The Pakistan Business Council

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PAKISTAN'S ROAD LOGISTICS SECTOR: CHALLENGES, OPPORTUNITIES, AND POLICY RESPONSE

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Pakistan's Road Logistics Sector: Challenges, Opportunities, and Policy Response

The Pakistan Business Council (PBC)

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The Pakistan Business Council: An Overview

The Pakistan Business Council (PBC) is a research-based business advocacy platform established in 2005. It is now supported by over 100 private sector local and multinational businesses with significant investment in, and long-term commitment to sustainable growth of the country. They come from 14 countries, have leading roles in 17 major sectors of the formal economy, generate 40% of annual exports, contribute a third of Pakistan's total tax revenues and employ three million. Their combined sales represent every 6th Rupee of Pakistan's GDP.

PBC's major objectives are to advocate polices that lead to creation of jobs, value-added exports and reduction in import reliance through improved competitiveness of manufacturing, services and the agriculture sectors. It also promotes formalization of the economy.

PBC's over-arching theme, "Make-in-Pakistan" consists of three pillars: "Grow More/Grow Better", "Make More/Make Better" and "Serve More/Serve Better." Its evidence-based advocacy is backed by over a hundred studies to date through its full-time research team, supplemented by collaborative research with renowned industry experts and economists. Through its Centre of Excellence in Responsible Business (CERB), PBC works to build capacity and capability of businesses beyond its membership, to adopt high environmental, social and governance standards. PBC holds conferences, seminars and webinars to facilitate the flow of relevant information to all stakeholders in order to help create an informed view on the major issues faced by Pakistan. Through its presence in Islamabad and Karachi, it works closely with relevant government departments, ministries, regulators and institutions, as well as other stakeholders including professional bodies, to develop consensus on major issues impacting the economy.

PBC is a pan-sectoral, not-for-profit, Section 42 entity. It is not a trade body; therefore, it does not advocate for any specific business sector. Rather, its key advocacy thrust is on easing barriers that thwart competitiveness of businesses in Pakistan. Further information on the PBC is available on: www.pbc.org.pk.

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- To provide for the formation and exchange of views on any question connected with the conduct of business in and from Pakistan.
- To conduct, organize, set up, administer and manage campaigns, surveys, focus groups, workshops, seminars and fieldwork for carrying out research and raising awareness in regard to matters affecting businesses in Pakistan.
- To acquire, collect, compile, analyze, publish and provide statistics, data analysis and other information relating to businesses of any kind, nature or description and on opportunities for such businesses within and outside Pakistan.
- To promote and facilitate the integration of businesses in Pakistan into the World economy and to encourage in the development and growth of Pakistani multinationals.
- To interact with governments in the economic development of Pakistan and to facilitate, foster and further the economic, social and human resource development of Pakistan.

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LCI
LUCKY CORE INDUSTRIES

LMC Lucky Motor Corporation

Pakistan Cables

Tri-pack
Tri-Pack Films Limited

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Acronyms

3PL	Third-Party Logistics
ADR	Agreement concerning the International Carriage of Dangerous Goods by Road
CAREC	Central Asia Regional Economic Cooperation
CGRA	Carriage of Goods by Road Act
CPEC	China-Pakistan Economic Corridor
E-LPI	Export Logistics Performance Index
EDB	Engineering Development Board
EU	European Union
FBR	Federal Board of Revenue
FOAP	Fleet Operators Association of Pakistan
GHGs	Greenhouse Gases
GPS	Global Positioning System
ITS	Intelligent Transport Systems
LPI	Logistics Performance Index
MoC	Ministry of Communications
MoIP	Ministry of Industries & Production
MVO	Motor Vehicles Ordinance
N-5	National Highway 5
NDCs	Nationally Determined Contributions
NHA	National Highway Authority
NHSO	National Highway Safety Ordinance
NLC	National Logistics Corporation
OEMs	Original Equipment Manufacturers
OGRA	Oil and Gas Regulatory Authority
PIFFA	Pakistan International Freight Forwarders Association
PSQCA	Pakistan Standards & Quality Control Authority
SCM	Supply Chain Management
TIR	Transports Internationaux Routiers
TOs	Terminal Operators

EXECUTIVE SUMMARY

Executive Summary

The logistics sector plays a critical role in economic growth, productivity, and export competitiveness globally. It contributes significantly to resource positioning, employment, and the economy's purchasing power. Logistics costs typically account for 12-15% of a developing country's GDP and 18-20% in developed countries. The sector operates in roads, rail, water, and air, with digital data transfer emerging as a fifth medium. Efficient logistics systems directly influence economic performance, shifting developing economies towards industrial sectors and aiding export diversification.

Countries with lower transport costs tend to be more open to trade, but this effect weakens if transport costs surpass the global average. Improving logistics is particularly crucial for Pakistan, where logistics performance significantly impacts trade costs, especially in manufacturing. While tariffs only explain a small portion of trade cost variation, logistics factors such as transport infrastructure, customs procedures, and supply chain efficiency play a larger role. Evidence also shows that higher transport productivity correlates with better logistics performance, which is important for Pakistan, as its transport sector productivity has stagnated. Sectors like agriculture, mining, and heavy industries—key to Pakistan's economy—are logistics-intensive and will benefit greatly from logistics improvements, helping the country diversify exports and improve competitiveness.

The overall logistics sector in Pakistan is a critical component of the country's economic infrastructure, contributing over 10.5% to the GDP and employing 5.4% of the workforce. However, the sector is underperforming, with declining performance trends over the past seven years. Its volatility is significantly higher than the overall economy, showing a lack of resilience. Public sector investments in transport are increasing, while private sector investments are declining sharply, indicating fragility in private operations. The road sector dominates Pakistan's logistics, with an extensive road network of 501,169 km, compared to just 7,791 km of rail network. Investments in rail have been stagnant for the past three decades. Additionally, the country has only 300,649 registered trucks, indicating a massive gap in trucking infrastructure compared to neighbouring countries like India, which has 12.5 million trucks.

The logistics sector faces critical challenges, most notably the over-reliance on road transport. Currently, 94% of freight is moved by road, which drives up supply chain costs and diminishes global competitiveness. Road congestion, pollution, and higher costs are further exacerbated by the underutilization of alternative modes such as rail, inland waterways, and air freight. While Pakistan Railways was once a key player in freight transport, its outdated infrastructure has hindered its capacity to handle modern demands. Similarly, inland waterways, particularly the Indus River, remain largely untapped despite some government efforts to develop the sector. Air freight also remains underdeveloped, as domestic airlines prioritize passengers over cargo.

The country's port infrastructure is another weak link in the logistics chain. Karachi Port and Port Qasim handle over 95% of imports and exports, but they face significant bottlenecks, particularly in customs clearance, which increases logistics costs. Additionally, the lack of rail connectivity to Karachi Port contributes to congestion. While Gwadar Port has potential as a transshipment hub, its development is hindered by security concerns and underutilization, despite initiatives like the China-Pakistan Economic Corridor (CPEC) aimed at improving port infrastructure.

Warehousing and cold-storage facilities are also underdeveloped, with critical gaps in infrastructure leading to significant losses, especially in perishable goods. Over 40% of perishables are lost due to inadequate storage options. The lack of cold storage at key transport hubs such as airports and railway stations further limit the country's ability to handle temperature-sensitive goods efficiently. Institutionally, Pakistan's logistics framework is fragmented and outdated. Despite the development of policies like the National Transport Policy and the National Freight & Logistics Policy, implementation has been slow. The absence of a unified transport ministry and outdated laws, such as the Carriage of Goods by Road Act, also hinders effective policymaking and coordination.

The country's road logistics sector is severely hindered by a lack of investment, old inefficient trucks, outdated infrastructure, and inefficiencies. The market is dominated by small, owner-operated companies, with nearly 85% of providers being owner-operators, but these operators control less than 2% of the total market share. This fragmented structure limits the sector's growth, as many operators face challenges such as outdated vehicles, lack of professional training, and insufficient funds for fleet upgrades. The absence of modern technology further hampers efficiency, with many vehicles failing to meet international standards and lacking proper insurance coverage, which exposes operations to greater risk.

Additionally, the issue of overloading trucks contributes to road damage, higher maintenance costs, and further deterioration of infrastructure, creating a cycle that raises logistics costs. These inefficiencies and outdated practices slow the sector's ability to meet modern economic demands and leverage Pakistan's strategic location as a trade hub. The spatial inefficiencies are particularly evident in export industries reliant on imported inputs, which are typically located near the port or within a range where transportation costs don't heavily deter competitiveness.

Road transport remains the most expensive mode of transport, inflating the cost of the entire supply chain. Traffic assessments indicate that road traffic in Pakistan is expected to grow by 40% over the next decade, significantly increasing fuel consumption and greenhouse gas (GHG) emissions. The road transport sector consumes nearly three times as much fuel as the rail sector, further straining resources and contributing to environmental challenges. Policymakers have focused on improving road infrastructure, especially through projects under the China-Pakistan Economic Corridor (CPEC) and Central Asia Regional Economic Cooperation (CAREC), but there has been limited investment in public transportation or industrial growth policies that support the road investment strategy. While national highways and motorways have seen improvements, traffic congestion continues to rise.

The trucking logistics industry also faces a critical gap in fuel-efficient and environmentally friendly vehicles, limiting Pakistan's ability to position itself as a regional trade hub. Smaller, fuel-inefficient trucks contribute to higher costs and greater GHG emissions. With the global shift toward climate-related policies such as the EU Green Deal, these emissions could result in certain exports being excluded from international markets, further undermining Pakistan's competitiveness in global trade.

The policy paper has developed a quantitative benchmark, the Export Logistics Performance Index to measure the distance from the frontier across key domains. The results show a score of 2.3 out of 5. This indicates a 54% underperformance compared to regional benchmarks, highlighting significant inefficiencies that limit Pakistan's export competitiveness. A longitudinal analysis of the sector reveals a decline in performance, with the Logistics Performance Index (LPI) dropping from 2.42 in 2018 to 2.3. These deficits are primarily due to deficiencies in sustainable logistics, supply chain management, transportation efficiency, and freight costs, which collectively undermine the sector's ability to compete regionally.

The most significant gap lies in sustainable road logistics, which shows a 138% underperformance relative to top regional performers. Environmental effectiveness is a major concern, driven by outdated vehicles and a lack of policies to replace them, resulting in high carbon emissions and failure to meet international environmental standards. This limits the integration of Pakistan's logistics into global supply chains, where sustainability is increasingly a key criterion.

Other key gaps include poor supply chain management, with a 97% shortfall in network optimization and technology adoption. Additionally, the sector lags in performance evaluation due to manual processes and outdated cross-border tracking systems. Pakistan could improve efficiency by adopting digital permit systems like China's. Strategic positioning also suffers, with an incomplete implementation of the TIR Convention and a lack of modern dry ports and warehousing facilities near urban centers and borders, increasing costs and impeding export competitiveness.

Other domains showing underperformance include transportation time efficiency, value-added services, and formal-sector freight costs, which have gaps of 60%, 65%, and 67%, respectively. Inefficiencies in vehicle availability, customs procedures, and outdated trucks contribute to these performance deficits. Informal trucks, which do not meet international standards, further increase costs, and prevent access to key markets like China.

