credit scoring and credit appraisal of software businesses.

As noted in the constraints analysis section, firms in the software export sector find it hard to obtain growth capital and existing financing modes are not suitable or are unappealing. The above activities are aimed at addressing that through a mix of introducing new products and procedures and improving bank lending principles (through better credit scoring). It is expected that, in time, the sector will have little difficulty in accessing debt capital, whether it is to finance working capital needs or to finance international expansion. While software firms may continue to seek equity capital for particular needs, it is important to ensure that the channel of debt capital always remains open and easy, so that entrepreneurs have multiple sources of financing to use as needed and as suited for the purpose and the stage of the businesses' growth.

STRENGTHEN INNOVATION AND UPGRADING IN THE SOFTWARE SECTOR

Operational Objective 4.1: Encourage new investment in the sector and start-ups

4.1.1 Launch a time-bound investment promotion effort to attract FDI into the software sector, with focused attention on market segments that Pakistan desires upgrading into and building positioning in.

A key determinant of the Pakistani software sector's upgrading and enhanced competitiveness and aggressive new market entry would be attracting new and good-quality FDI. Given the tight competition for FDI attraction, as well as domestic issues in FDI facilitation, Pakistan needs to launch a focused investment promotion effort in a targeted and time-bound manner. Such an effort would require public resources to be allocated and disbursed in a timely manner (to finance the FDI promotion programme), proactive engagement by the private sector (including advocacy by existing foreign investors located in Pakistan), support of Pakistan's international diplomatic missions and alignment with key agencies involved in investor facilitation.

4.1.2 Assess current ecosystem for software start-ups and introduce a time-bound and focused programme to address bottlenecks and launch a '1,000 start-ups'

programme to boost new entrepreneurship in the sector from across the country.

4.1.3 Introduce a subsidized rent scheme for first six months in the new special technology zones to encourage start-ups and smaller software firms (eligibility to be defined by relevant authority in consultation with the industry).

New investment into the sector doesn't only come from foreign investment, but also from new domestic entrepreneurship. New entrepreneurship is also a key contributor to innovation in the sector. Accordingly, supporting the start-up ecosystem becomes important. This activity is aimed at introducing a time-bound effort to rapidly remove bottlenecks for start-ups and create a more favourable climate for start-up entrepreneurship in the software exports sector. This also recognizes that new export revenue growth doesn't only come from larger firms, but also from the establishment of new firms, exporting from day one ('born global') or starting with domestic clients and then moving to exports. The second activity here also recognizes that smaller firms face greater challenges in the early years of operations – especially around cost pressures and profitability – and, as such, require some initial nurturing by way of making operating expenses like rent more affordable for an initial period.

Operational Objective 4.2: Improve enabling framework for product-led innovation

4.2.1 Update intellectual property protection frameworks and their implementation to protect Pakistani software product innovation and encourage IP-led growth in the sector.

4.2.2 Align data protection, information security and privacy laws to global best practices to build trust in Pakistani IT as a brand and ensure that Pakistani software firms win and retain business from customers in countries that have increasingly tighter laws and heightened information security concerns.

The above two activities are aimed at introducing (or strengthening existing) legal and regulatory frameworks that position Pakistan more strongly for product-led growth in the sector, which is a key focus of this five-year strategy. With the growing global attention on intellectual property, data protection and privacy rules, Pakistan needs to introduce new, or align existing, national rules to global rules and trends. This will become a prerequisite for the sector's global expansion goals.

4.2.3 Introduce a targeted export incentive scheme for software firms that build and sell (globally) IP-led software products (and move on from customized software service provision) to encourage moving up value chain.

As a way to encourage and accelerate product-led growth in the short to medium term, this activity envisages introducing a time-bound and focused export incentive scheme for firms that move up the value chain through a product-led approach. This incentive would aim to signal to the industry as to the desired trajectory to be pursued and also make it financially attractive. The mechanics of such an incentive scheme would need to be carefully devised (in close consultation with the private sector) to ensure that it is feasible to comply and no perverse incentives are created. It should also be periodically monitored to ensure that the desired policy goals are being met.

4.2.4 In order to help build product portfolio and strengthen export potential, ensure that Pakistani software firms have equitable access to government IT projects by levelling the playing field with internal IT departments and simplifying preconditions/enabling conditions in bids. Consider carving out certain projects (by types/size) exclusively for private sector players to foster innovation.

As noted in the constraints analysis section, industry stakeholders felt quite strongly about the problems in private sector opportunities to tap into government IT projects. This activity envisages creating a more level playing field and will perhaps require a gradual approach. A useful low-hanging fruit is to rewrite procurement rules to better enable, and increase procurement pipeline visibility, for the domestic private sector to participate in such projects.

