SECTOR STUDY . JULY 2025

Together. Creating Value.

Technology

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Introduction

- Technology is defined as the application of scientific knowledge for practical purposes. The world has progressed at a rapid pace in terms of technological advancements in various fields such as engineering, medicine, communication and manufacturing.

- The technology sector encompasses category of businesses involved in research, development, or distribution of technologically based goods and services. Some examples include manufacturing of electronics, development of software, computers, or other products and services related to information technology and industrial automation.

- The sector caters needs of all businesses (B2B and B2C) including both consumer-centric and technology services. Producers of consumer goods such as computers, mobile devices, home appliances and televisions etc. are continuously aiming to develop new and more technologically advanced features in order to attract customers.

- For businesses (mainly industrial manufacturing), advancements in technology enables them to achieve better quality and higher efficiency. This encompasses industrial and systems automation, software development and communication systems etc. A key aspect of this technology is that it often provides critical information and services that enable businesses to make key strategic decisions. It is also vital for businesses to maintain up to date technology in comparison to their competitors or they may find themselves at a disadvantage or even becoming non-competitive.

- This sector study will particularly focus on systems automation and software segments of the technology sector.

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Automation & Process Control

- Automation and process control is used in industrial settings to control the conditions in which a product is made through technology. The use of automation and process control in industrial setting allows the advanced systems to make required adjustments within established parameters. It relies on specialized control systems that manage the flow, output and other aspects of an industrial process based on feedback obtained from sensors and data monitoring systems.

- The main advantage of implementing automation and process control is increased efficiency and better quality. Automation and process control minimizes human intervention beyond the monitoring of each system. As a result, steps that would otherwise be time-consuming can be carried out swiftly by the automated system while reducing chances of human error, thus reducing wastages or redundancies. In addition, it also enables repetitive tasks or operations to be carried out efficiently while ensuring compliance with required standards is strictly observed.

- Process control is typically implemented in industries where continuous production occurs. Some examples are:

    - **Pharmaceuticals**: Extreme precision is required when producing medicines as there is no room for even minor errors. Therefore, automation and process control is used to minimize human error and guarantee the safety of medicines produced.
    - **Petrochemicals**: Process control can be used to closely monitor the refining and production process to ensure consistent quality and uninterrupted production.
    - **Food & Beverage**: The food and beverage industry must comply with specific health standards and process control can be used to monitor and adjust the ingredients or required temperature to ensure a high-quality output.
    - **Energy**: These systems are used to control power production ensuring adequate supply while monitoring fuel levels, temperature etc. In addition, they are also used to control pressure in oil and gas pipelines to ensure safety and continuous supply.

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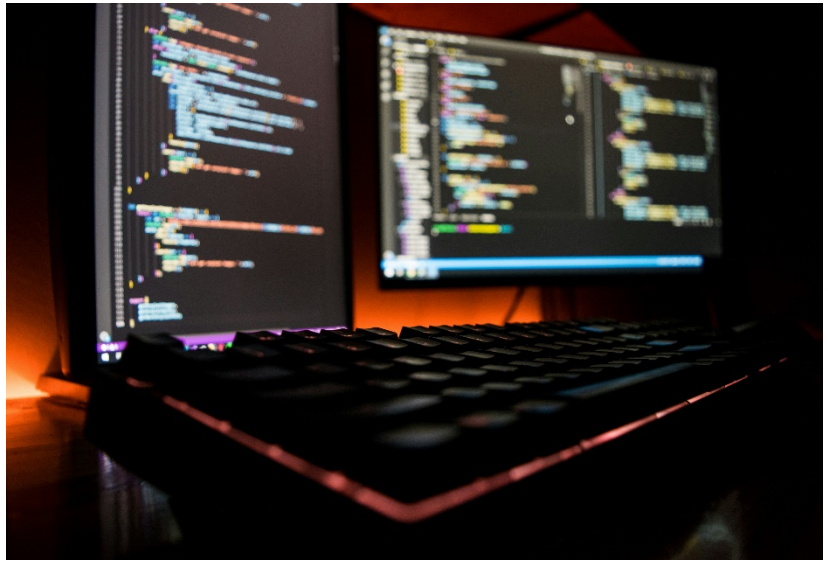
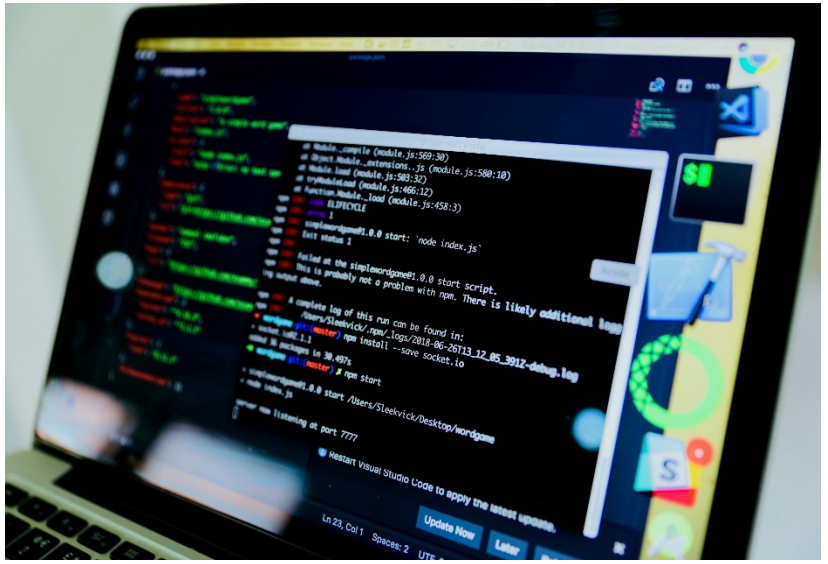
Software

Software can be defined as a set of instructions or programs that enable a computer to execute specific tasks. It is a generic term used to describe programs that run on PCs, mobile devices, and other smart devices. It includes operating systems, diagnostic tools, and a variety of applications. There are three basic categories of software:

i. **Programming Software**: A set of tools to aid developers in writing programs. The various tools available are compilers, linkers, debuggers, interpreters, and text editors.
ii. **System Software**: Serves as a base for application software. System software includes device drivers, operating systems (OSs), compilers, disk formatters, text editors, and utilities that assist the computer to operate more efficiently.
iii. **Application Software**: Intended to perform certain tasks. Examples of application software include office suites, gaming applications, database systems, and educational software.