Pakistan's road logistics sector faces deep structural and institutional challenges that undermine its potential to support national and export competitiveness. The sector, responsible for most of the country's freight movement, remains informal, poorly regulated, and under-invested, leading to inefficiencies and a lack of competitiveness. One of the central issues is the absence of a coherent institutional and policy framework to foster compliance, enforce regulations, and encourage formal growth. Fleet operators who comply with regulations, such as axle load limits and licensing, are penalized with higher costs, while informal operators—backed by politically powerful industries like cement and sugar, operate with impunity, distorting the market and preventing the development of a sustainable logistics value chain.

The fragmented governance of the logistics sector, where different agencies control roads, customs, ports, and airports, exacerbates the problem. This diffusion of responsibility prevents integrated infrastructure planning and strategic coordination. The absence of a dedicated Ministry of Transport and Logistics has been a critical bottleneck, failing reform programs like the National Trade Corridor Improvement Program. The policy incoherence manifests on the ground through outdated regulatory practices, inconsistent route permits, and selective enforcement of axle load laws, where fines are treated as a cost of doing business.

The National Logistics Cell (NLC), a state-run entity, has grown to dominate the logistics sector, moving around 60% of Pakistan's crude oil. However, its privileged position distorts the market by crowding out private firms. The government's reliance on NLC for sensitive cargo, even when private options are cheaper and more efficient, stifles competition and discourages innovation and investment in the sector.

Operational inefficiencies further hinder the logistics chain. Poor infrastructure, such as dilapidated roads and the lack of functional weighbridges and warehousing, leads to delays and increased costs. The absence of modernized vehicles and fleet maintenance support, compounded by high leasing costs and limited access to financial instruments, perpetuates the reliance on outdated and environmentally harmful trucks.

The segmentation of logistics into formal, informal, and quasi-governmental sectors creates silos, increasing costs for compliant firms while informal players evade regulations. To address these challenges, Pakistan requires a strategic overhaul, including the establishment of a Ministry of Transport and Logistics, equitable axle load enforcement, fleet renewal programs, and investment in multimodal integration, particularly rail and cold chain logistics. Only through comprehensive reforms can Pakistan develop a modern, efficient, and competitive logistics sector.

The report makes a host of recommendations to address issues faced by the sector. The prioritized set of actions includes the following:

1. Institutional Governance and Financial Enablement

- **Official Notification of Industry Status:** Immediately publish the gazette notification recognizing the trucking sector as an industry. This will enable freight operators to access formal banking channels, leasing options, and structured financing to modernize their fleets.
- **Dedicated Ministry or Focal Authority of the Logistics Sector:** It is important to realize that logistics is an interconnected sector, and one mode is not independent of the other. Therefore, a focused approach is required to help the sector grow.
- **Access to Green Financing:** Develop tailored green finance products through public and private banks to support replacing outdated diesel trucks with fuel-efficient, environmentally friendly models. This should include concessional loan terms and subsidies for Euro 5-compliant vehicles.
- **Inclusive Financial Support:** Ensure small freight operators, independent transporters, and new market entrants have equitable access to credit and leasing facilities. Partnerships with larger entities like NLC should be encouraged to support knowledge sharing and onboarding.

2. Infrastructure Development

- **Upgradation of National Highways and Regular Maintenance:** The Hyderabad-Sukkur motorway needs to be completed, and the existing national highway must be repaired. There is a need for enhanced police checkpoints and security to avoid theft and vehicle damage.
- **Warehousing and infrastructure at Ports:** There is a need for advanced warehousing across the country and at strategic crossing points like main highways with farm-to-market roads. The master plan for this needs to be developed as a top priority.
- **Missing Farm-to-Market Roads:** The country still lacks critical road connectivity. A holistic plan linking farm to market to port must be developed and implemented.
- **Network Connectivity:** To implement and use digital solutions, network connectivity across all road networks is essential. This must be ensured by enhanced investments by USF in underserved areas.

3. Technology Adoption and Innovation

- **Awareness Forums:** Conduct an annual national forum to introduce private sector stakeholders to global trends in freight technology, digital platforms, and best practices in logistics efficiency.
- **E-Governance in Freight Management:** Launch an integrated online permit issuance system to improve transparency, reduce delays, and enhance operational efficiency.

- **Digital Weighing and Toll Systems:** Establish a centralized, tamper-proof system for weight checks on highways and motorways to reduce bribery, lower freight costs, and ensure compliance.

4. Capacity Building and Human Resource Development

- **Driver Training Institutes:** Set up certified training schools focused on developing professional truck drivers who are well-versed in international freight regulations, road safety, and cross-border protocols.
- **Workshops on Regulatory Benefits:** Organize regular workshops to train logistics companies, fleet managers, and freight forwarders on how to leverage government reforms, financing schemes, and compliance tools for operational growth.
- **Inclusion and Gender Empowerment:** learning from the experience of Engro, women drivers may also be trained, and specific quotas may be set for the inclusion of women drivers.

5. Sustainability and Long-Term Vehicle Modernization

- **Support networks to comply with Euro 5 Standards:** Support partnerships with prime movers of left-hand drive truck operators in Afghanistan and gradually improve the move towards Euro 5 compliant diesel and look at investments in LNG infrastructure required to enhance the use of trucks on this fuel.
- Fleet Renewal Support: Provide incentives and policy support for upgrading existing freight fleets with vehicles that meet international environmental and performance benchmarks.

6. Regulatory Streamlining and Export Facilitation

- Full Implementation of Axle Load Regulations with Strong Penalties: There is a need to fully implement the load restrictions, and strict action may be introduced in case of non-compliance. Strong actions must ensure that vehicles are impounded, and goods are seized. Simple fines will not ensure compliance.
- Harmonization of Provincial Motor Vehicle Rules: The Motor Vehicle Rules 1969 and the provisions contained within them must be harmonized across all provinces.
- Visa Facilitation for Freight Forwarders: Implement immediate compliance by the Ministry of Foreign Affairs with the Ministry of Communications' directive to expedite visa issuance for registered freight forwarders, improving cross-border logistics and export competitiveness.
- Customs and Documentation Modernization: Introduce legal equivalency for electronic documentation in logistics, enabling smoother cross-border operations, e-commerce delivery networks, and reverse logistics systems.

SECTOR CONTEXT

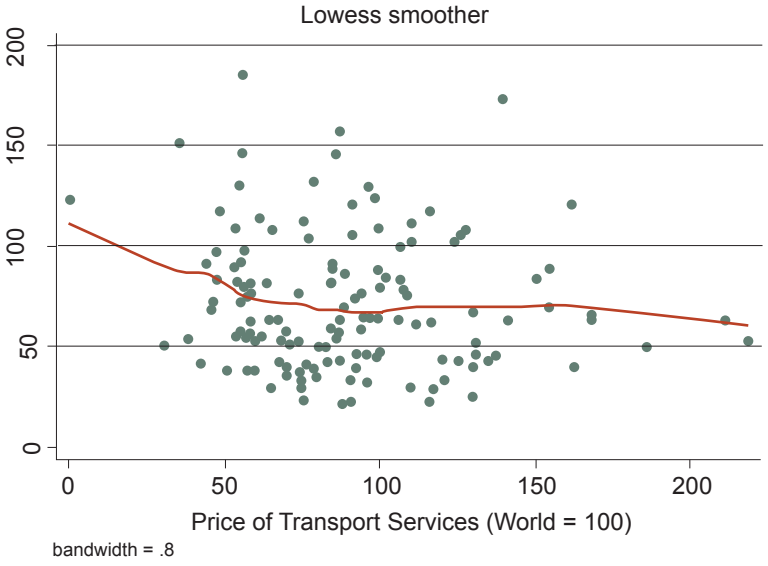
Sector Context

Importance of Logistics: Key Results

Logistics globally play a significant role in determining economic growth, enhanced productivity, and export competitiveness. Logistics management is critical for the time-related positioning of resources. Logistics plays an instrumental role in facilitating market exchanges, providing substantial employment, and is also a key purchaser of assets and materials in the economy. Logistics add time value and spatial utility to a country's produce. Logistics costs are in the range of 12-15% of the GDP for a developing country, while it is around 18-20% for a developed country.[1] The logistics industry globally operates via roads, railways, water, and airways. It can be argued that a fifth medium now is digital data transfer capabilities and Internet bandwidth, as high-value digital products are transported through these.

The efficiency and effectiveness of the logistics sector have a direct bearing on a country's income and economic performance. Evidence shows that as the logistics performance improves, it shifts developing economies towards more industrial sectors, helping with goals like export diversification. Countries with lower transport costs are usually more open to trade. However, this relationship is strongest when transport costs are below the global average. Once transport costs rise above that level, the connection weakens or disappears. While this pattern fits expectations, it also suggests that countries with very high transport costs will not see major economic improvements unless they make big, targeted changes. This idea of needing a "big push" to improve logistics performance has also been highlighted in recent studies—a clear case for Pakistan.[2]

Figure 1: Trade Openness & Price of Transport Services



Source: World Bank, 2010

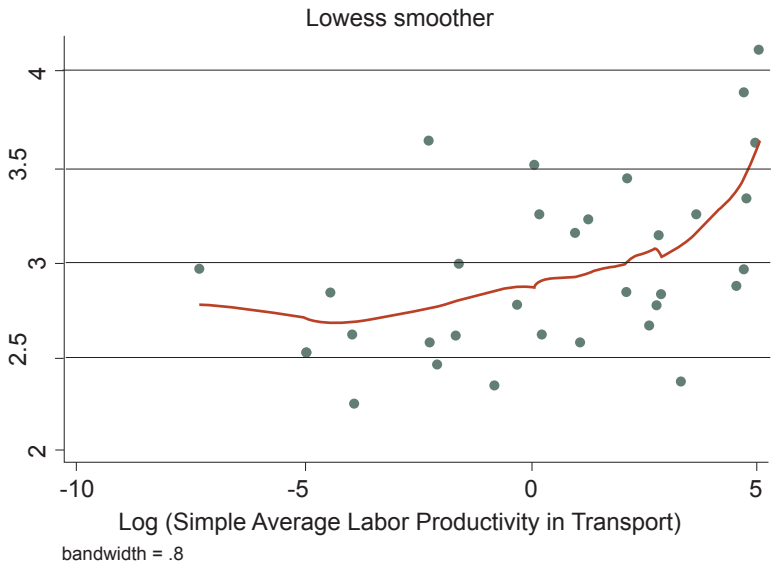
[1] Rail-Road Logistics, Paper 3.5, Alagappa University, India, 2017

[2] World Bank, 2010

Logistics play a critical role in driving trade costs, especially in the manufacturing sector. The analysis shows that logistics alone accounts for over 15% of the variation in total trade costs across countries. In contrast, tariffs—often a focus of trade policy—explain only about 0.6% of that variation. Distance, which is outside the control of policymakers, accounts for more than one-third. This highlights an important point: among the policy-related barriers to trade, logistics is a key factor. Improving logistics systems—like transport infrastructure, customs procedures, and supply chain efficiency—can have a much greater impact on reducing trade costs than lowering tariffs. If Pakistan is to improve competitiveness and access global markets, investing in better logistics is not just helpful—it's essential.

Evidence shows a clear positive association between transport productivity and logistics performance (see Figure 2 below). Countries that have higher productivity are also better performers in logistics efficiency and performance. This is important in the context of Pakistan, as overall productivity has at best remained constant or seen a slight decline. The efforts to enhance labour productivity in the transport sector will have a direct impact on improving logistics performance.

