

Tracking Services

Sector Study



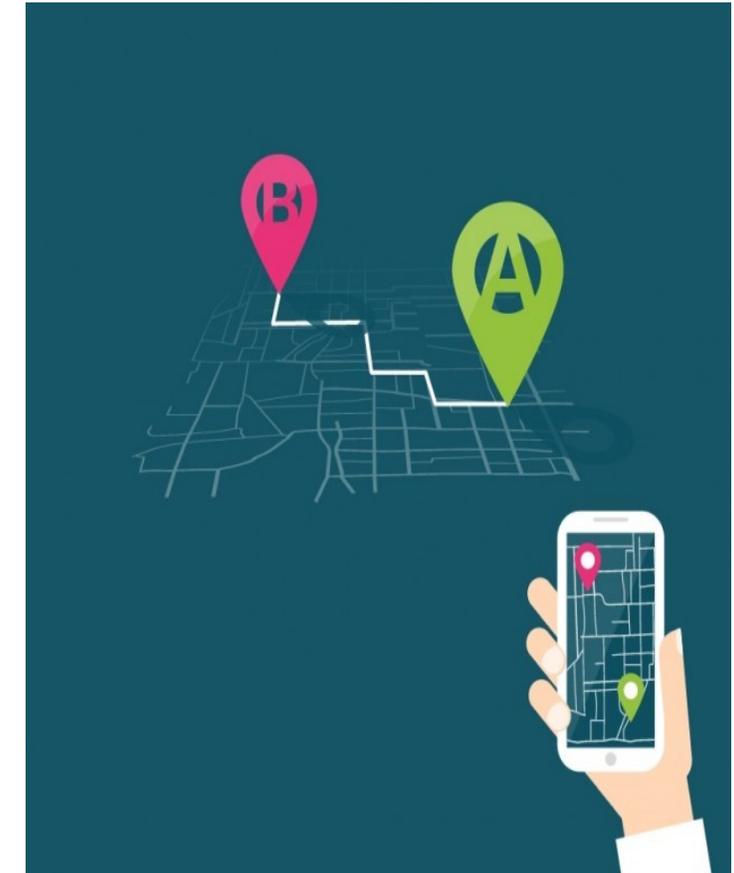
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Introduction

- Tracking Services are used to monitor the data of objects on the go. It is becoming an increasingly important tool for businesses that want real time information about their vehicle fleet, personnel or merchandize.
- Tracking services can provide variable information, which enables organizations to increase their efficiency and productivity. In addition, individual users have greater degree of convenience with navigational applications along with being able to track their packages and deliveries when using online services.
- Tracking services are based on convergence of several technologies that can be merged to create tracking systems. These technologies include:
 - Geographic Information Systems (GIS) – Used for large-scale location-tracking systems, geographic information systems can capture, store, analyse and report geographic information.
 - Global Positioning System (GPS) – It consists of a number of Earth-orbiting satellites. A GPS receiver, like the one in your mobile phone, can locate four or more of these satellites, figure out the distance to each, and deduce your location through trilateration. GPS is ideal for outdoor positioning, such as surveying, farming, transportation or military use.
 - Radio Frequency Identification (RFID) - Small, battery-less microchips that can be attached to consumer goods, cattle, vehicles and other objects to track their movements. RFID tags are passive and only transmit data if prompted by a reader.
 - Wireless Local Area Network (WLAN) - Network of devices that connect via radio frequency. These devices pass data over radio waves and provide users with a network range of 70 to 300 feet.





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Global Market

- The global vehicle tracking system market generated USD~17.4bln in CY20, and is projected to reach USD~109.95bln by CY30, registering a CAGR of ~19.7% from CY21 to CY30.
- The spread of the COVID-19 pandemic had negatively impacted the global vehicle tracking system market, owing to commute restrictions and weak financial performance of the market players in CY20. However, technological advancements and digitization in the automotive industry and increasing sales of light and heavy commercial vehicles are expected to drive the market growth.
- Introduction of 5G technology into vehicle connectivity along with rising new customer segment across diverse industry verticals will further bring various opportunities for the growth of the vehicle tracking system market in the above mentioned forecast period.
- Upsurge in real-time fleet monitoring, rising mining and military activities around the world and increased use of GPS trackers in commercial vehicles are the key factors encouraging the growth of global GPS tracking device market.
- Asia Pacific is likely to grow at the fastest pace during CY20-CY25. The high penetration of low-cost android devices, the growing penetration of e-commerce, and rising investment in logistics in various industries remain key drivers of growth in the Asia pacific region.