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Global | Overview

- The global market size of the technology sector (encompassing hardware, software, services, and telecommunication), in terms of research and development spending, stood at USD~5.1trn in CY24, growing ~14.0% YoY. The sector is forecast to reach an annual growth rate of ~9.8%, with market size reaching USD~5.6trn in CY25. Due to easing inflation, technology companies are expected to invest more in automation to increase operational efficiency. This will mean communication services R&D would also increase again, after a fall of ~3.6% in CY24. IT services saw a ~20.9% increase in spending in CY24, while Software, computer device & Data centre spending increased by ~27.6%, ~7.0%, ~23.4%, respectively.

- The top 5 biggest companies in the world increased their market cap by ~10.2% to USD~13.7trn, from USD~12.4trn. Microsoft remains the biggest company in the world as of May'25, in terms of market cap. Nvidia saw the most growth among the five, as its market cap stood at USD~3.2trn, up ~40.7% from the previous year.

R&D Spending wise key-segments (USD bln)

Segment	CY23	CY24	CY25 (Forecast)
IT services	1,313	1,588	1,732
Comm. Services	1,423	1,372	1,424
Software	856	1,092	1,247
Devices	686	734	810
Data Center Systems	214	329	406
Total	**4,492**	**5,115**	**5,618**

Top 5 Global Companies | By Market Capitalization (USD bln)

Company Name	Market Cap (May'24)	Market Cap (May'25)
Microsoft	3,123	3,350
NVIDIA	2,274	3,200
Apple	2,911	3,010
Amazon	1,922	2,097
Alphabet (Google)	2,181	2,016
Total	**12,411**	**13,673**

Source: Gartner, Nasdaq

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Local | Overview

- Pakistan's technology sector contributed ~1.6% to the country's GDP in FY24 (FY23: ~1.7%), with market size recording at PKR~1,753bln in FY24, an uptick of ~32.8% YoY. In 9MFY25, the sector's market size recorded a growth of ~6.6% YoY.
- During FY24, exports of overall computer services increased to USD~2.7bln (FY23: USD~2.1bln).
- In 9MFY25, exports of overall computer services increased to USD~2.4bln (SPLY: USD~1.9bln). Telecommunication services export recorded growth rates of ~1.8% YoY, while information services exports registered ~168.5% YoY growth to record at USD~19.7mln.
- Total exports for the sector stood at USD~3.2bln , up ~24.1% in FY24. Meanwhile, during 9MFY25, the exports went up by ~23.7% YoY to USD~2.8bln.
- As of FY24, the sector comprised over ~30,000 IT and ITeS companies, with these companies operating in a wide array of areas such as customized software development and Business Process Outsourcing (BPO) services. Moreover, the number of Information Technology (IT) professionals and graduates per year recorded at ~600,000 and ~25,000, respectively, during the same period.
- The MoITT, through bodies such as the PSEB, has taken various steps, such as the establishment of Information Technology (IT) Parks and incubators to provide an enabling ecosystem for technology-related businesses.

Particulars	Units	FY22	FY23	FY24	9MFY25
Est. Market Size	PKR bln	1,230	1,320	1,753	1,402
Contribution to GDP	%	1.9%	1.7%	1.6%	1.6%
Computer Services Exports	USD mln	2,109	2,097	2,650	2,404
Telecommunication Services Exports	USD mln	505	494	563	402
Information Services Exports	USD mln	5	6	10	20
Total Exports	USD mln	2,619	2,597	3,223	2,825
Exports Growth	%	24.2%	-0.8%	24.1%	23.7%
Average Exchange Rate	USD/PKR	177.9	244.6	286.7	280.3
Registered Technology Companies	No.	2,338		2,507	
Regulator	Ministry of Information Technology & Telecommunication (**MoITT**), Pakistan Software Export Board (**PSEB**)				
Association	Pakistan Software Houses Association				

***Note**: Market Size pertains to Information and Communication sector as classified under Services segment of the economy.*
No. of registered companies in FY24 and beyond is assumed to be the same as of FY23, due to data limitations.