Figure 2: Logistics Performance & Labour Productivity



Source: World Bank, 2010

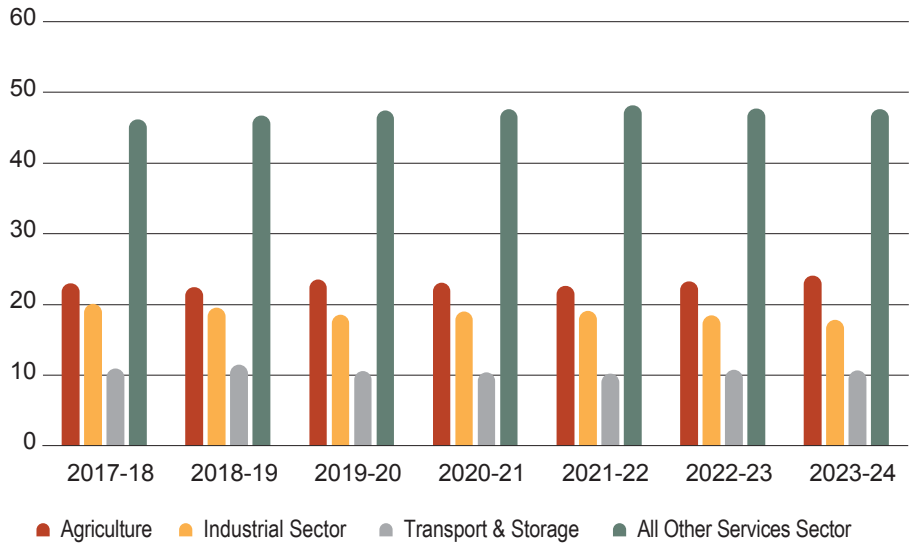
The importance of the logistics sector varies in terms of countries 'logistical intensity'. Logistical intensity is defined as the percentage by value of total intermediate input use accounted for by logistics services. Evidence shows that sectors such as agriculture, mining and minerals, and heavy industries are more logistics intensive. Therefore, export diversification in countries with more logistics-intensive sectors will only happen through significant improvements in logistics efficiency and effectiveness. Pakistan comprises key agriculture sectors, emerging mining and mineral sectors and houses heavy industries such as cement and chemicals, therefore, will benefit substantially from the improved logistics industry.

[3] World Bank, 2010 and Hoekman & Nicita, 2009

Structure & Highlights of Pakistan's Logistics Sector

The transport and logistics sector plays a crucial role in the economic infrastructure of any country, and Pakistan is no exception. It serves as the backbone of the economy by enabling the efficient movement of goods, services, and people. The sector's contribution to the economy is substantial, with transport alone accounting for over 10.5% of the Gross Domestic Product (GDP) (See Figure 3) and 5.4% of the total employment in the country. This highlights the critical importance of the freight and logistics sector as a key driver of Pakistan's economic activities and trade.

Figure 3: Sectoral Shares in GDP (%)

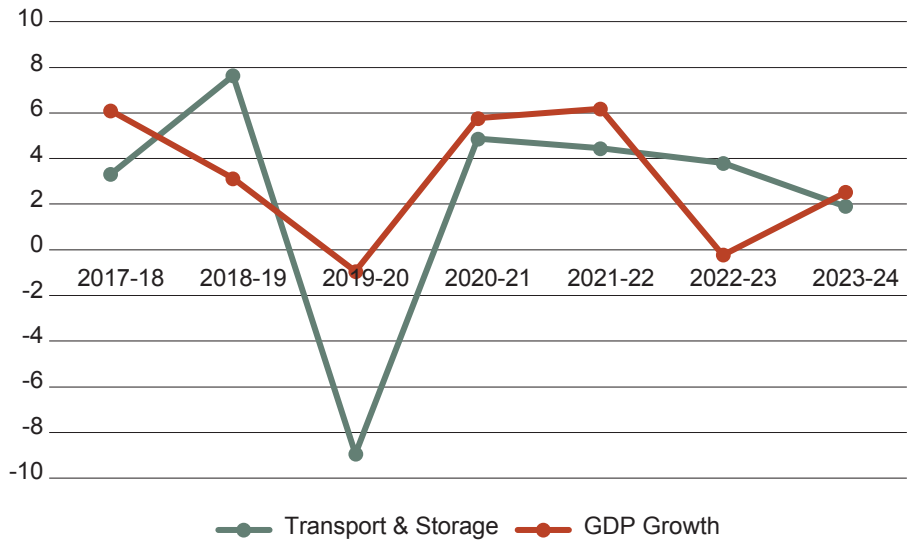


Source: Pakistan Economic Survey 2023-24, Government of Pakistan

However, despite its significant economic contribution, the logistics sector in Pakistan remains fragmented and underdeveloped. The performance, as captured in **Figure 4** below, shows a strong declining trend over the past 7 years. Moreover, the sector is much more volatile as compared to the overall volatility of the economy. Based on the Coefficient of Variation, the transport sector's performance is almost 2.5x more volatile than the overall economic performance. This shows that the sector has little resilience, and even a small shock to the economy can be detrimental for the sector.

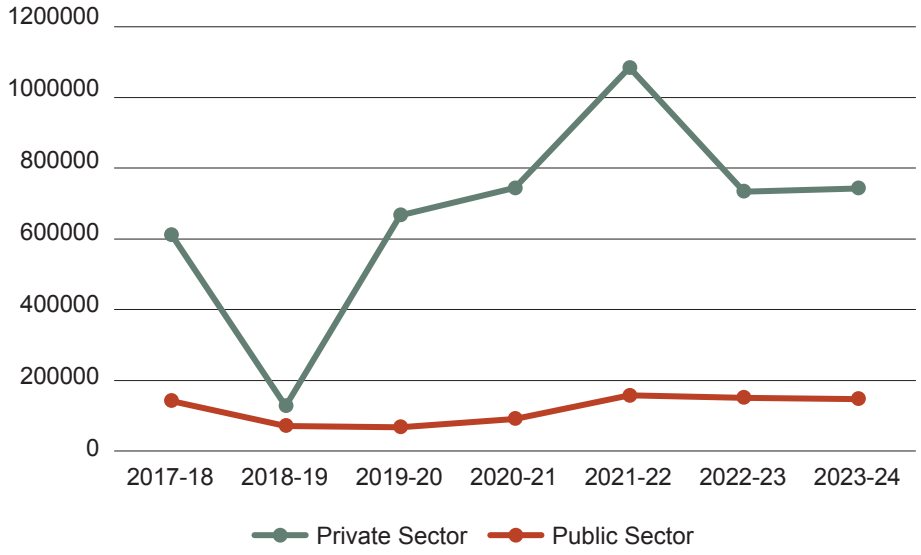
The gross capital formation shows an interesting trend, where the public sector investments in the transport and communication sector are steadily increasing, while those of the private sector are much more volatile and declining over the last few years. The change between 2021-2023 was more than negative 30%. This signifies the fragility of the private sector operations within the sector (See Figure 5).

Figure 4: Growth Performance (%) (2017-2024)



Source: Pakistan Economic Survey 2023-24, Government of Pakistan

Figure 5: Gross Capital Formation in the Transport & Communication Sector (PKR, MN)



The overall logistics and transport sector in Pakistan is dominated by the Road Sector. As a simple comparator, Pakistan's road network totals 501,169 Km, while the rail network length is 7,791 Km. Pakistan International Airlines managed a total route of 301,832 km. In terms of relative comparison, India is almost 3.7x the land size of Pakistan and has 13x more roads and 9x more railway length than Pakistan. Pakistan's investments to expand the rail network have been zero, with no expansion over several decades. Furthermore, in Pakistan, there are only 300,649 trucks registered (1 truck for almost 800 people), while in neighbouring India, the number is as high as 12.5 million (1 truck per 115 individuals). The fleet size of Afghanistan, despite having limited trade, is approximately 160,000 trucks (1 truck per 259 individuals). This suggests a major gap and an opportunity for investment if enabling conditions are provided.

Structural Issues

The most pressing concern for Pakistan's logistics sector is the modal imbalance in the transportation system. Currently, **94% of freight** is moved by road, which is one of the most expensive modes of transport. This over-reliance on road transport elevates supply chain costs, making it less competitive in the global market. While Pakistan's road network, including national highways and motorways, plays a central role in freight transportation, other modes of transport, such as rail, inland waterways, and air freight, are underutilized. This skewed modal mix places a tremendous strain on road systems, causing congestion, environmental pollution, and higher transportation costs.

Pakistan Railways, once a major player in freight transport, has lost its competitive edge to road transport over time. The country's rail infrastructure is outdated and ill-equipped to meet modern transportation demands. Although recent efforts have been made to prioritize freight within the Pakistan Railways system, the railway infrastructure is still in poor condition, limiting its ability to handle large volumes of cargo efficiently.

Similarly, inland waterways—despite the existence of the Indus River—remain largely untapped as a viable mode of transport. The government has made some attempts to develop this sector, particularly with projects such as the Attock to Daud Khel waterway, but these initiatives have yet to reach their full potential. Air freight also remains underdeveloped, with domestic airlines prioritizing passengers over freight, leaving limited capacity for cargo transport.

Pakistan's port infrastructure is another critical area that needs urgent attention. The country's two major international gateways, Karachi Port and Port Qasim, handle over 95% of the country's imports and exports. Despite recent expansions and improvements that have reduced dwell times at these ports, there are still significant bottlenecks and delays, particularly in customs clearance procedures. These delays contribute to inefficiencies and increased logistics costs. Moreover, the lack of a functioning rail connectivity to Karachi Port exacerbates the congestion and hinders the seamless movement of goods to and from the ports.

While Gwadar Port holds significant potential to become a major transshipment hub, it is still underdeveloped and not yet fully operational. The China-Pakistan Economic Corridor (CPEC) and Central Asia Regional Economic Cooperation (CAREC) initiatives are expected to play a vital role in enhancing the country's port infrastructure and overall logistics network, but much work remains to be done to capitalize on these opportunities. The enhanced concerns relating to law and order and security have further slowed the progress despite recent efforts by the government.

The warehousing and cold-storage sectors in Pakistan are also in their infancy, with significant gaps in facilities and infrastructure. A lack of adequate warehouses near the ports, especially for perishable goods, leads to a high percentage of **food losses**. It is estimated that more than 40% of perishable goods are lost due to the absence of proper storage facilities. Additionally, the country lacks sufficient cold-storage facilities at key locations such as **railway stations** and **airports**, further limiting its capacity to handle temperature-sensitive goods efficiently.

Pakistan's institutional framework governing the logistics sector is underdeveloped and fragmented. The country's transport and logistics laws are outdated, with many provisions no longer suited to the modern logistics landscape. Although the government developed the National Transport Policy and the subsequent National Freight & Logistics Policy, the implementation remains a problem. A key piece of legislation, the Carriage of Goods by Road Act, was drafted in 2003 but has yet to be approved. The absence of a unified transport ministry has further hindered effective coordination and policymaking, leading to delays in implementation.

Another major issue in the logistics sector is the lack of modernized customs procedures and bureaucratic inefficiencies that result in long processing times. The country's customs framework remains outdated, and the implementation of international transport conventions, such as the Transports Internationaux Routiers (TIR), has yet to yield significant results. Moreover, Pakistan's transit trade agreements with neighboring countries like Afghanistan are not fully functional, which affects regional trade efficiency.