- **Few Global Players**

- Sierra Wireless Inc. (Canada)
- Teltonika UAB (Lithuania)
- Queclink Wireless Solutions Co. Ltd. (China)
- Atrack Technology Inc. (Taiwan)
- Tom Tom International Bv (Netherlands)
- Calamp Corp. (US)
- Orbocomm Inc. (US)
- Laird Plc. (UK)
- Shenzhen Concox Information Technology Co. Ltd. (US)
- Meitrack Group (China)



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Market Segmentation

The global vehicle tracking system industry is classified based on type, technology, propulsion, application and vehicle type.

By Type

- Passive

Tracking unit gathers data that needs to be downloaded from the tracker.

- Active

Tracking units collect the data and transmit in near-real-time via cellular or satellite networks to a computer or data center for evaluation.

By Technology

- GPS/satellite

Global Positioning system, is a navigation technology reliant on a satellite system based in space.

- GPRS/cellular networks

GPRS vehicle tracking system uses the data network to transmit information.

By Propulsion

- Internal Combustion Engine Vehicle

ICEs run on gasoline which is burned internally to power the car.

- Electric Vehicle

EVs run on electricity.

By Vehicle

- Passenger Car

Tracking systems used in consumer vehicles as a theft prevention, monitoring and retrieval device.

- Commercial Vehicle

Tracking system implemented by businesses with fleet operations in industries like transportation, construction, specialty services, delivery etc.

By Application

- Software

Software are customized to provide insight into fleet activity and operational performance.

- Hardware

Small unit or device fitted to the vehicle which transmits data via satellite or cellular network.



Applications of Tracking Services

Comprehensive real-time location tracking and analytics solutions put geographical and location data to good use by extracting valuable insights. These insights can be used in a variety of applications such as:

- **Driver behaviour analysis:** Driving behaviour scoring algorithms help customers ensure that the drivers follow their rules and maintain driving excellence.
- **Advance fleet management:** Utilizing evolutionary algorithms that incorporate actual delivery time and other real-time data for daily route calculation, increasing efficiency and reducing overall mileage and fuel costs.
- **Container/shipment tracking:** Container tracking product tracks and monitors containers and provides critical supply chain visibility and security, transforming trip data into billing and insurance records.
- **Location based advertising:** Proximity marketing uses beacons and mobile infrastructure to locate customers and collect data about their movements. This data is used to analyse customer behaviour and patterns in order to enhance their shopping experience by providing them suggestions on what they might need.
- **Navigation & Route Planning:** With route planning and navigation services, customers can make their driving path more efficient and more optimal, using real time traffic information such as accidents and construction zones.
- **Usage based Insurance:** Utilizes telematics devices installed in customer vehicles to allow the insurance company to monitor driving habits.
- **Predictive maintenance:** Telematics devices collect an enormous amount of fuel system data and engine data such as engine revolutions per minute, engine oil level, transmission, mileage driven, tire pressure, and more. Based on all the engine data and the historical records of maintenance and repair, predictive analysis provides with precautionary breakdown and maintenance notifications, as well as the recommended solutions.

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Local Industry | Overview

- The tracking services industry is a subsegment of both the broader technology and logistics industries.
- Pakistan’s tracking services market had an approximate size of PKR~5,202mIn in FY21 as compared to PKR~4,362mIn in FY20 (~19% increase YoY). The increase can be attributable to revival of the automobile industry which was severely impacted due to challenges created by the COVID-19 pandemic in the last the fiscal year.
- There are currently ~37 companies, including 8 new entrants since the beginning of CY21, who have obtained the Class Value Added Services (CVAS) licence under the vehicle tracking service category from the Pakistan Telecommunication Authority (PTA). A significant number of these firms use this service to meet internal requirements. Only one firm which provides tracking services is listed on the Pakistan Stock Exchange, while remaining are private firms.
- Tracking services relies significantly on the offtake of automobile industry, to meet the demand of its products. During FY21, the total sales of cars, buses and trucks reached ~155,529 units (FY20:~100,102 units) up ~55.4% YoY, owing to declined interest rates and increased auto financing.
- Insurance companies and banks use vehicle tracking services to cover their exposure on the automobile in case of theft as it enables or increases likelihood of vehicle recovery. In addition, many automobiles now come with in built navigation systems which incorporate tracking technology.
- Moreover, ride-hailing services, such as Uber and Careem, which are replacing traditional taxis and public transport methods, employ the use of digital mapping and location based services in order to track rides, suggest optimal routes and estimate arrivals times. In addition, there are a number of online services which enable users to track the delivery of food, groceries or other packages.