Source: PSEB, PASHA, PBS, SECP

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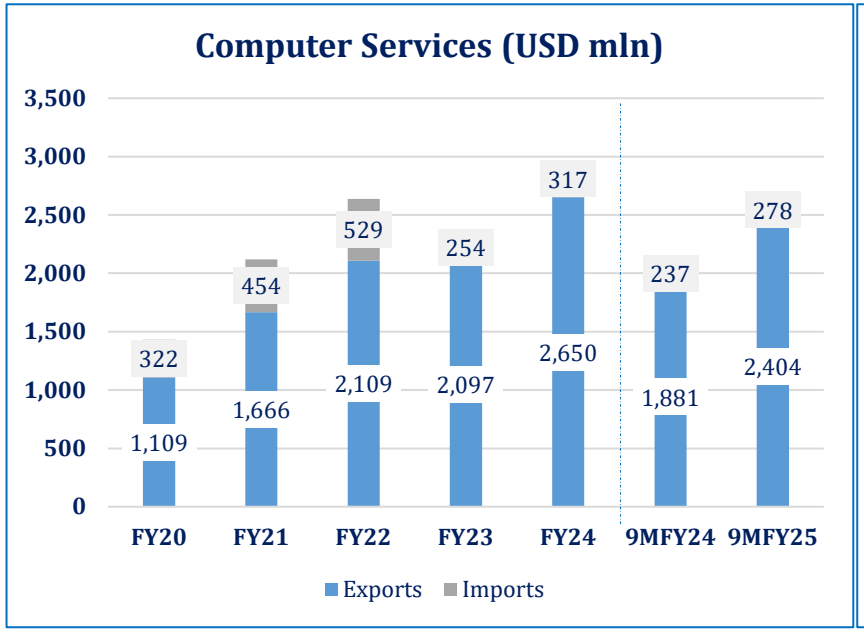
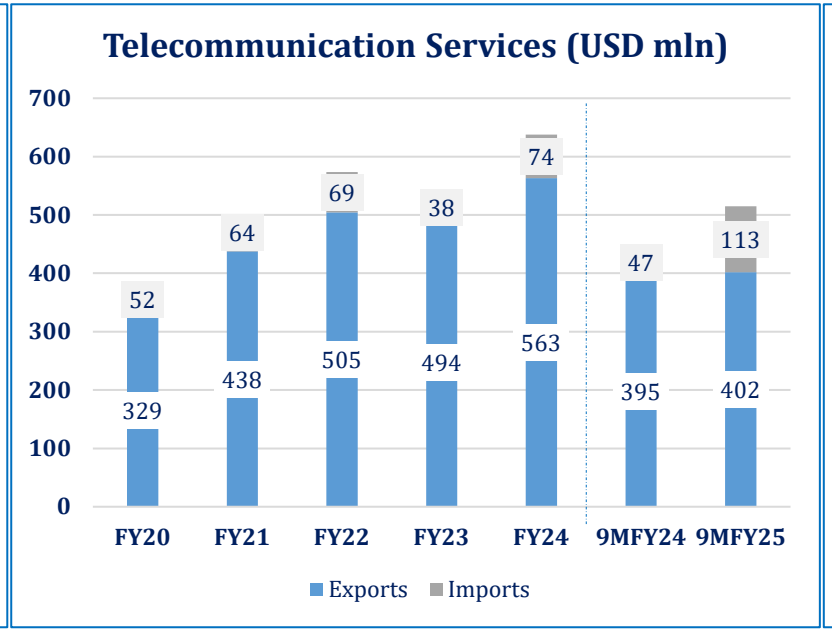
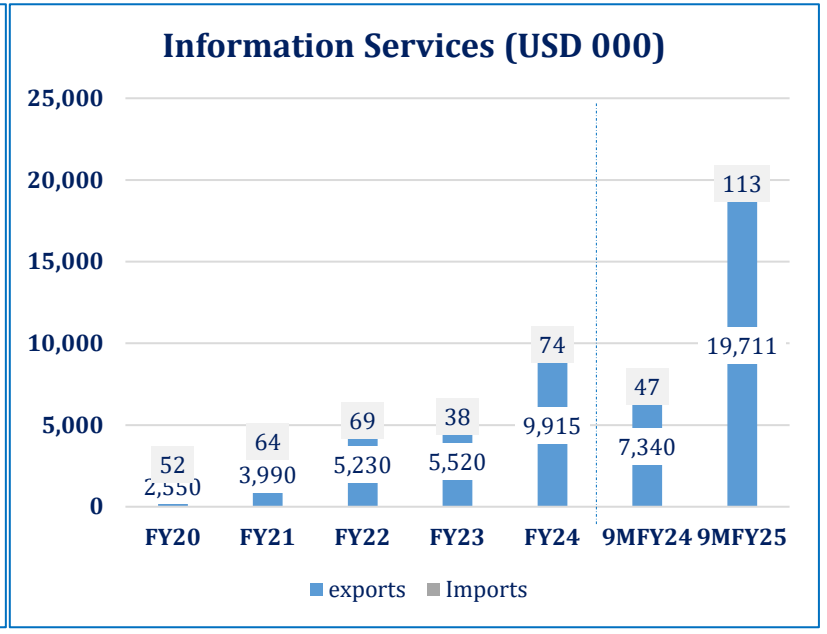
Local | Trade

- The country's computer services export comprises computer, telecommunication, and information services. Overall, computer services export exhibited an average growth of ~25.0% during FY20-23, recording at USD~2,650mln during FY24, an uptick of ~26.4% YoY. During the year, telecommunication services export increased to USD~563.0mln, up by ~13.9% YoY, while information services export stood at USD~10.0mln, up ~79.6% YoY. This was mainly achieved on the back of favourable government policies as the GoP focused on a favourable trade balance through higher exports and remittances.
- In 9MFY25, computer services exports were recorded at USD~2,440mln , up ~27.8%, while telecommunication and information services exports stood at USD~402mln and USD~20mln , up by ~1.8% and ~168.5% respectively.
- Meanwhile, imports of computer services have exhibited an average growth of ~6.2% during FY20-23 and were registered at USD~317mln in FY24, registering YoY uptick of ~24.6%. while telecommunication and information services imports stood at USD~74mln and USD~5mln , registering a change of ~97.8% and ~-22.2%, respectively.