Despite some positive trends, Pakistan is still struggling to make significant strides in improving its logistics performance. The country ranks 122nd out of 160 countries in the Logistics Performance Index (LPI), a sharp decline from its 68th position in 2007. This deterioration is primarily due to inefficient customs processes, lack of reliable tracking systems, and inadequate infrastructure, all of which hamper the competitiveness of Pakistan's logistics sector in comparison to regional peers.

Focusing on the Road Logistics Sector

Road logistics suffers deeply at the hands of a lack of investment and modernization. The road freight transport market is dominated by small, owner-operated companies. Nearly **85% of the providers** operating in this sector are owner-operators, and these operators typically control less than **2% of the total market share**. This highly fragmented structure hampers the efficiency and growth potential of the road logistics sector, as many of these operators face limitations such as outdated vehicles, lack of professional training, and insufficient financial resources for fleet upgrades.

The outdated technology used by many road logistics operators in Pakistan also creates significant operational inefficiencies. Most vehicles in the sector do not meet international standards, which are crucial for participation in global supply chains. Furthermore, the lack of modernized vehicles and proper insurance coverage for drivers and cargo increases the vulnerability of operations. The situation is exacerbated by the tendency to overload trucks, which not only damages the country's road infrastructure but also increases the costs of road maintenance. Overloading creates a vicious cycle that results in the deterioration of roads, leading to additional expenditures and poorer road quality, which, in turn, further inflates logistics costs.

These systemic inefficiencies, outdated infrastructure, and policy gaps have slowed the industry's growth and innovation towards meeting modern economic demands and leveraging Pakistan's strategic location as a trade hub. These inefficiencies cost the economy in terms of spatially determined export competitiveness. The port of Pakistan lies at the southern end of the country. The freight cost of carrying the inputs up north and then transporting the finished products back south adds an unfavourable buffer to competitiveness. For this reason, most export industries that rely on imported inputs are spatially located near the port or at a distance that does not act as a deterrent.

Road transport remains the most expensive form of transportation, and it raises the cost of the supply chain for the entire economy. According to recent traffic assessments, the amount of road traffic is anticipated to be over 118 billion km annually and is predicted to increase by almost 40% over the next ten years in Pakistan. Fuel consumption is the highest in the road transport sector and the consequent GHG emissions.[4] The fuel consumption by road transport is almost three times as much as compared with railways.

Policymakers continue to focus on the nation's infrastructure, particularly its roadways, with the current road density reaching 0.58.[5] There is no industrial growth policy that has inspired the road investment policy, and this significant expenditure on roads has meant little public investment in the public transportation system. Most freight is transported on national routes and motorways,

[4] Draft New Energy Vehicle Policy, MoIP, Government of Pakistan
[5] Pakistan Economic Survey, 2023

especially the N5. Significant expenditures have been made on national highways and motorways under CPEC and CAREC, and the country's network has improved and expanded, which has increased the amount of traffic on the roadways.

The non-availability of a fuel-efficient and environmentally friendly modern fleet of vehicles is a serious limiting factor for the trucking logistics industry. It is not at par to support the vision of positioning Pakistan as a regional hub for land routes connecting China, Central Asia, Europe, and Russia, including the progress achieved through the China-Pakistan Economic Corridor (CPEC). Finally, the trucking sector supporting road logistics relies on smaller, fuel-inefficient trucks. While this increases the costs, it also results in greater GHG emissions. Under the new climate-related policies internationally, such as the EU Green Deal, the exporters will have to report their GHG emissions for compliance. The higher emissions by the logistics and freight sector may render certain export goods excluded.

Stakeholder Analysis for Road Logistics

The sector is connected to a diverse set of public and private stakeholders. The matrix below provides an assessment of stakeholders' political economy considerations. The views are based on the interviews and the literature review conducted for the policy paper and are limited to road logistics.

Stakeholder	**Ability (A1), Authority (A2), Acceptance (A3)** High-Medium-Low	**Influence** High-Medium-Low	**Interest** High-Medium-Low	**Remarks**
Ministry of Communication (National Highway Authority (NHA)	A1 – Low A2 – Medium A3- Medium-Low	Medium	Medium-Low	As the central policy making body and administrative authority in roads infrastructure and road transportation it has the relevant institutions, however, the focus is not aligned with the growth of private sector service providers and there is limited technical capacities. The policies framed have remained largely unimplemented.
Ministry of Industries & Production via Engineering Development Board	A1 - Medium A2 – Medium A3 - Low	Medium-Low	Low	EDB under MoIP regulates the import and manufacturing licenses and sets standards. The tariff policy for import of vehicles is under EDB and in that aspect it exerts influence. However, the focus has been on two and three wheelers.
Ministry of Planning & Special Initiatives as Parent Ministry of National Logistics Cell (NLC)	A1 - Medium High A2 – Medium A 3 – Medium High High	High	High	NLC is considered as the third standalone segment of the road logistics eco-system (other two being private informal transporters and formal fleet operators). NLC has emerged as a large player financed by public resources and in view of private sector has distorted the competition in the market. It enjoys significant influence and control over policies, contracts, and resources.
Pakistan Standards Quality Compliance Authority (PSQCA)	A1 - Low A2 – Low A 3 – Low	Low	Low	PSQCA is standards setting body and sets standards for compliance. However, the ability to set standards and enforce them is inadequate. Also, there is some role duplication with EDB.

Stakeholder	Ability (A1), Authority (A2), Acceptance (A3) High-Medium-Low	Influence High-Medium-Low	Interest High-Medium-Low	Remarks
FBR	A1 - Medium High A2 – Medium A3 – Low	High	Low	FBR determines the tax policy and the customs process, procedures, and infrastructure. As road logistics is not seen as a separate industry there are no considerations based on the business models. The customs processes suffer from corruption and inefficiencies, although PSW is making some effort in digitalizing the overall eco-system of goods flow and integrating all players.
Ministry of Commerce	A1 - Medium A2 – Medium A 3 – Low	Medium	Medium-High	The tariff policy for trucks is with EDB, while MOC advocates for trade facilitation measures, however, most that are linked to road logistics are not under its direct control. MOC's interest is increasing as soon GHG compliance requirements for exports will have to be managed.
Ministry of Climate Change & Provincial Environment Departments	A1 - Low A2 – Low A 3 – Low	Low	Low	The climate concerns have recently become important; however, the role of these stakeholders is primarily advocacy for a move towards green transition and to report on NDCs.
Ministry of Defense	A1 - Medium A2 – Medium A 3 – Low-Medium	Medium	Low	The ministry mostly looks after transport function relating to defense. Limited interest in road logistics operations of the private sector.
Provincial Excise Departments and Transport Departments	A1 - Medium A2 – Medium A 3 – Low	High Low	Low	These are critical functionaries as they act as the registration authorities of vehicles and manage the route permits to transport goods. The have substantial authority, however, more inclined towards control rather than enabling actions.
OEMs and Truck Assemblers	N/A	Low	High	While the OEMs and truck assemblers have high interest, they are nowhere able to influence reform decisions. The tariff policy controlled by EDB is real driver of growth in this sector.
Formal Fleet Operators	N/A	Low-Medium	High	These comprise only a few entities, and have high interest in expanding investments, but have little control over policy making.
Fleet Operators Association of Pakistan (FOAP) and Pakistan International Freight Forwarders Association (PIFFA)	N/A	Medium	High	As sector bodies the associations have been making contributions to the sector, however, due to fragmented nature of governance, their influence has been limited.

Stakeholder	Ability (A1), Authority (A2), Acceptance (A3) High-Medium-Low	Influence High-Medium-Low	Interest High-Medium-Low	Remarks
Informal Truckers and Transporters	N/A	Medium	High	These are main segment of road logistics and mostly operating in violation of rules and regulations. Mostly based out of Northern parts of the country, they hold good influence within the sector.
Freight Forwarders	N/A	High	High	There are mainly two types of the freight forwarders operating in Pakistan. One, are those forwarders who have single network and a global presence. The others are acting under Principal & Agent contract. Both have their own dynamics with pros and cons. Forwarders are also acting as 3PL solution providers, Contract Managers and Ship Agents. They provide multiple value-added services and thus have good amount of influence and high interest in the sector.
Large Industrial Sectors (Cement, Sugar, Steel, Fertilizer, etc.)	N/A	High	High	These industries are main users of road transport providers and continue to press for low costs. These are strong lobbies, and this influences policies substantially.
Terminal Operators	N/A	Medium	Medium	TOs act as the bridge between the shipping line and the forwarders. Their main offering is container yard services. Their role is increasing as some are offering integrated services.
Third-Party Logistics Service Providers	N/A	High	High	These are entities other than freight forwarders that are offering 3PL services in both road and train freight services. They offer a mix of services such as warehouse management, contract management, and transport. They are mostly linked with the informal supply chain.
Warehouse Operators	N/A	Low	Low	This covers both cargo warehouses and cold storages. Some of these are operated by freight forwarders. They do command a critical role in managing the overall logistics supply chain.

In conclusion, the road logistics sector in Pakistan is facing significant challenges due to outdated infrastructure, fragmented ownership, and insufficient investment in modernization. The stakeholders are diverse and fragmented and have varied interests and influence. These issues result in operational inefficiencies, increased costs, and a negative impact on the country's competitiveness, particularly in the case of export industries reliant on imported inputs and limits private sector investments in the sector.

The over-reliance on road transport, coupled with the lack of fuel-efficient, environmentally friendly vehicles, exacerbates the situation, raising both supply chain costs and greenhouse gas emissions. While infrastructure improvements have been made, particularly under initiatives like CPEC and CAREC, the sector remains heavily dependent on outdated, inefficient vehicles that hinder Pakistan's potential to become a regional trade hub. Moving forward, comprehensive investment in fleet modernization, policy reforms, and a more balanced modal transport system will be critical to addressing these systemic issues and unlocking the full economic potential of Pakistan's logistics sector. Without these efforts, the sector's growth will continue to be stunted, preventing Pakistan from fully capitalizing on its strategic location as a critical link between China, Central Asia, Europe, and Russia.

METHODOLOGY

Methodology

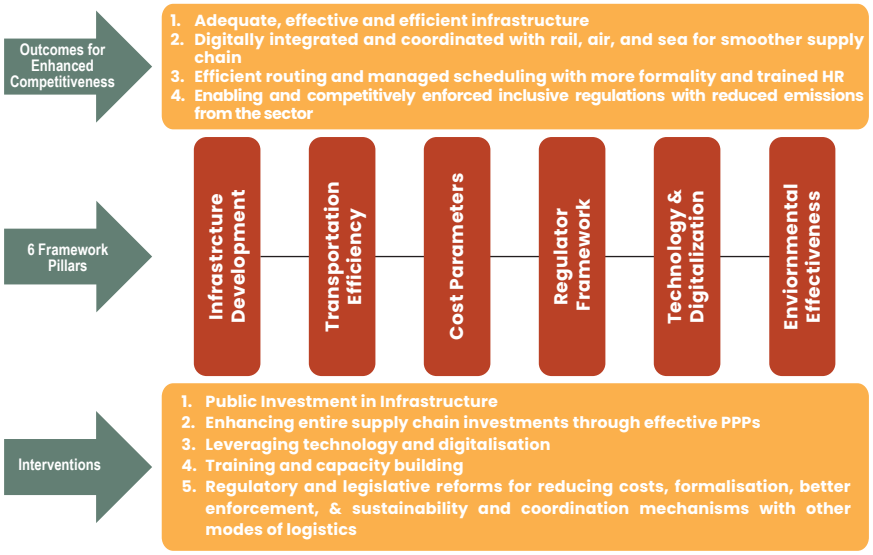
The policy note has used a three-tiered approach to assess key issues faced by the sector that are limiting investments and impacting the overall export competitiveness of the sector. Firstly, the relevant literature has been reviewed. A particular focus has been placed on the Trucking Policy 2007 and the National Freight and Logistics Policy 2020. This allowed the assessment of implementation gaps and the relevance of the proposed interventions.