Overview	FY20	FY21
Gross Revenue (PKR mln)	4,362	5,202
Revenue Growth	- 9.4%	17.5%
Contribution to GDP	0.01%	0.01%
Sector Players	26	37
Car Sales (units)	96,455	151,182
Truck Sales (units)	3,088	3,695
Bus Sales (units)	559	652
Structure	Fragmented	
Regulator	PTA	
Associations	PAMA	



Local Industry | Demand Factors

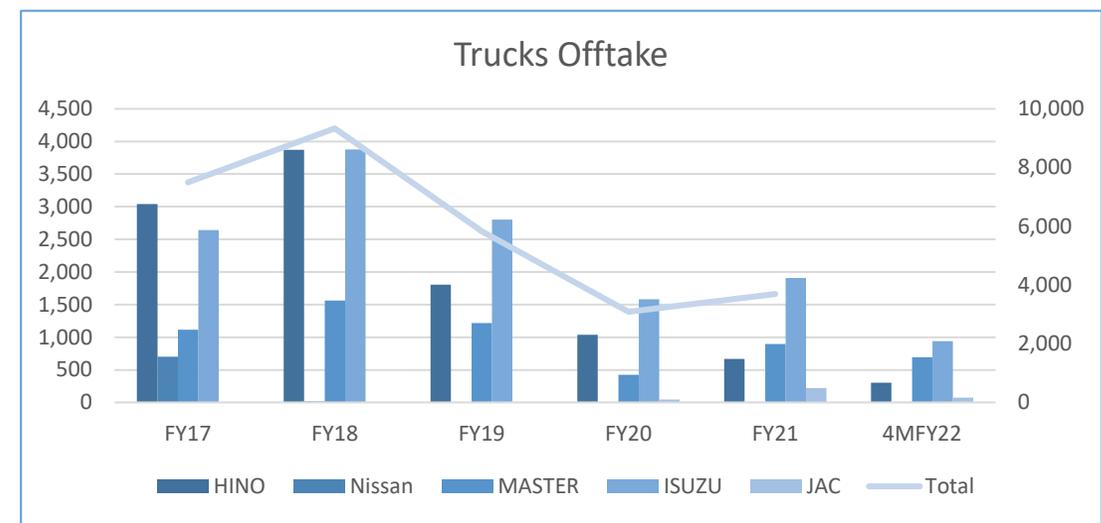
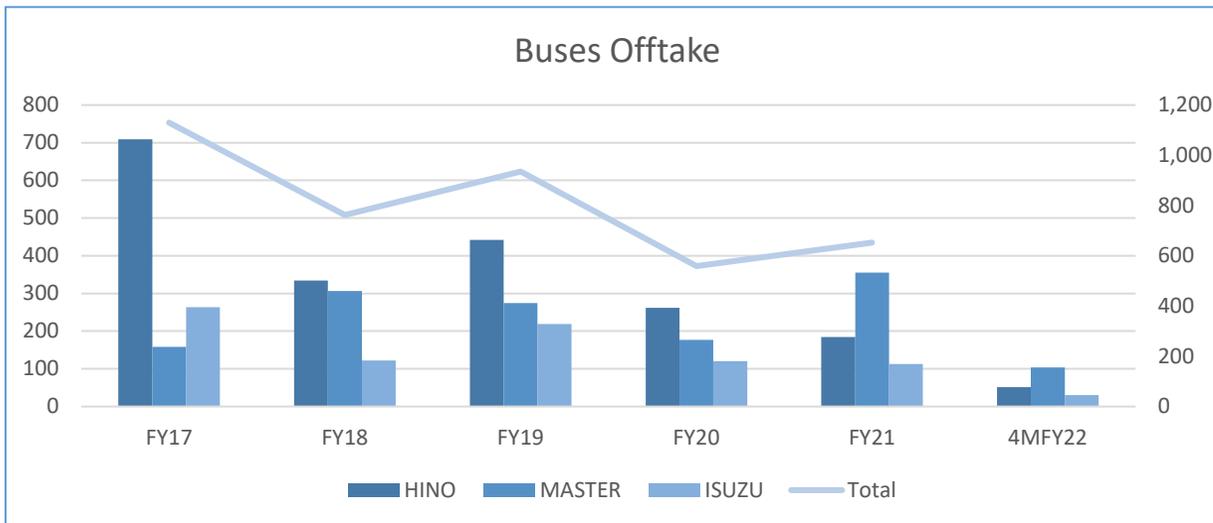
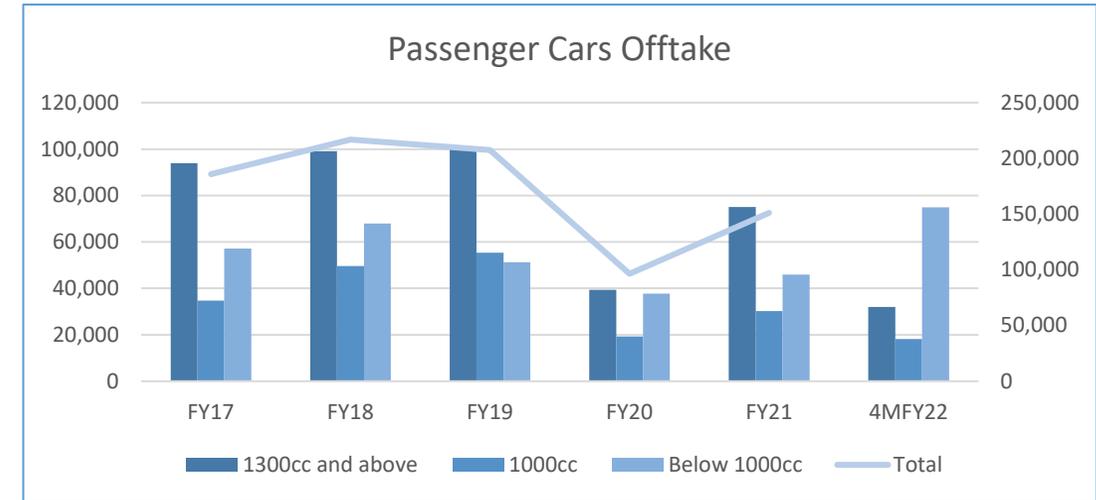
- **Automobile Sales:** The tracking services industry derives a significant portion of its demand from the automobile industry as vehicle tracking is the most commonly used application of tracking technology. The industry was adversely impacted in FY20 when passenger car sales witnessed a steep decline of ~54%.
- There had being significant recovery during FY21, which is a positive indicator for the tracking services industry. This had been spurred in part by reduction in monetary policy rate to 7%, thus encouraging buyers to avail cheaper auto-financing and increasing the demand of vehicles.
- **Online Applications:** There is an increasing trend of service delivery apps catered towards providing consumers with maximum convenience. COVID-19 outbreak has further augmented this trend as various restrictions made consumers reliant on apps for delivery of food, groceries and other items. Tracking services within these apps enable users to keep tabs on the status of their deliveries.
- **Cargo Tracking:** The development of various Special Economic Zones (SEZs) alongside a number of CPEC projects has created opportunities in cargo tracking and fleet management for the tracking industry. This is expected to be an area of growth for the industry in contrast with automobile tracking which is a relatively saturated market.