Source: PBS

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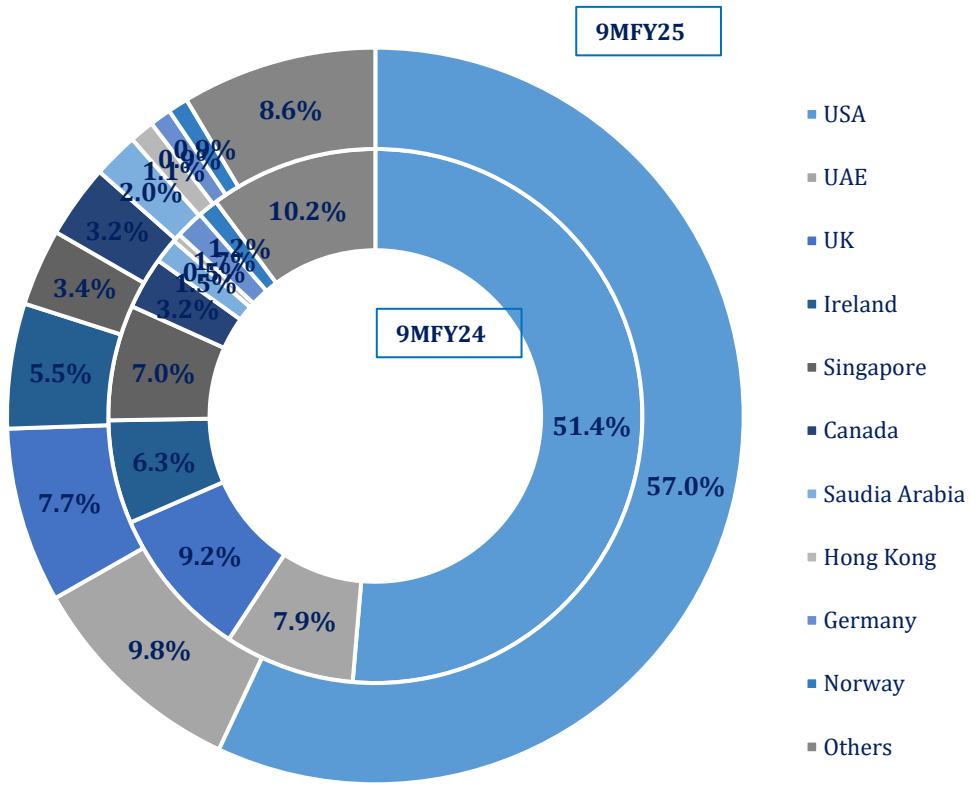
Local | Export Destinations

- During 9MFY25, the country's overall technology exports clocked in at USD~2,825mln (SPLY: USD~2,284mln), recording an increase of ~23.7% YoY.
- The USA was the top destination for exports, with value amounting to USD~1,610mln during 9MFY25 (SPLY: USD~1,172bln), increasing ~37.3% YoY. Export value for UAE clocked in at USD~276mln during 9MFY25, recording a ~53.3% increase, YoY.
- The UK was the third highest importer of Pakistan's technology services in 9MFY25, as it imported services worth at USD~217mln during 9MFY25, recording a ~3.1% increase, YoY.

Export Destinations (Telecommunications, computer, and information services)



***Note**: Data is reflective of SBP data pertaining to Telecommunication, computer and information services*

Source: SBP

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Business Risk

- **Fast-paced Growth**: The technology sector is among the fastest-growing industries worldwide and new developments and technologies are continuously being introduced. Local players must keep pace with new and relevant upgrades in technology or they may lose competitive advantage/ risk becoming obsolete in the long run.

- **B2B Model**: Since many players within the technology sector are involved in providing services to other businesses, their demand depends on conditions in these client industries. If the overall economy, or any client industry or sector, is not doing well, it would hamper the creation of new demand for technology players providing services.

- **Digital Literacy**: Mobile phone usage in Pakistan has increased exponentially in recent years and has resulted in increased digital literacy among the population. Pakistan remains one of the fastest-growing cellular markets on the globe, with tele density rising from ~6.0% in FY04 to ~80.7% in FY24. This potential is evidenced by ~194.6mln cellular subscribers, with mobile phone tele-density reaching at ~79.4%, and ~139.0mln broadband subscribers, as at end-Nov'24.

- **Labor Dynamics**: Over the years (FY20-24), the uptake of 3G/4G devices increased while the opposite can be observed in the uptake of 2G devices over the same period., respectively. Despite this, the ratio of Information Technology graduates formed ~0.01% of total population during FY24, thereby reflecting that the sector's potential remains untapped. However, The Pakistan Telecommunication Authority (PTA) is actively advancing the "Digital Pakistan Vision" to enhance service quality and provide extensive coverage. Key initiatives include planned 5G deployment in CY25 and upgrading fiber infrastructure to align with international standards. This will increase the demand for technology graduates while demand for various such university programs would increase.

- **Infrastructure**: Software companies face the risk of cyber-attacks and data breaches, which can result in the loss of sensitive information and damage to their reputation. Moreover, sudden internet shutdowns also directly dent sector players' performance and erodes their competitiveness in the global market.