Secondly, borrowing from the World Bank's Logistics Performance Index (LPI) methodology, fresh Principal Component Analysis (PCA) calculations have been performed. The principal objective of this policy paper was to investigate the issues limiting the growth of the private sector and hence impacting the export competitiveness of Pakistan. To get a holistic assessment, it was pertinent to quantify Pakistan's performance and identify its deviation from the international benchmark. This has been done by developing and estimating an **Export-Linked Logistics Performance Index (E-LPI) comparable to the WB-LPI**. The E-LPI is conceptualized around four broad performance dimensions, each linked to a set of operational indicators:

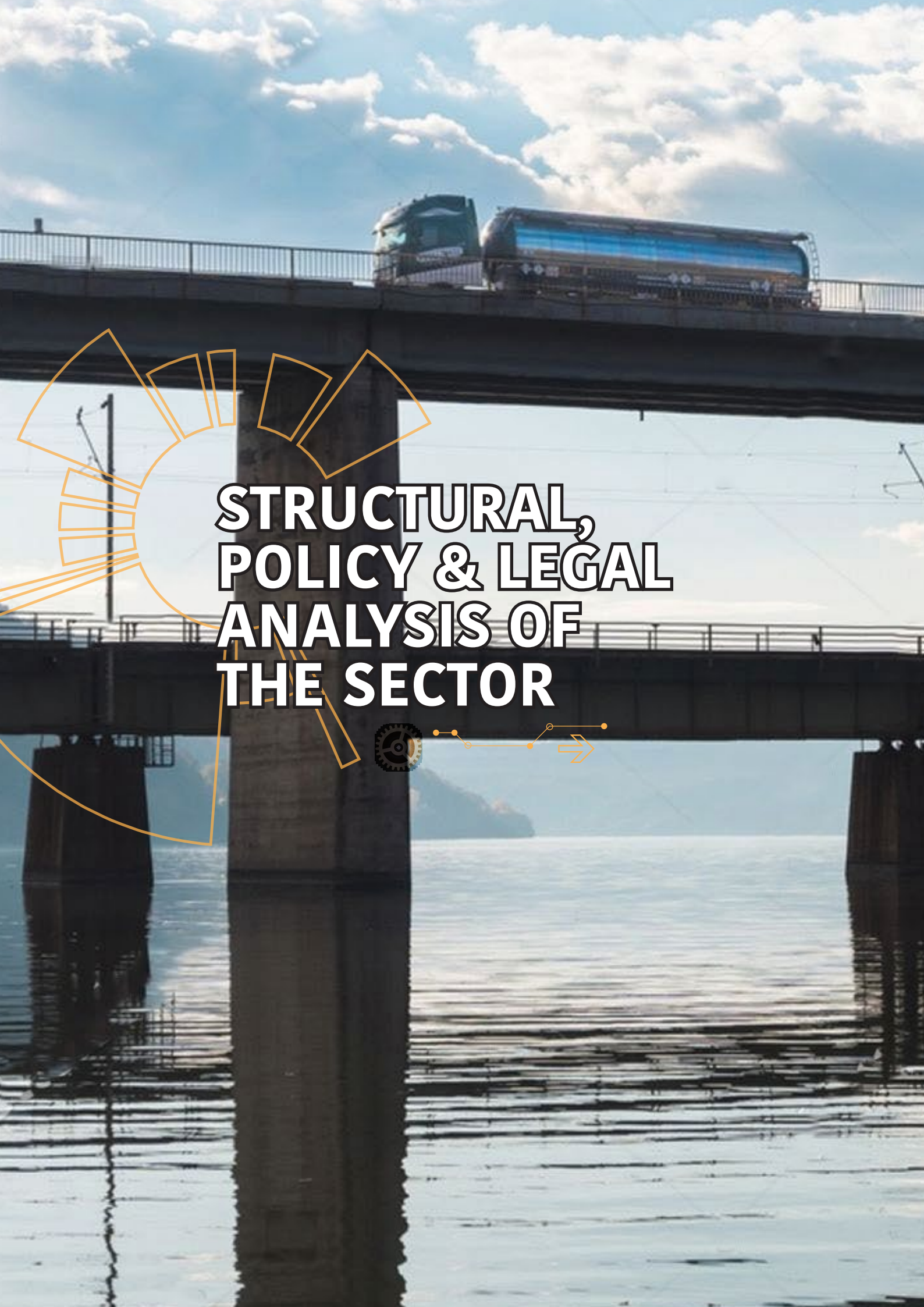
- **Infrastructural capacity** is evaluated through the **strategic positioning** of logistics assets.
- **Institutional capacity** is assessed through **network optimization** mechanisms.
- **Industrial capacity** is measured through the availability and adaptability of **value-added services** and performance evaluation mechanisms.
- **Cost and time effectiveness** are determined by the transportation cost **structure, travel time,** and **externalities** like environmental impact and congestion.

Each of these dimensions contributes to a comprehensive understanding of how road logistics affect export competitiveness in a regional and global context. The detailed methodology of E-LPI is provided at Annex-1.

Finally, detailed qualitative interviews were conducted with various stakeholders to assess the gaps, issues, and possible solutions against a framework that covers all key dimensions of the road logistics sector (See Graphic below). The framework tested through the fieldwork allowed identifying the most critical issues holding the sector back and making critical recommendations.



Source: Author's Adaptation



STRUCTURAL, POLICY & LEGAL ANALYSIS OF THE SECTOR

Structural, Policy & Legal Analysis of the Sector

Structural Performance and Challenges

Pakistan has immense untapped potential in regional trade via overland routes to landlocked Central Asian nations and China. At present, however, the country is leveraging only one to two per cent of its actual potential. Realizing this potential hinges on addressing two critical challenges: the reorientation of Pakistan's trucking industry to produce vehicles that comply with international freight transport standards, and the willingness and financial readiness of freight forwarders to upgrade their fleets to modern, compliant trucks.

The existing fleet poses a significant barrier to scaling exports to China, whose complex and demanding topography necessitates technologically advanced, durable trucks capable of transporting sensitive goods safely and efficiently. Without a modernized fleet, the logistics required to penetrate the Chinese market at scale remain unfeasible. Recent trade movements underscore both progress and opportunity. In the previous fiscal year, over 3,000 containers—valued at approximately USD 50 million—were dispatched to Tajikistan, with an additional USD 60 million worth sent to Uzbekistan, both via road routes passing through Afghanistan. Given the evolving regional trade dynamics, the Government of Pakistan's proactive efforts to promote regional economic integration, and the enthusiastic reception by Central Asian republics following high-level diplomatic engagements, substantial growth in these figures is expected in the near term.

A high-performing logistics ecosystem can significantly enhance Pakistan's export competitiveness. Efficient customs procedures, robust transportation infrastructure, and effective inventory management are essential enablers of export-led growth, enabling exporters to expand market reach, improve customer service levels, and reduce overall operational costs. The logistics sector serves as the backbone of export performance by facilitating the seamless and timely movement of goods from origin to global markets, impacting delivery speed, cost efficiency, reliability, and customer satisfaction.

The overall performance and efficiency of the logistics sector is declining in Pakistan. Pakistan was ranked second after India in logistics improvement in the South Asian region in 2007. However, there has been a noticeable decline in the index rating, with Customs and Tracking and Trace experiencing the biggest decline. Additionally, almost all of the regional neighbours have now outperformed Pakistan. This decline in Pakistan's score is more recent, as between 2010 and 2016, the performance increased; moreover, in relative terms, the other countries have done better.

Table 1: Country-wise Logistic Performance Index over the period 2007-2022[6]

Year	Bangla-desh	Bhutan	India	Sri-Lanka	Maldives	Nepal	Pakistan	South Asia	World
2007	2.470	2.160	3.070	2.400		2.140	2.620	2.296	2.740
2010	2.740	2.380	3.120	2.290	2.400	2.200	2.530	2.488	2.866
2012		2.520	3.080	2.750	2.550	2.040	2.830	2.581	2.871
2014	2.563	2.290	3.080	2.695	2.748	2.588	2.825	2.607	2.894
2016	2.664	2.321	3.420		2.513	2.377	2.923	2.623	2.884
2018	2.580	2.170	3.180	2.600	2.670	2.510	2.420	2.510	2.866
2022	2.600	2.500	3.400	2.800				2.640	3.000

Source: (World Bank Open Data, n.d.)

[6] The Logistics Performance Index overall score reflects perceptions of a country's logistics based on the efficiency of customs clearance process, quality of trade- and transport-related infrastructure, ease of arranging competitively priced shipments, quality of logistics services, ability to track and trace consignments, and frequency with which shipments reach the consignee within the scheduled time. The index ranges from 1 to 5, with a higher score representing better performance.https://data.worldbank.org/indicator/LP.LPI.OVRL.XQ?locations=8S
https://www.brecorder.com/news/40252454

Despite the high costs and environmental drawbacks, road freight dominates Pakistan's logistics landscape due to inadequate multimodal infrastructure, and this status is likely to continue due to the scale of additional investments required. Dependence on road transport increases wear and tear on highways, elevates maintenance costs, and contributes to congestion, particularly in urban centres and major trade corridors. This reliance stems from the lack of competitive alternatives, such as rail or inland waterways, which remain severely underdeveloped. Therefore, the sector's agility, competitiveness, and reliability must be enhanced, as the other logistic segments will require more time and resources.

Pakistan's road freight is mostly carried by outdated vehicles, many of which are over 30 years old and fail to meet basic safety or emission standards. These vehicles are fuel-inefficient and prone to frequent breakdowns, leading to delays and higher costs. The fleet owners, mostly small-scale informal operators, lack access to affordable financing options for fleet modernization, perpetuating inefficiencies. The fleet managers cannot provide track and trace visibility of trucks or reliable information on the expected 'safe' delivery of consignments. This visibility is essential for "just-in-time" business delivery models.

The sector lacks economies of scale and the resources to adopt modern logistics practices. Fragmentation in the market hinders collaboration and innovation, resulting in disjointed and inefficient supply chains. Road freight has a high reliance on diesel-powered vehicles, contributing significantly to greenhouse gas emissions. With no formal push toward cleaner technologies or fuel standards, the environmental footprint of the sector continues to grow, as does the negative impact on the external account.

The operational efficiency of the sector is severely constrained. According to government estimates, of the 216,119 registered trucks, only about 200,500 (93%) are actively in use, and a majority (65–70%) of the fleet comprises single- or double-axle vehicles. The trucking sector is highly fragmented, with small-scale owner-operators dominating the market, most managing fleets of fewer than five vehicles. This fragmentation contributes to a competitive but suboptimal pricing environment, with low freight rates and minimal entry barriers fueling unsustainable practices.