TRACKING SERVICES

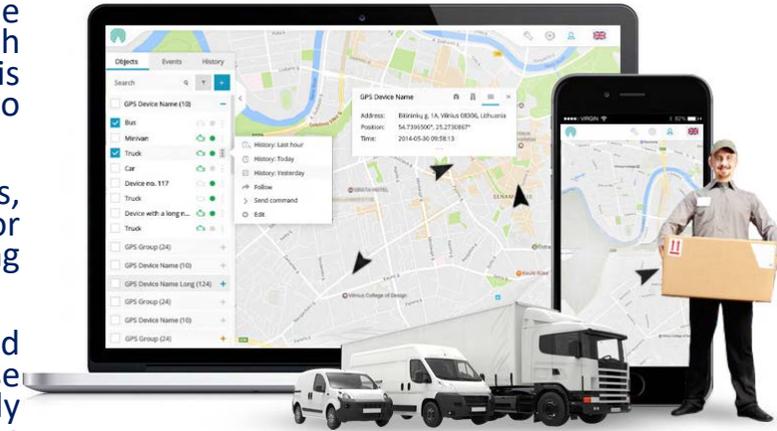
Local Industry | Automobile Offtake

- During FY21, the total cumulative units including cars, buses and trucks sold were ~155,529 as compared to ~100,102 in FY20 showing a growth of ~55% YoY.
- Passenger Cars Offtake reached ~75,000 units during 4MFY22 as compared to ~44,000 units in SPLY.
- During 4MFY22, there was no significant change in the offtake of buses, however, the trucks sales almost doubled in 4MFY22 to 2,011 units in comparison to 1,104 units sold during SPLY.