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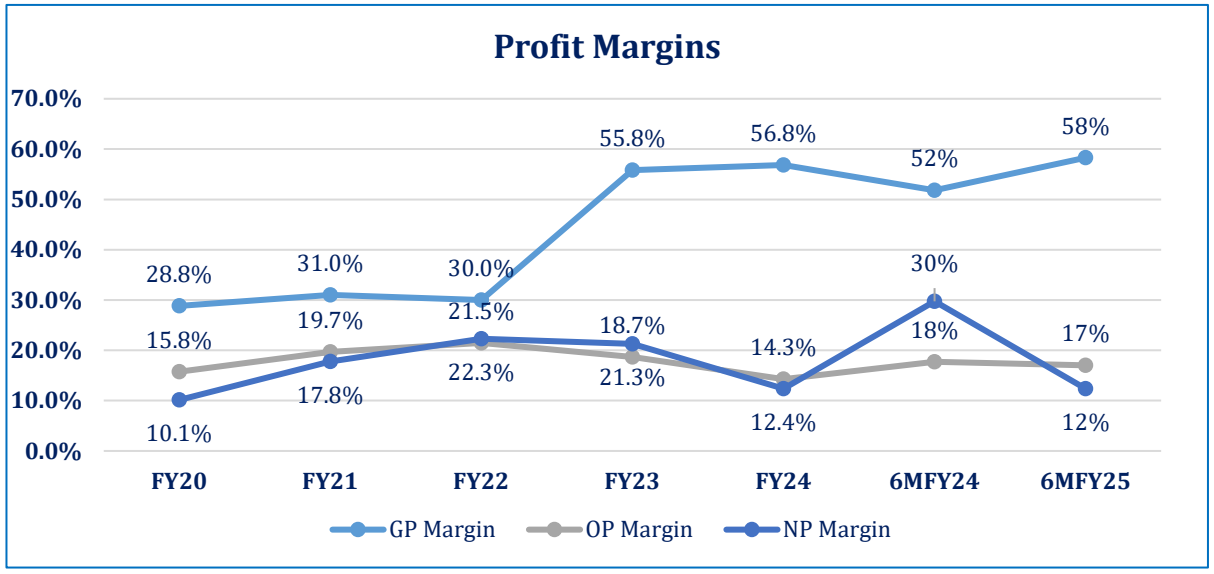
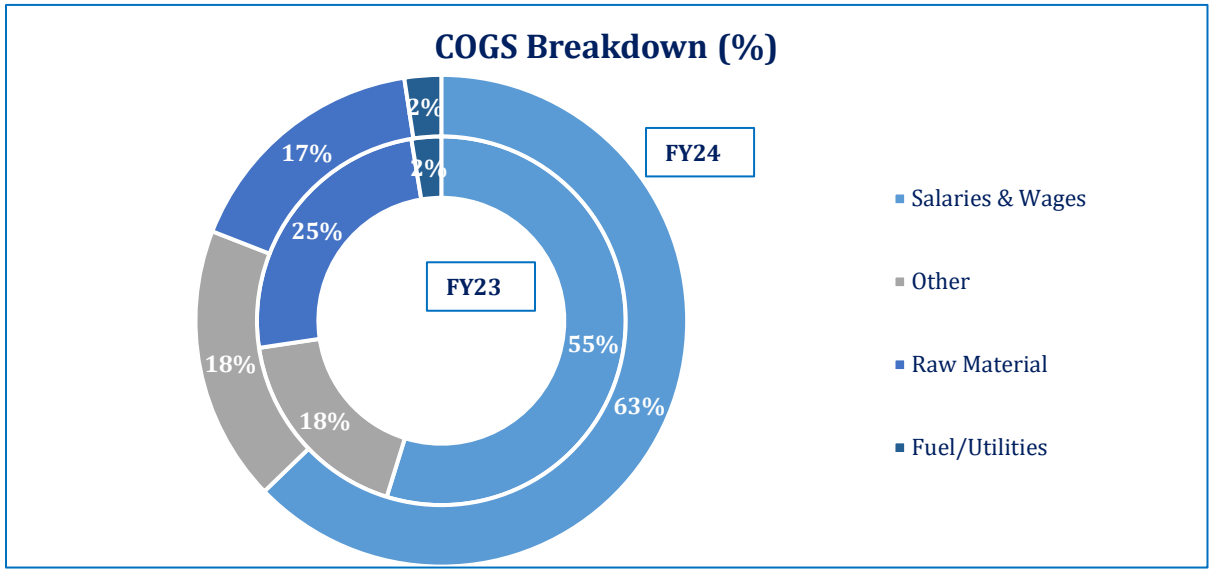
Business Risk | Margins and Cost Breakdown

- Historically (FY20-23), the sector players maintained ~40.5% average gross margins as they provide high-quality services and compete internationally. In FY24, these increased marginally to ~56.8% owing to ~27.7% YoY higher revenue, while cost of sales increased by ~24.9%.
- However, players were not able to translate this in terms of operating margins owing to higher operating expenses which increased by ~46.2% as companies looked to expand and incurred higher costs, while average inflation clocked in at ~23.4% in FY24. Meanwhile, owing to lower other income from previous years, the net profit was ~25.6% YoY lower.
- In 6MFY25, gross margins increased to ~58.3% (SPLY: ~51.8%), on the back of an increase in revenue, which went up by ~24.3%, while cost of sales increased only by ~7.6%. However, operating margins and net margins declined to ~17.0% and ~12.3%, respectively (SPLY: ~17.7% & ~29.7%, respectively).
- In terms of overall cost of goods, Salaries & Wages comprised ~62.8% in FY24 (FY23: ~54.8%) as the sector relies on technically-proficient and skilled labor force, while the raw materials, contributed ~16.7% of direct costs, comprising software and hardware costs during FY24 (SPLY: ~24.7%). Raw material comprises imported hardware as well as software licenses procured from international technology companies.