The government's enforcement of the axle load laws remains largely ineffective. Unauthorized vehicle modifications, extended working hours and non-compliance with safety regulations exacerbate the risk of road accidents. Alarmingly, it is estimated that 40% of four- to six-axle trucks and 30% of two- to three-axle trucks routinely operate above legal weight limits. The overloading is causing premature failure of infrastructure and is the leading cause of fatalities in road accidents involving heavy commercial vehicles. The World Bank estimates that accidents cost Pakistan $12,550 million or about 4.5% of GDP.[8] This can be reduced significantly if compliance with the axle load law is implemented in letter and spirit. The government's efforts to enforce these regulations have faced challenges for reasons including the lack of information, insufficient infrastructure for weighing facilities, and limited resources for monitoring and enforcement.

The sector's operational inefficiencies are further compounded by insufficient driver welfare infrastructure. Long driving hours, lack of scheduled rest breaks, and inadequate stopover facilities create unsafe driving conditions, increasing the likelihood of accidents and cargo loss. Illegal activity and enforcement gaps along certain motorway corridors add another layer of complexity to the sector's challenges (Tariq et al., 2024).

In addition to informality, the sector lacks discipline and training. There are a large number of speed and other Highway Code violations. The enforcement of axle load regulations remains inconsistent, leading to overloading that damages road infrastructure and increases maintenance costs. These practices also reduce vehicle lifespans, further exacerbating inefficiencies. The high informality of the sector requires a high reliance on cash transactions and, therefore, finding efficiencies in cost management is difficult.[9]

[8] Road Safety conditions in World Bank Report (www.roadsafetyfacility.org/country/pakistan
[9] National Freight & Logistics Policy, Government of Pakistan

Moreover, Pakistan's highway network, while extensive, is insufficient to accommodate increasing freight demand due to varying spatial densities. Congestion is particularly acute on critical corridors like the National Highway (N-5) and roads connecting major ports such as Karachi and Gwadar. The absence of designated freight lanes and inadequate rest areas for truck drivers compounds these inefficiencies.

Though truck ownership is highly fragmented, an informal cartel prevents free competition on pricing and service quality. The NLC overseen by the Ministry of Planning, was formed under the aegis of the Pakistan Army to manage strategic transportation. It has now branched out to distribute water in Karachi, manufacturing polymer products, quick construction solutions, asphalt production, operating toll stations and a printing press. This has distracted the focus from logistics provision, despite having a fleet of 900 trucks. Moreover, the National Logistics Corporation Bill 2023 was passed, mandating the NLC to provide a legal framework for logistics services infrastructure in Pakistan. This has raised concerns from private stakeholders due to a conflict of interest.

The cold chain infrastructure is essential to access high-value markets for perishable products. A significant percentage of fruits and vegetables are wasted in Pakistan due to poor cold chain—cold stores and temperature-controlled transportation. Pakistan's meat exports are confined to the Middle East, as exports are possible only for chilled meats and not frozen. An efficient cold chain for meat will enhance exports.

The above issues and challenges have pushed the logistics sector in Pakistan substantially below the required international standards. There is a need for reforms to formalize and modernize by attracting significant investment. There is a need for a level playing field for corporate fleet providers to attract required investments and efficiencies from the sector.

Policy & Implementation Gaps

Over the last two decades, the Government of Pakistan has come up with several policy documents, however, most of the recommendations remain unimplemented. A comprehensive trucking policy was introduced in 2007 that addressed all key challenges faced by the sector and took a forward-looking approach. However, most of the key recommendations and targets remain unattained to date. The table below provides an assessment against major milestones.

Table 2: Assessment of Key Interventions under 2007 Trucking Policy

Sr#	Policy KPI	Status / Remarks
1	Rationalize truck import tariffs	The tariffs on modern imported trucks as CBUs has remained very high. Additionally, imports of Euro-5 trucks are banned, while Euro 5 compliant fuel is not produced in Pakistan. The policies regarding import of trucks on Euro-5 standards have been inconsistent, which has had a direct detrimental effect on export competitiveness because there is a shortage of current, technologically advanced trucking fleets. This should be encouraged with preferential import of Euro 5 compliant fuel until investments are made in refineries. *The recommendation remains relevant.*
2	Allow import of trailers that are no older than 5 years	The policies regarding import of trailers have been inconsistent, un-clear and un-certain which has impacted negatively on the import of trailers with latest technology. *There must be a consistent policy in place.*

Sr#	Policy KPI	Status / Remarks
3	Achieve EU compliance	The sector is still producing trucks with Euro-2 standards, although the EU compliance requirement is to produce trucks with Euro-5 standards- which are more fuel efficient and environmentally friendly. A move towards LNG may be explored for better compliance. This is likely to have the highest negative impact on export competitiveness particularly after enforcement of Paris Agreement 2015 and other UN conventions regarding environment sustainability and reducing carbon footprints. *This has now become most relevant in wake of EU Green Deal.*
4	Establish performance monitoring indicators & benchmarks	No mechanism has been established both for intra-city and inter-city freight transportation on provincial roads and national highways particularly in the context of international trade. The data on such monitoring indicators does not exist. *The recommendation remains relevant.*
5	Agree on TIP implementation modalities	TIP only in the form of TIR has been implemented so far. However, no policy / mechanism has been adopted by the government to strategically promote it and make its adoption easy so that all operators may become TIP compliant in the next few years. In neighbouring countries, more than 90% operators, freight forwarding companies and dry-ports / yards are TIP compliant. In our case, it is not more than 3-5%. So far 14-15 freight forwarders / operators have secured the status of TIR compliant. Only 3 to 4 freight forwarder /operators are TIP compliant and actively doing their business. *The recommendation remains relevant.*
6.	Provinces revamp MVT registration, inspection systems	MVT registration system has improved with on-line facility. However, there is no effective inspection system so far. Moreover, the standards across provinces remain non-harmonized. *The recommendation remains relevant.*
7.	Enforce axle load control plan	NHA claims 100% enforcement of axle load on motorways only. No control plan for axle load regarding national highways, provincial roads and city-roads have been prepared and implemented. Even on motorways there are reported in consistencies. *The recommendation remains relevant.*
8	Launch truck financing scheme	No scheme has been launched at federal level or provincial level. The trucking sector cannot take benefit from conventional loaning from banks as well. The biggest roadblock is that the notification (issued in 2005) regarding status of industry to trucking sector has yet not been published in the official gazette. *The recommendation remains relevant.*
9.	Establish truck driver training facility	No facility by the government has been established particularly to provide trainings regarding international trucking systems as per UN conventions and treaties. This is a big roadblock in increasing contribution to international trucking because of dearth of certified drivers. Pakistan International Freight Forwarders Association (PIFFA) has established facilities in Karachi and Lahore to produce trained and certified drivers for international trucking. *The recommendation remains relevant.*

Sr#	Policy KPI	Status / Remarks
10	Reform truckers association	PIFFA is still in the process of preparing reforms / rules for regulating this sector and introducing / proposing strategies for attracting investments.
11	Increase number of formal truck operators by 25%	The number is still less that 5%.
12	De-link and corporatize National Logistics Cell's trucking unit to lead trucking modernization	Instead NLC operations have been further internalized.
13.	Revise national truck specs for 2, 3, and multi-axle prime movers	Still at the stage of drafting and no final draft agreed.
14.	Complete1/4th trucking facilities along the national highway corridor	No comprehensive plan prepared and implemented so far.

The above assessment shows that the sector remains stagnant from its position in 2007 as none of the key recommendations under the policy have been implemented. The Government, in 2020, developed the National Freight and Logistics Policy. The Policy remains unapproved. The key issues and responses under the policy are discussed below.

Fleet Modernization and Financing

- Expand Access to Credit: Develop low-interest loan schemes and financial products tailored to small and medium-sized operators, enabling them to upgrade their fleets.
- Public-Private Collaboration: Partner with private sector stakeholders to establish fleet renewal programs and offer technical assistance for vehicle maintenance.

Axle Load Enforcement

- Strengthen Regulations: Enforce axle load limits uniformly across all regions to minimize road damage and extend infrastructure lifespan.
- Monitoring and Penalties: Implement weighbridges equipped with automated systems for accurate load monitoring and impose strict penalties for violations.

Road Infrastructure Upgrades

- Expand Freight Corridors: Develop dedicated freight lanes on high-traffic highways, such as the N-5, to reduce congestion and improve safety.
- Invest in Rest Areas: Establish well-equipped rest stops for long-haul drivers, including fuel stations, repair facilities, and sanitation services, to enhance operational efficiency and safety.
- CPEC Synergies: Leverage China-Pakistan Economic Corridor (CPEC) investments to improve connectivity between ports, industrial zones, and trade corridors.

Market Consolidation and Capacity Building

- Promote Aggregation: Encourage small operators to form cooperatives or alliances to pool resources, reduce costs, and adopt modern technologies.

- Skills Development: Launch training programs for truck drivers, fleet managers, and logistics operators to enhance safety practices, fuel efficiency, and cargo handling.

Technology Adoption

- E-Logistics Platforms: Encourage the adoption of Uber-like digital platforms for freight negotiation, cargo booking, route optimization, and vehicle tracking to improve transparency and reduce delays.
- Intelligent Transport Systems (ITS): Integrate smart technologies like GPS-based toll collection and real-time traffic management systems to streamline freight movement.

Environmental Sustainability

- Green Fleet Initiatives: Incentivize the adoption of electric and hybrid trucks to reduce emissions and align with global sustainability trends.
- Cleaner Fuels: Transition to cleaner fuel standards, such as LNG, to mitigate the environmental impact of road freight.

Assessment of Key Legislation

The road logistics sector (as commercial vehicles) is regulated by legislation and rules at the federal and provincial levels. The implications of key legislation are discussed below:

1. **Dimension of Good Transport Vehicle Rules, 2017:** These rules govern the goods transport vehicles and introduce critical controls aimed at enhancing safety, standardization, and operational efficiency on national highways and motorways. The rules mandate strict adherence to the specified dimensional criteria. Vehicles that do not conform to these prescribed standards are explicitly prohibited from operating on national road networks. The rules not only set technical parameters for vehicle eligibility but also restrict their movement to daytime hours, requiring that such vehicles be securely parked when not in operation.

   Rules also have stringent restrictions on the unauthorized alteration or fabrication of goods transport vehicles. The rule prohibits any individual from undertaking structural modifications without proper authorization. Fabrication activities—such as constructing semi-trailers or modifying prime movers in articulated vehicles—must be declared and duly reflected on the vehicle's certificate of registration. This ensures traceability and regulatory oversight over modifications that could impact the safety, maneuverability, or environmental compliance of transport vehicles.

   The compliance verification mechanism requires the owner to submit a legally binding affidavit on a stamped paper at the time of registration or during the fitness certification or renewal process, which serves as a formal attestation that the vehicle conforms to the specifications allowed. The emphasis on recording vehicle modifications, formal declarations of conformity, and restriction of non-compliant vehicles reinforces a regulatory environment that prioritizes road safety, infrastructure preservation, and sustainable transport practices.

   While the Rules are comprehensive, enforcement and compliance remain a critical issue.