Local Industry | Business Risk

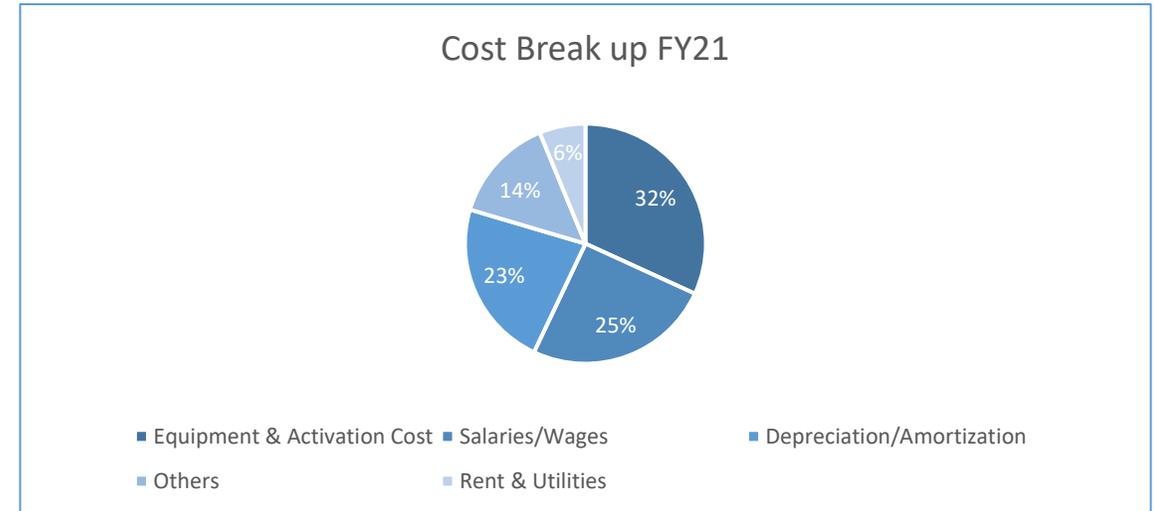
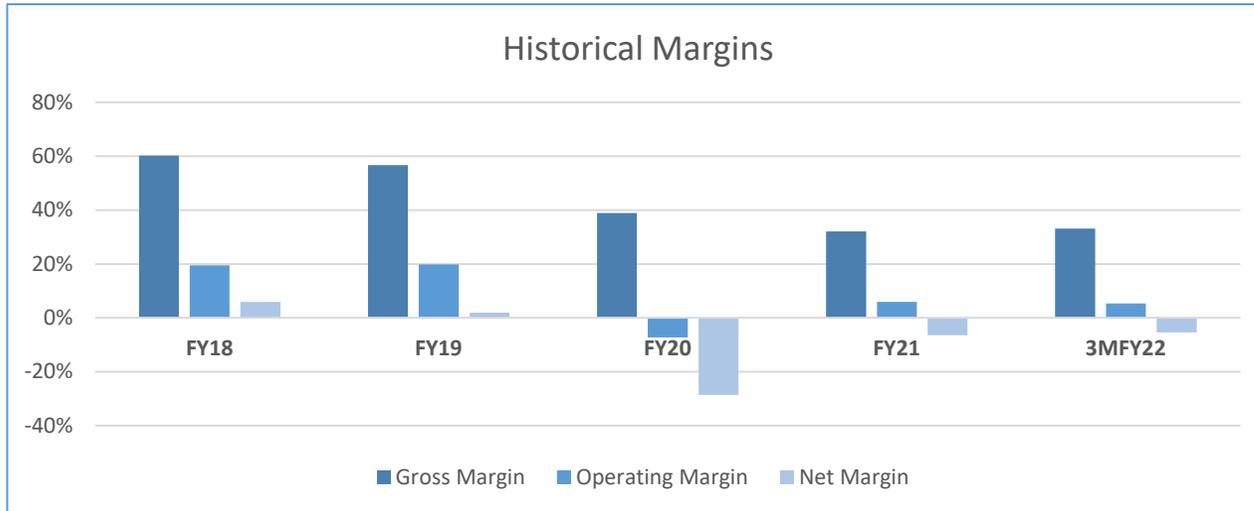
- **Increasing competition:** The increase in competition within the tracking services industry is exhibited by the steady growth in number of CVAS licenses issued by the Pakistan Telecommunication Authority (PTA) each year. PTA has issued a total of ~37 CVAS licenses for vehicle tracking services till November, 2021. This increasing competition has a negative impact on margins as players are forced to reduce prices in order to maintain their market shares.
- **B2B Model:** Since many players within the industry 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 the players providing tracking services.
- **Digital Literacy:** Mobile phone usage in Pakistan has increased exponentially in recent years and has resulted in increased digital literacy among the population. However, the majority of population, particularly those residing in rural areas or belonging to low income groups, remain lacking in digital literacy particularly regarding advanced technologies. As a result, this limits or restricts the potential of the tracking services market catered towards consumers.
- **Interest Rate:** As the industry is highly leveraged and dependent on the offtake of automobile industry. Increase in policy rate would affect the financing of cars and a higher finance cost will put a strain on profitability.
- **Data Privacy Infringement:** Data related to vehicle contain sensitive information, such as vehicle make, drivers' personal details, and routes traversed. The data can be exploited for carrying out malicious or criminal activities. Data privacy infringement is a major reason discouraging end customers from using vehicle tracking systems.
- **Imported Raw Material:** Impact on revenue due to disruption in supply chain as the industry is heavily dependent on import of raw material from China and USA. Also, the volatility of exchange rate and the depreciation of PKR can affect the profitability of the industry.
- **High R&D Costs:** In order to ensure competitiveness and prevent technological obsolescence in the future, there is need for significant research and development in the industry. As a result, the R&D costs of the industry can be quite high and many R&D projects may not result in fruitful outcomes.