***Note**: Data pertains to ~9 PACRA-rated/ listed players. Margins are revenue-weighted.*

Source: PSX, PACRA Database

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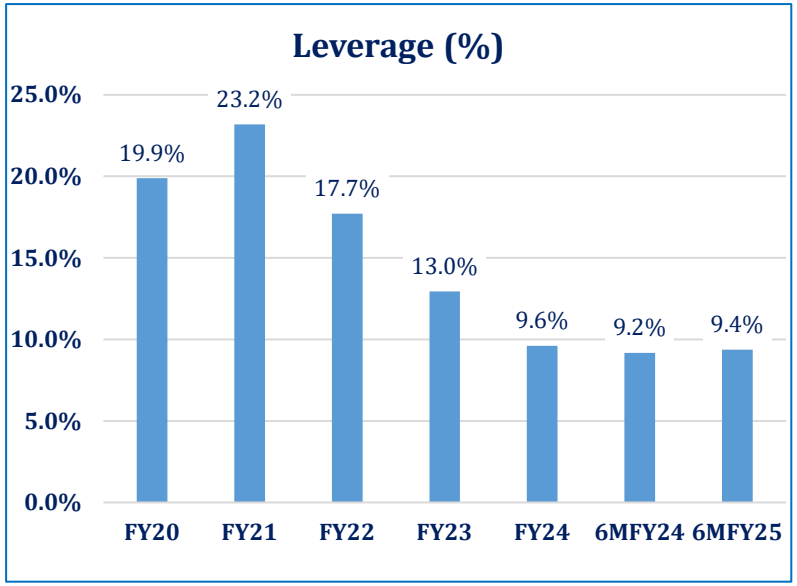
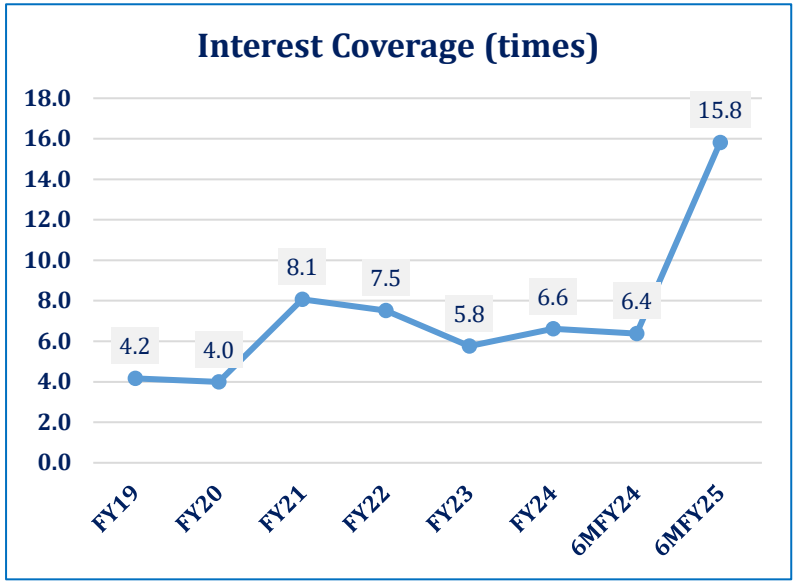
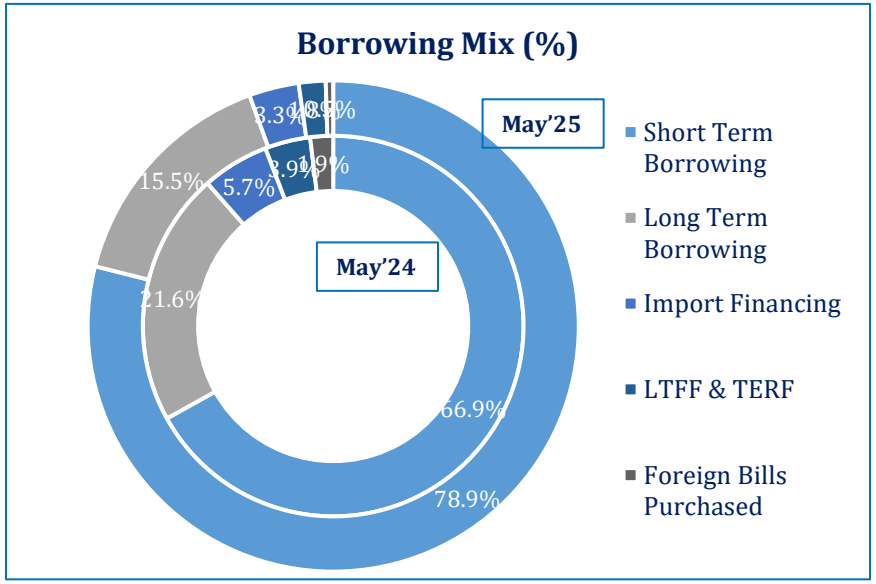
Financial Risk | Borrowing and Leverage

- As at End-May'25, the total borrowings of the sector stood at PKR~14.4bln (End-May'24: PKR~11.1bln), up ~29.6% YoY. Long-term borrowings comprised ~15.5% of the total borrowings (SPLY: ~21.6%) and were down ~6.7% YoY, while overall short-term borrowings represented ~78.9% (SPLY: ~66.9%), and recorded ~52.8% YoY rise, reflecting sector players increased working capital financing requirements.
- Borrowings comprising LTFF and TERF stood at PKR~0.3bln as at End-May'25 (SPLY : PKR~0.4bln), registering a decline of ~40.6% YoY. Meanwhile, Import financing recorded at PKR~0.5bln as at End-May'25 (SPLY: PKR~0.6bln), down ~25.3% YoY.
- During FY20-23, the sector recorded, on average, leverage of ~18.4%, indicating thereby lower reliance on borrowings. As equity base has grown over the years through profits and increased investment, borrowings have remained low, and have increased at an average rate of ~4.7% between FY20-FY23. Meanwhile, equity base has grown by ~25.0%, on average annually, during the same period. In line with the borrowing trend, interest coverage improved to ~6.6x in FY24 on the back of ~14.8% lower finance cost, from FY23.
- In 6MFY25 , leverage stood at ~9.4% (SPLY: ~9.2%) while interest coverage improved to ~ 15.8x (SPLY :~6.4x) as finance cost fell by ~51.8% during the period .