2. **Motor Vehicles Ordinance (MVO), 1965 and the Motor Vehicle Rules, 1969:** This is the primary legislation governing all motor vehicles in Pakistan, including commercial vehicles. It covers registration, licensing, and standards for vehicles operating across the country. The Rules from 1969 have been developed by all four provinces and have been updated several times to reflect contextual changes. The main issue under these Rules is the lack of harmonization between the provinces. The critical issues are identified as under:

a. Axle Load Limit: Only Punjab has defined Rules for the axle load limit, while all the other three provinces have not defined specific requirements. This distorts as trucks pass free in most provinces with heavy loads, and the tendency to violate this across the country increases.

b. Vehicle Dimensions: Each of the provinces defines the vehicle dimensions that differ in length or width. This creates problems for fleet operators to comply.

c. Registration & Licensing: The costs, processes, and requirements vary across provinces. Therefore, there is a tendency to register in easier geographies. This is the reason why most trucks are registered in Balochistan.

3. **National Highway Safety Ordinance (NHSO), 2000:** promulgated for regulations ensuring safety on national highways, specifically for commercial vehicles operating on various routes. The law covers essential definitions and the safety requirements necessary for all vehicles, specifically cargo and heavy vehicles on the highways. It also covers the important registration procedure and the axle load limits as well. The recent amendments have further expanded the penalties under the law for violations. However, the major issue is the implementation of the law in its entirety.

4. **The Oil and Gas Regulatory Authority Ordinance (OGRA), 2002:** The law gives a framework for the cargo handling, safety, and movement of hazardous goods and petroleum transport. The law was recently amended to ensure compliance with international ADR standards.

While most legal provisions are consistent with the requirements of a safe and well-governed sector, inconsistent implementation and enforcement remain a critical challenge.

COMPETITIVENESS ASSESSMENT: EXPORT-LOGISTICS PERFORMANCE INDEX

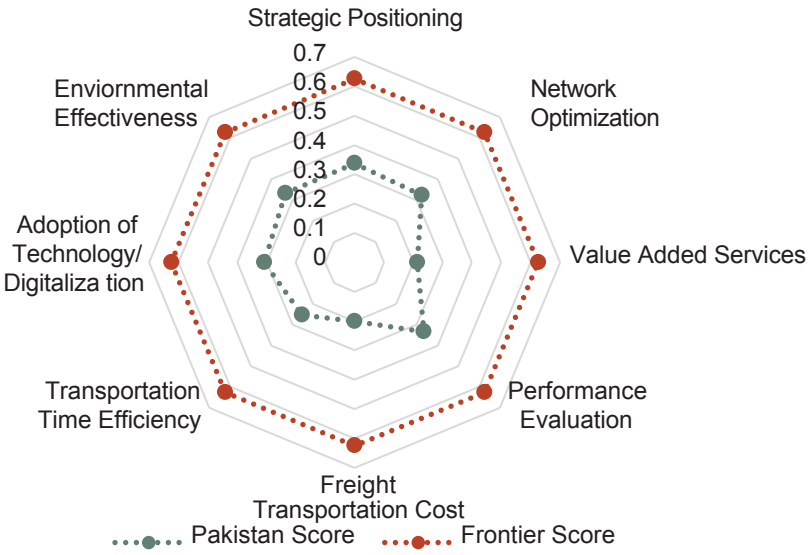
Competitiveness Assessment: Export-Logistics Performance Index

E-LPI Index Scores

The current Export Logistics Performance Index (E-LPI) for Pakistan, derived through Principal Component Analysis (PCA), remains at 2.3 out of 5. This score indicates a substantial performance gap of approximately 54% when compared with regional benchmarks in the delivery of efficient, safe, and reliable road logistics value chain services. From the perspective of global trade, this underperformance translates into a significant deficit in export competitiveness linked to road logistics, thereby constraining Pakistan's potential for export growth.

A longitudinal value chain analysis of the road logistics sector over the past seven years highlights a notable decline in performance. In 2018, the World Bank estimated Pakistan's Logistics Performance Index (LPI) score at 2.42, while the recent E-LPI estimation reflects a further deterioration to 2.3. This downward trend underscores a progressive loss of competitiveness, largely attributed to critical deficiencies in sustainable logistics, supply chain management, transportation time efficiency, value-added services, and freight costs when compared with regional best practices. Figure 6 below provides the underperformance in each of the eight dimensions. This shows significant gaps across all 8 dimensions.

Figure 6: Pakistan E-LPI Performance



Source: Author's Estimation using PCA and Survey Data

The most pronounced performance gap exists within the domain of sustainable road logistics, which encompasses environmental effectiveness, performance evaluation, and strategic positioning. The gap in this domain stands at an alarming 138% relative to the highest-performing regional comparators. Sustainable road logistics aims to harmonize economic viability, environmental stewardship, and export readiness through structured performance metrics. The supply chain management (SCM) domain—comprising network optimization and technology adoption—follows, reflecting a 97% gap. Additional gaps were observed in transportation time efficiency, value-added services, and freight cost dimensions, all of which collectively impair the sector's ability to compete in the regional export ecosystem.

Environmental effectiveness alone reflects a 46% gap, largely driven by public policy failures. The outdated trucking fleet remains a critical concern, as the lack of viable financial and regulatory mechanisms to support the replacement of aged vehicles contributes significantly to carbon emissions and hinders compliance with international environmental standards such as the Paris Agreement. This, in turn, limits opportunities for integration into global supply chains where carbon reduction commitments are essential. Multinational companies seeking greener supply chains are disincentivized from partnering with local logistics firms that fail to meet these criteria.

Furthermore, the lack of formalization within the sector, due to regulatory inefficiencies, discourages both domestic and foreign investment, thereby stunting overall industry growth. A comprehensive "truck fleet renewal program" is urgently needed to align the trucking sector with global operational and environmental benchmarks. This program needs to be developed in close collaboration with industry stakeholders and include incentives such as tax rebates for new trucks, phased bans on vehicles older than 15 years, and stricter emissions controls. Such measures would not only facilitate the sector's transition but also improve public health through reduced emissions and enhance road safety through modernized fleets.

The 2007 National Trucking Policy, revised in 2020, still awaits Cabinet approval. Expedited approval and implementation are essential for catalyzing the formalization of the sector, thereby improving operators' access to institutional financing and investment. The policy's enforcement will encourage the adoption of Euro-5 compliance and cross-border partnerships for left-hand drive trucks, both prerequisites for international freight competitiveness. The broader investment climate would also benefit, potentially attracting foreign entities interested in local assembly or fleet expansion. Concurrently, the harmonization of road safety standards through the nationwide adoption of a unified Road Safety Act is critical. This act would replace the outdated 1965 Provincial Motor Vehicle Ordinance, ensuring consistency across provinces. It would introduce uniform safety regulations, vehicle age limits, and compliance standards for all freight-related vehicles, including prime movers, chassis, and tank lorries. Standardized axle weight limits would mitigate road degradation and reduce accident risk, significantly lowering infrastructure maintenance costs.

The domain of performance evaluation also shows a 46% gap, primarily due to technological and policy limitations. A central issue is the manual issuance of International Transport Permits, which adds layers of inefficiency and cost for freight companies. The absence of cross-border tracking systems exacerbates delays, elevates delivery uncertainty, and compromises security. A modern, digitalized permit application system—featuring automated documentation verification and real-time status tracking—could drastically enhance operational efficiency. Comparatively, China's implementation of digital cross-border freight permits has facilitated the seamless exchange of logistics documents with countries like Kazakhstan, improving participation in international trade corridors such as the Middle Corridor. Pakistan could replicate such measures to boost efficiency and attract trade from Central Asia and China.

Strategic positioning, another key E-LPI domain, also lags by 46%. This underperformance can be attributed to the partial implementation of the TIR Convention and the Cabinet-approved 2018 logistics plan, which has yet to be operationalized. At both federal and provincial levels, significant gaps persist in infrastructure planning—particularly the absence of modern dry ports, yards, and warehousing facilities near critical urban centers and borders. These inadequacies increase costs, impede the timely movement of goods, and reduce the competitiveness of Pakistani exports.

Network optimization performance reveals a 48% gap as well, primarily caused by procedural inefficiencies within customs and border authorities. Lengthy clearance times and inconsistent enforcement of international freight movement regulations by border police deter international logistics firms and restrict Pakistan's participation in the estimated $15 billion regional transit trade market. The lack of enforcement of TIR procedures undermines confidence among international operators and complicates trade flows.

Similarly, the adoption of technology and digitization within the logistics sector is 51% below regional standards. Inadequate infrastructure—such as inconsistent internet access and power outages, particularly in border regions—hinders the deployment of advanced logistics technologies. The absence of digital delivery networks, including convenient "pick-up and drop-off" points for e-commerce, further constrains service quality and accessibility.

The transportation time efficiency domain reveals a 60% performance deficit. This gap is attributed to an imbalance between the demand for technologically advanced vehicles and their limited availability. Without a sufficient supply of modern trucks, businesses must rely on outdated, inefficient vehicles. Compounding the issue is the lack of dedicated corridors for international freight movement, which currently shares routes with domestic traffic. The absence of segregated lanes results in increased congestion and higher delivery times and costs, especially on routes from Lahore to key border points such as Chaman and Taftan.

Value-added services within the logistics sector underperform by 65% when benchmarked against regional peers. This is largely due to financial constraints among freight companies, which inhibit investment in advanced logistics solutions such as real-time tracking, automated loading systems, and integrated communication platforms. These constraints prevent Pakistani operators from offering premium services that are now standard in global logistics, thereby reducing their appeal to international clients and limiting market share.

Finally, the domain of formal-sector freight cost reflects the highest performance gap at 67%. This is primarily a result of lax regulatory enforcement that permits the informal operation of trucks over 30 years old. These vehicles are not allowed entry into neighbouring countries due to their failure to meet international safety and environmental standards. As a result, Pakistani goods must often be transported by foreign carriers into key markets like China, rendering the end product uncompetitive due to disproportionately higher logistics costs.

In sum, Pakistan's road logistics sector exhibits significant and multidimensional performance gaps across all core domains of the E-LPI framework. These gaps—ranging from environmental sustainability to digital integration—severely constrain the country's export competitiveness. Addressing these shortcomings through targeted policy interventions, regulatory enforcement, digital modernization, and financial incentives is imperative for positioning Pakistan as a competitive player in the regional and global logistics value chain.

Stakeholder Assessment of the E-LPI Dimensions

1. Environmental Effectiveness

The absence of a modern, fuel-efficient, and environmentally sustainable vehicle fleet significantly hampers the effectiveness of Pakistan's trucking logistics industry. This gap undermines the country's strategic vision of becoming a regional logistics hub connecting China, Central Asia, Europe, and Russia, particularly in the context of the China-Pakistan Economic Corridor (CPEC). The reliance on small, outdated, and fuel-inefficient trucks not only raises operational costs but also increases greenhouse gas (GHG) emissions. As global climate policies—such as the EU Green Deal—mandate disclosure and reduction of supply chain emissions, Pakistan risks facing exclusion from key markets due to the high carbon footprint of its freight transport sector.

There is currently no dedicated policy to facilitate access to financing for fleet replacement, particularly to support low-emission vehicles that would align with Scope 2 commitments under the Paris Agreement. This restricts Pakistani freight operators from capturing business opportunities with multinational corporations in China, Central Asia, and Afghanistan, and limits the country's transit trade potential.