TRACKING SERVICES

Business Risk | Margins & Cost Structure

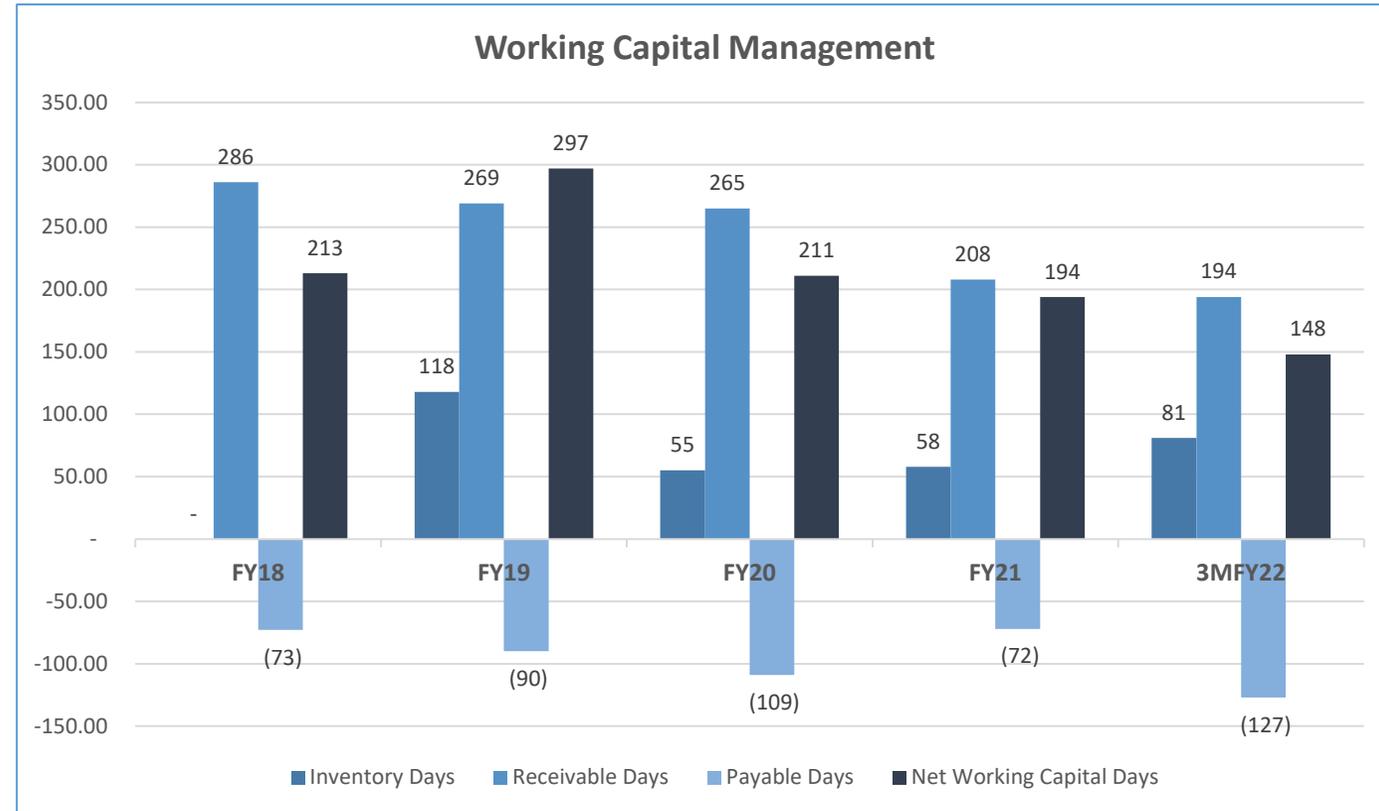
- In recent years, industry’s profit margins have observed a declining trend as the level of competition has increased. Market players try to stay competitive by either lowering prices or offering extra value added services to retain and acquire new customers. The industry gross margins have decreased from 60% in FY18 to 33% in FY21 over the last 4 years.
- During FY21, there was significant improvement in industry margins as compared to FY20 where lockdown and mobility restrictions led to slowdown of the economic activities. In addition, government’s monetary policy to lower the policy rates also contributed to improvement of net margin which, though remaining negative, rose to -6% in FY21 from -29% in FY19.
- During 3MFY22, the operating margin showed a modest decline and stood at ~5% (FY21 ~6%). Meanwhile, the bottom-line continued to be distressed as PKR/USD parity along with commodity inflation has reduced the pace of normalization post COVID-19.
- The largest component of direct costs for the industry is Equipment and Salaries & Wages, which contributes ~57% to total direct costs as the industry imports devices from US and China and has a requirement for technically proficient and skilled labor force.