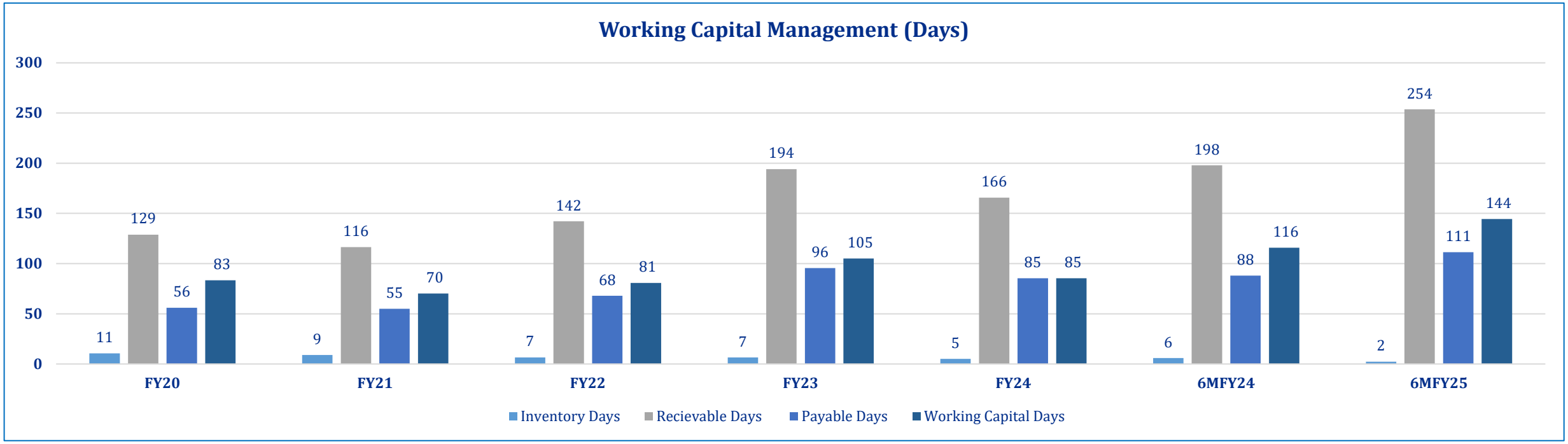


***Note**: Borrowing Mix pertains to SBP Classification "Computer Programming and Related Activities". For the leverage and Coverage analysis, data pertains to ~9 PACRA-rated/ listed sector players.*

Source: PSX, PACRA Database, SBP

Financial Risk | Working Capital Management

- The sector's working capital cycle is largely a function of trade receivables and payables. Meanwhile, revenues are mostly contract-based and a greater length of contract can lead to increase in trade receivable days. The net working capital days in FY24 stood at ~85 days, compared with ~105 days during FY23, down ~20 days YoY.
- A breakdown of the working capital cycle reveals that the decline came on the back of increased receivable days, which fell by ~28 days YoY while average payable days also fell by ~11 days YoY, reflecting thereby a better collection of receivables, as the sector saw an overall improvement.
- Net working capital days in 6MFY25 stood at ~144 days, compared with ~116 days during SPLY, down ~28 days, YoY. A breakdown of the working capital cycle reveals that the increase came on the back of increased receivable days, which went up by ~56 days YoY, while average payable days also increased by ~23 days.



Source: PSX, PACRA Database

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Regulatory Framework

- The technology sector is overseen and regulated by the Ministry of Information Technology and Telecommunications (MoITT), which first introduced the Digital Pakistan Policy in CY18 to accelerate digitization and foster a knowledge-based economy.

- Key objectives remain: promoting innovation and entrepreneurship through incubators, boosting software exports and IT remittances, expanding digital inclusion across urban and rural areas, reducing gender disparity, and attracting foreign and domestic investment. Under successive governments, IT Parks, Tech Special Economic Zones (STZs), and National Incubation Centers have been established to strengthen the ecosystem, equipped with modern ICT infrastructure to support tech companies in a conducive environment. The Pakistan Software Houses Association (PASHA) continues to represent the sector, actively lobbying and advising on industry policy and legislation.

- In the FY23 budget, the government had emphasized the Special Technology Zones Authority and Pakistan Software Export Board initiatives, overseeing 32 STZs, including seven launched in FY23. In the FY26 budget (presented in Jun'25), the government allocated PKR~16.2bln specifically for digital economy and IT projects. It also earmarked Rs4.8 billion under its Uraan-Pakistan tech initiative to establish IT infrastructure—such as TV modules, a Pak–Korea testing facility, and a printed circuit board plant. Furthermore, PKR~16.2bln was authorized for development expenditure via the Information Technology & Telecommunication Division, and the Special Technology Zones Authority received a fresh development grant of PKR~138.0mln.

- The FY26 budget also set ambitious targets for the sector: IT exports surged to nearly USD~3.1bln in the first ten months ,an increase of ~21.2%,YoY, and the government aims to grow IT exports to USD~25.0bln over the next five years. Meanwhile, incentives under the Minimum Tax Regime remain in place—at a ~0.25% levy on export receipts for PSEB-registered companies and 1% for non-registered ones—alongside continued tax exemptions for companies operating within Special Economic Zones (including STZs). However, the government has indicated it may gradually phase out profit-based incentives in SEZs and STZs in the coming years, in line with broader fiscal reforms.

Source: PSX, MoITT, PASHA

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Duty Structure

- The sector falls under the Minimum Tax Regime.

HS Code	Description	Custom Duty		Additional Custom Duty		Income Tax		Sales Tax	
		FY25	FY26	FY25	FY26	FY25	FY26	FY25	FY26
8471.3010	Laptop Computers, Notebooks Whether Or Not Incorporating Multi Media Kit	3%	0%	2%	0%	12%	12%	18%	18%
8471.3020	Personal Computers	3%	0%	2%	0%	12%	12%	18%	18%
8471.3090, 8471.6090	Other	3%	0%	2%	0%	2%	12%	18%	18%
8471.4120	Large Or Main Frame	3%	0%	2%	0%	12%	12%	18%	18%
8471.5000	Processing Units Other Than Those Of Sub-heading 8471.41 Or 8471.49,	3%	0%	2%	0%	12%	12%	18%	18%
8471.6010	Key Boards	3%	0%	2%	0%	12%	12%	18%	18%