4.2.5 Establish collaboration with innovation ecosystems in friendly countries and connect Pakistan's tech ecosystem to accelerate product-led growth and innovation of Pakistani software start-ups and SMEs.

With a view to globalizing Pakistan's software ecosystem and enabling greater exposure for Pakistani start-ups and SMEs, twinning the country with other innovation ecosystems (e.g. through forging memorandums of understanding between industry associations and between apex ICT agencies, and partnerships between angel/venture capital networks, etc.). First steps can be made with countries with which Pakistan has bilateral trade and investment, comprehensive partnership or bilateral dialogue agreements.

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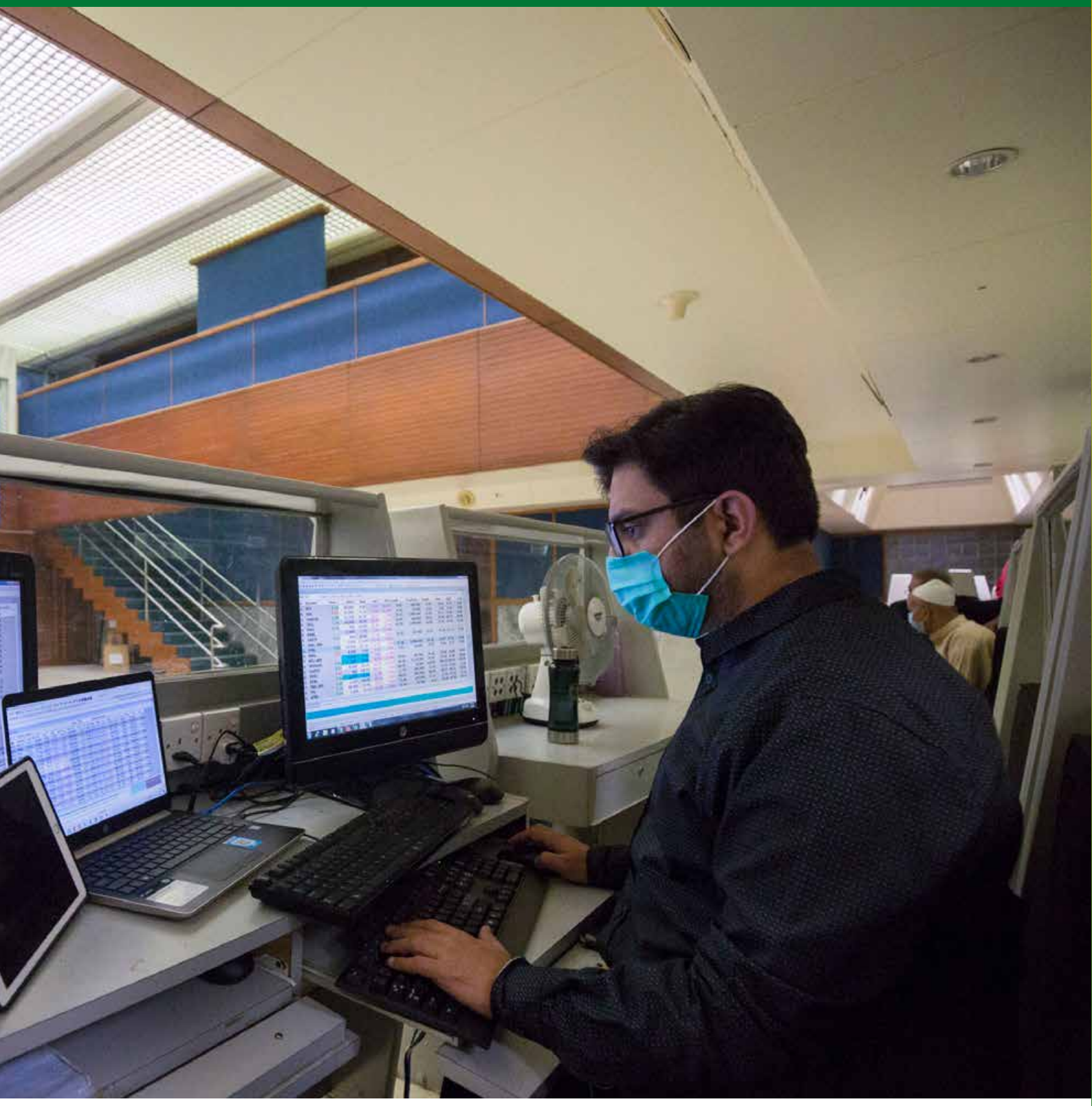

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