TRACKING SERVICES

Financial Risk | Working Capital Management

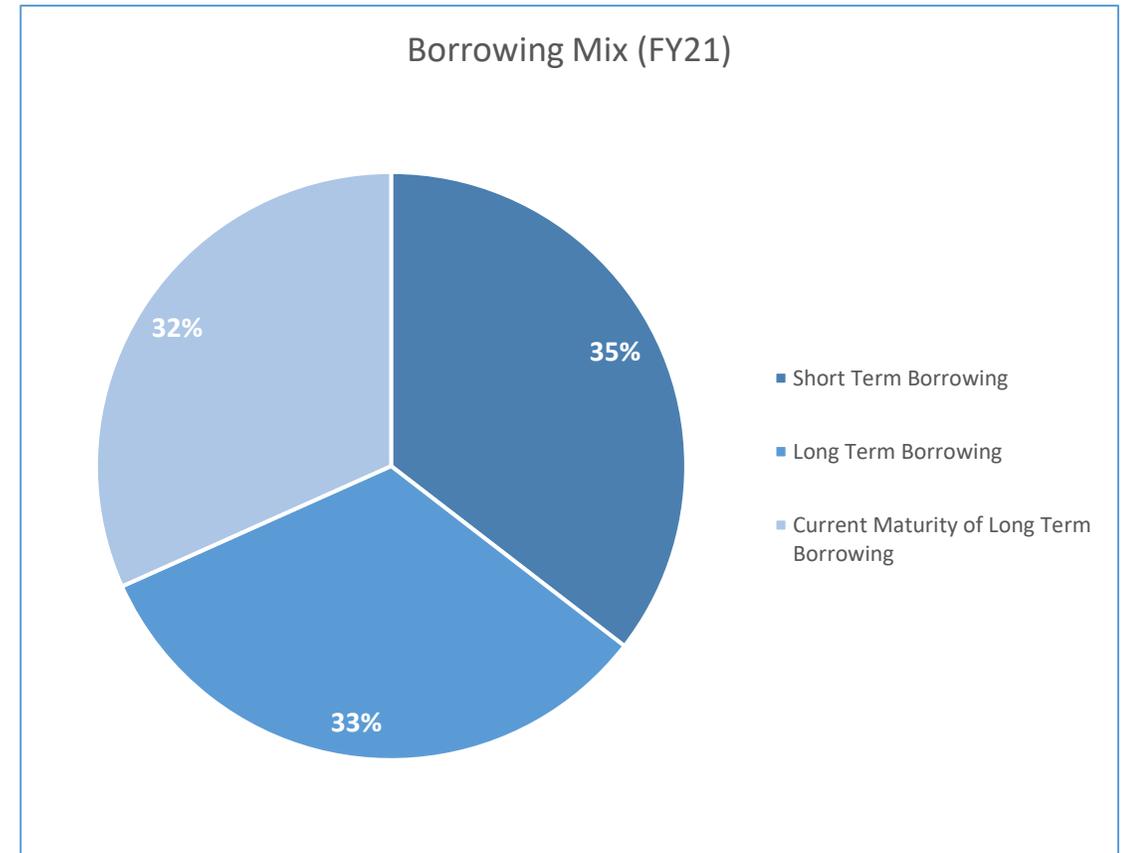
- The industry’s working capital cycle is largely a function of trade receivables and trade payables. Inventory levels have remained largely stable in recent years while there has been a slight decreasing trend in trade receivable days. Corporate clients normally maintain a minimum credit period of 3 - 4 months leading to a large cash cycle for the industry.
- The average net working capital cycle of the industry is ~220 days. The longer operating cycle is due to the credit policy adopted by the industry as the subscriptions are mostly renewed quarterly or on annual basis.
- Net working capital days in FY21 stood at 194 days, a small decline from 211 days in FY20.



TRACKING SERVICES

Financial Risk | Borrowings

- The industry’s total borrowing stood at PKR~8,710mln at the end of FY21 as compared to PKR~8,114mln at the end of FY20, a YoY growth of ~7%.
- The largest component of the industry’s borrowing is short term borrowing which constitutes ~35% of total borrowing and stood at PKR~3,090mln in FY21 (FY20: PKR~2,631mln). This is due to high working capital requirement as the company has a long operating cycle.
- Meanwhile, long term borrowing contributes ~33% to total borrowing and stood at PKR~2,857mln (FY20: PKR~1,540mln).
- In addition, current maturity to long term borrowing amounts to ~32% of total borrowing and stands at PKR~2,761mln (FY20: PKR~3,942mln).
- The industry has an average leverage ratio of ~62% indicating a moderate to high level of financial risk.