Source: FBR

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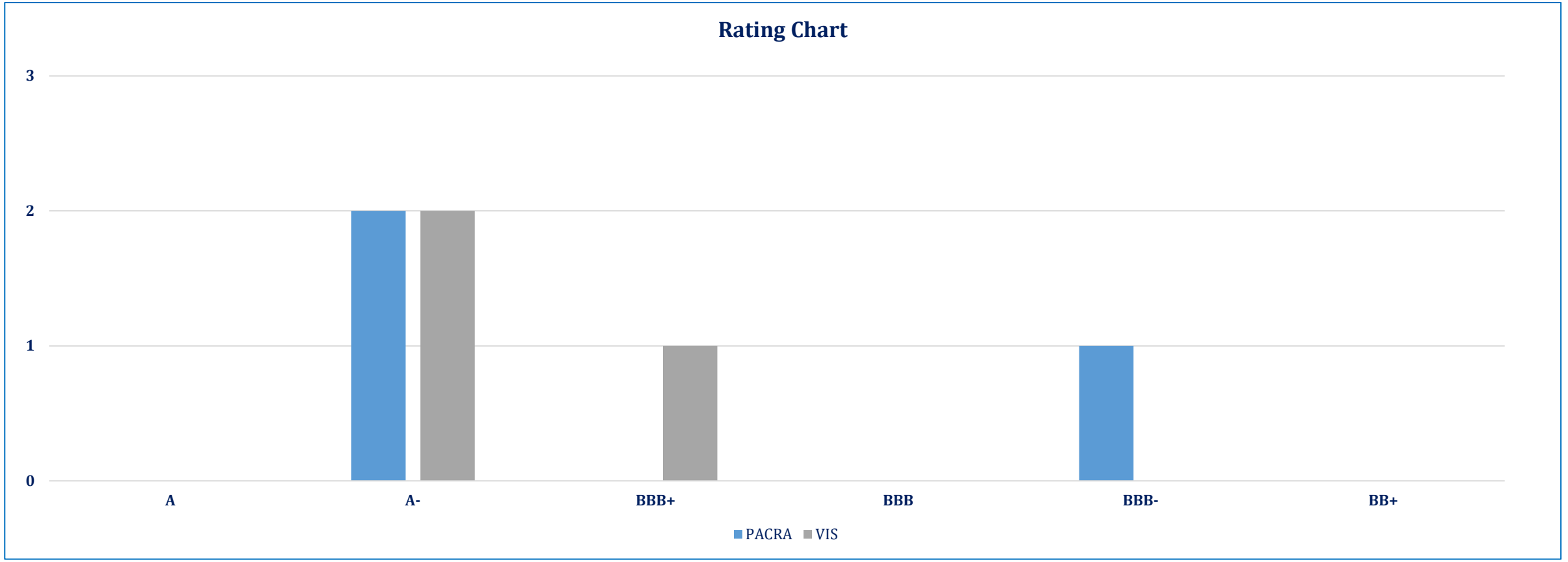
Rating Curve

- PACRA rates 3 entities in the sector, with long-term rating bandwidth of A- to BBB-. PACRA also rates one debt instrument with a long term rating of AA.



Source: PACRA Database

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SWOT Analysis

- Regulatory structure supports local sector and encourages exports.
- Conducive environment due to the presence of IT Parks, Tech SEZs and Start-Up Incubators.
- Relatively lower income tax compared to other sectors.

- Service-related players are dependent on conditions in client industries and sectors
- Low availability of skilled labor graduating from top universities.

- Ever changing technological platforms and evolving technologies.
- Easier to shift the operations abroad as cost of switching is minimal.

- Significant investment incentives have been provided for local and foreign investors.
- Growing urbanization and digital literacy to create demand in the long term.
- Focus on automation in local industry

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Outlook: Stable

- In FY25, Pakistan's GDP (nominal) stood at PKR~114.7trn, increasing, in real terms, by ~2.7% YoY (FY24: ~2.5% YoY). Industrial activities during the year held ~18.1% share in the GDP, while services made up ~58.4%.

- Large Scale Manufacturing (LSM) in Pakistan is essential for economic growth, considering its linkages with other sectors, as it represented ~67.5% value in manufacturing activities and ~8.0% of the country's GDP in FY25. The LSM, however, contracted by ~1.5% YoY in FY25 (FY24: ~0.9%).

- Pakistan's technology sector contributed ~1.6% to country's GDP in FY24 (SPLY: ~1.7%), with market size recording at PKR~1,753bln in FY24, an uptick of ~32.8% YoY. In 9MFY25, the sector's market size recorded growth of ~6.6% YoY. During FY24, exports of overall computer services increased to USD~2.7bln (FY23: USD~2.1bln). In 9MFY25, computer services exports were recorded at USD~2,440mln , up ~27.8%, while telecommunication and information services exports stood at USD~402mln and USD~20mln , up by ~1.8% and ~168.5% respectively. Meanwhile, imports of computer services have exhibited an average growth of ~6.2% during FY20-23 and were registered at USD~317mln in FY24, registering YoY uptick of ~24.6%. while telecommunication and information services imports stood at USD~74mln and USD~5mln , registering a change of ~97.8% and ~-22.2%, respectively.

- The USA was the top destination for exports, with a value amounting to USD~1,610mln during 9MFY25 (SPLY: USD~1,172bln), increasing ~37.3% YoY. Export value in the case of UAE clocked in at USD~276mln during 9MFY25, recording ~53.3% increase, YoY. The UK was the third highest importer of Pakistan's technology services in 9MFY25, as it imported services worth USD~217mln during 9MFY25, recording a ~3.1% increase, YoY.

- In 6MFY25, gross margins were recorded at ~58.3% (SPLY: ~51.8%) while operating and net margins declined to ~17.0% and ~12.3% (SPLY: ~17.7%; ~29.7%, respectively). Going forward, the margins are expected to remain strong, with a boost in export revenue, and a decline in inflation and interest rates.

- The Information Technology (IT) and Enabled Services sector had been granted various incentives (falls under Minimum Tax Regime) in FY26 budget to boost exports, including, but not limited to, removal of customs duty and additional customs duty on IT-related equipment. The government's focus on innovation, infrastructure, and digital inclusion is driving a strong, export-focused IT sector, and therefore, the sector is expected to perform well in the upcoming FY26.

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