Local Industry | Regulatory Framework

- Players in the tracking services industry are required to obtain a Data Class Value Added Services (CVAS) License from the Pakistan Telecommunication Authority (PTA). The Data CVAS license covers two types of services, vehicle tracking and internet/data services.
- The adjacent table shows the applicable initial license fees:
- In addition, for commercial organizations, an Annual License Fee is also applicable which is 0.5% of the Licensee's Annual Gross Revenue from the Licensed Services for the latest financial year.
- The process of obtaining the license includes submitting relevant documents to the PTA including Memorandum & Articles of Association along with a Technical Network Plan which lays out detailed technical architecture showing mechanism for service delivery. The CVAS License is valid for a period of fifteen years.
- After obtaining the license, the organization must also obtain a commencement certificate which is issued after an inspection of the organizations network and equipment.

Initial License Fee	Nationwide	Provincial*
Commercial	PKR 300,000	PKR 100,000
Non-Profit	PKR 150,000	PKR 50,000

*50% reduction in commercial rate for Baluchistan



TRACKING SERVICES

Local Industry | SWOT Analysis

- Conducive environment due to the presence of IT Parks, Tech SEZs and Start Up Incubators.
- Availability of skilled labor as more than 20,000 IT graduates enter the workforce each year.
- Large population with access to smartphones
- Technology based ventures using tracking services including delivery services.

- Technological obsolescence if new technology is introduced.
- Increasing level of competition in the industry may further reduce margins.
- Increase in policy rates can significantly impact the bottom line of the industry.



- B2B players are dependent on conditions in client industries and sectors such as the automobile industry.
- Low level of digital literacy amongst a portion of the country's population, particularly in rural areas.
- High R&D Costs in order to maintain competitive advantage.

- Growing urbanization and digital literacy has increased demand for online services, apps and e-commerce platforms.
- Introduction of new players in automobile segment has increased the market for vehicle tracking services.
- CPEC projects and SEZs expected to increase demand for cargo tracking

Outlook: Negative

- Pakistan's economy is on the path of recovery after the decline witnessed due to the COVID-19 pandemic. Likewise, the offtake of automobile industry was hampered which was seen by an overall decline in passenger car sales by ~54% during FY20. However, both the economy and automobile industry have begun to recover as exhibited by the ~55% increase in passenger car sales during FY21.
- In addition, the lockdown restrictions forced a large number of people towards remote working while also increasing the usage of various online services. This situation created opportunities for the tracking industry to provide services to a number of apps and e-commerce platforms for the tracking of food and good deliveries. This opened a new stream of revenue for the industry.
- While margins have been affected due to increase in operational expenses and competitiveness of the industry, the expected growth in business volumes on the back of various CPEC projects, development of Special Economic Zones (SEZs), boom in the fintech industry as well as the entrance of new auto players in the market can assist the industry players to recoup lost profit. Investment in R&D and innovation can also continue to create growth opportunities for the industry in previously untapped areas.
- The decision taken by the State Bank of Pakistan (SBP) to reduce the policy rate by 625bps to 7% in the last quarter of FY20 lowered the finance costs and improved net margins during FY21. This also encouraged consumers to obtain auto-financing and thus contributed to the increase in automobile sales. However, SBP has increased the policy rate twice by 175 basis points from 7% to 8.75% since September 2021, after more than a year on hold, to counter inflation and to preserve stability with growth. Furthermore, to control the expanding current account deficit, SBP has also revised the Prudential Regulations for car financing and put restrictions on car financing and finance burden criteria which will severely affect the number of car financed by Financial Institutes. This will hinder the growth of Tracking Service Industry as it is directly reliant on the offtake of Automobile Industry.
- The average inflation rate during FY21 stood at ~8.9% as compared to an average inflation rate of ~10.7% during FY20. Till October 2021, the inflation level in the country has increased to ~9.2%. Moreover, the PKR has depreciated by 9.44% during the ongoing fiscal year, till October 2021. This will have a negative impact on the local vehicle tracking industry as it is heavily dependent on imported inventory.
- New variants of the virus, Omicron, discovered only recently has already forced many countries to introduce tighter travel restrictions. Another lockdown in the country can have serious consequences for the industry, as witnessed during FY20.
- Due to increased cost of production, elevated interest rates and an expected slowdown in automobile offtake, it is anticipated that the already distressed margins may further deteriorate and the industry will take a longer than expected time to recover from the setback of FY20.

- Pakistan Bureau of Statistics (PBS)
- Pakistan Stock Exchange (PSX)
- State Bank of Pakistan (SBP)
- Pakistan Telecommunication Authority (PTA)
- PACRA Database
- <https://electronics.howstuffworks.com/everyday-tech/location-tracking1.htm>

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