The predominance of informal operations within the trucking sector deters both foreign direct investment and domestic resource mobilization. At the provincial level, there has been no significant planning or policy development aimed at promoting green freight solutions in urban or cross-border logistics. The following issues have been identified:

- Local truck manufacturers report limited demand for Euro-5 compliant vehicles, deterring them from upgrading production lines. Simultaneously, the lack of widespread availability of Euro-5 fuel—due to domestic refineries' technological limitations—creates a bottleneck for adoption.
- The absence of a clear regulatory framework for importing Euro-5 trucks—whether new or used—further prevents small private sector operators from modernizing their fleets. While larger logistics firms like the National Logistics Cell (NLC) have begun upgrading their fleets, small and mid-sized firms face substantial financial and operational barriers.
- The trucking industry was accorded industrial status in 2005 via Cabinet approval, but due to non-publication in the official gazette, it has not received associated benefits. Additionally, the implementation of the 2008 Trucking Policy has not translated into the modernization of the national fleet or the development of critical infrastructure like freight terminals and truck stops.
- Although axle load regulations have improved enforcement on major routes, compliance remains inconsistent. Private freight operators have not seen tangible benefits from government policies or CMR implementation.
- Despite the rollout of an electric vehicle (EV) policy and plans for 40 EV charging stations on national highways, there is no corresponding strategy or incentive mechanism to support EV adoption in the trucking sector. The lack of a tailored financing program further prevents operators from transitioning to newer, greener technologies.

2. Performance Evaluation

The current permit issuance and renewal process, which requires business owners to travel from border crossings to Islamabad, introduces inefficiencies and costs. Though the Ministry of Communications is considering improvements, no project or digital solution has been initiated. Pakistan's trucking fleet lacks modern tracking and tracing capabilities, falling short of international standards. By contrast, regional competitors utilize advanced technologies such as:

- **Geofencing and Route Optimization** for fuel efficiency and route compliance
- **GPS & Telematics** for vehicle performance monitoring
- **Satellite Tracking** in remote areas with limited connectivity

Despite the availability of domestic GPS solutions (e.g., Falcon-I, TPL Tracker), systemic challenges—including poor infrastructure, slow technological adoption, data security concerns, and overlapping regulatory jurisdictions—hamper sector-wide implementation. These issues contribute to inefficiencies and delays at border crossings.

3. Strategic Positioning

Pakistan's geographic advantage could enable the country to earn over USD 15 billion annually from regional trucking services. However, actual earnings are minimal—under USD 1 million—due to critical barriers such as an outdated truck fleet, poor international route logistics, substandard cargo handling infrastructure, and a lack of designated freight corridors and parking facilities.

Pakistan's logistics system does not align with the "Seven C's" of logistics (Connect, Create, Customize, Coordinate, Consolidate, Collaborate, Contribute), failing to meet multinational supply chain requirements. Key obstacles include:

- **Fragmented Regulatory Framework**: The involvement of multiple federal and provincial bodies without coordination leads to inefficiencies and regulatory gaps.
- **Complex Taxation:** Multiple layers of federal and provincial taxes increase costs and operational complexity.
- **Informal Competition:** Informal sector operators benefit from tax evasion and lower costs, undermining formal sector logistics firms.
- **Poor Road Infrastructure:** Deteriorated road conditions extend delivery times and increase maintenance costs.
- **Limited Warehousing:** Existing facilities lack capacity, racking systems, and safety features, particularly in urban areas.
- **Inadequate Cold Chain:** Deficiencies in cold storage results in significant losses, particularly in agriculture and pharmaceuticals.

Provinces have yet to develop collection hubs in rural areas to consolidate freight for efficient transport. Moreover, Pakistan has not acceded to the ADR Convention, which governs the transport of dangerous goods. Without compliance, Pakistan risks being excluded from key logistics corridors, especially in pharmaceuticals and fast-moving consumer goods. Outdated facilities at border crossings and manual customs procedures slow down trade and increase indirect costs. The dominance of traditional and fragmented service providers further limits international trade capacity.

4. Network Optimization

Effective network optimization in logistics relies on modern infrastructure, technology integration, and streamlined regulation. Pakistan's logistics network faces systemic weaknesses in all areas:

- **Customs Delays and Corruption:** Bureaucratic red tape and corruption at border posts significantly delay shipments and increase costs.
- **Lack of Border Cooperation:** Ignorance of international trucking standards and bribery demands hinder foreign operators.
- **Absence of Shipping Line Facilities:** Pakistan lacks cross-docking and multimodal integration of infrastructure.
- **Limited Use of TIR Convention:** While TIR shipments are cleared within 24 hours, high costs and restricted access limit broader use. Only NLC utilizes this system currently, highlighting the need for cost-effective expansion to other carriers.

5. Adoption of Technology & Digitalization

Though the National Highway Authority (NHA) has installed IP cameras for traffic monitoring and safety, broader adoption of digital infrastructure remains limited:

- **Outdated Systems:** Most logistics firms use legacy technologies that hinder real-time inventory and fleet management.
- **Slow Tech Adoption:** Low technological skills and capital investment slow the uptake of innovations like RFID and telematics.
- **Limited Warehouse Automation:** Most warehouses lack digital inventory systems, resulting in inefficiencies.

- **Information Sharing Bottlenecks:** Particularly at border points, poor inter-agency data exchange contributes to delays.
- **Coverage issues:** certain parts of the main national highways have limited to no connectivity.

While NHA has deployed 85 automated weighbridges, similar infrastructure is lacking on provincial roads. A centralized monitoring system is essential to enforce load limits and ensure safe cargo movement.

6. Transportation Efficiency

Key challenges undermining time efficiency in freight movement include cargo theft and damage, regulatory delays, legal uncertainties, regional instability, and lack of insurance mechanisms for climate and cyber risks. Additionally, Pakistan's absence of a national shipping fleet results in dependence on outdated chartered vessels operated by the Pakistan National Shipping Corporation (PNSC). The outdated truck fleet and manual loading practices further prolong delivery times. Two primary drivers of delay are:

- **Technological Gaps in Fleet Management**
- **Lack of Designated Cargo Routes**

No progress has been made in establishing urban logistics hubs or dedicated freight corridors, as outlined in the 2018 policy. Awareness of the CMR Convention—an important tool for insurance and banking transactions—is also limited, with only NLC actively utilizing it.

7. Value-Added Services

A major constraint on sectoral growth is the lack of investment from banks, development finance institutions, and foreign investors. The informal nature of the industry deters formal sector development and limits value-added services. Moreover:

- Manual permit issuance impedes the development of diversified logistics services.
- Collaboration between SMEs and major logistics players is limited.
- The ban on importing used Euro-5 trucks exacerbates this supply gap.

8. Freight Transportation Cost

Although Pakistan has the potential to offer highly competitive freight rates due to its location, current cost advantages stem largely from overloading, an unsustainable practice. Pakistani exporters face high freight charges when shipping via Chinese carriers. However, costs drop significantly when Pakistani companies are registered in China, improving market competitiveness. Key cost drivers include:

- Rising Fuel Prices: Operating margins are severely impacted.
- Informal Urban Logistics: Inbound and outbound logistics in urban areas remain informal, leading to tax evasion and unfair competition.

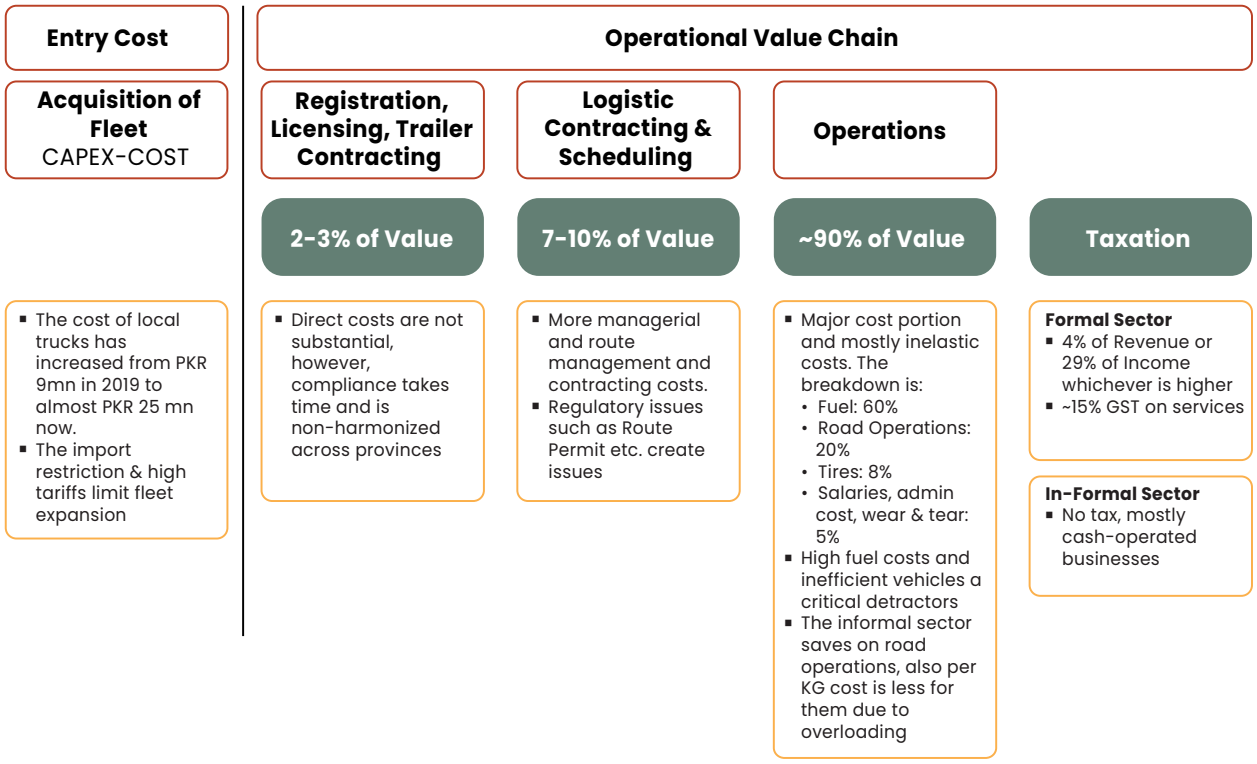
Formal sector firms struggle to compete on cost, and their inability to scale or modernize undermines Pakistan's potential to benefit from regional transit trade.

VALUE CHAIN LEVEL ASSESSMENT FOR ROAD LOGISTICS

Value Chain Level Assessment for Road Logistics

Value Segmentation & Issues

An aggregate-level qualitative assessment of the broad value chain of private road logistics shows major detractors to value. The finding resonates with the analysis above under structural issues and the E-LPI analysis. The graphic below depicts the segmentation of the value across the chain and some key detractors and issues. These are discussed in more detail below.



Fleet Modernization: Pakistan's automotive industry operates under a high degree of protection and tariffs on CBUs, in some cases, are more than 300%. The 2007 Trucking Policy and the later, more recent draft of the policies advocated for rationalizing the tariffs on trucks and commercial vehicles, so replacement cost of existing inefficient trucks is made viable. However, to date, this has not happened, and more advanced and fuel-efficient trucks are impossible to import into Pakistan. This has resulted in limited growth of the private sector and limited diversification in transport technologies. This is also limiting the introduction of more energy-efficient trucks, such as hybrids or EVs, in the sector, limiting the transition to green compliance.

Vehicle Registration and Licensing: The legislations and regulations relating to registrations and licensing are mostly provincial and suffer from a lack of harmonization. This results in, for example, most trucks being registered in Balochistan at present. However, registering outside the province of origin comes with a management burden. A more important issue is finding trained drivers with appropriate licenses. It takes over two years to obtain the HTV license for a driver. While formal firms only operate with certified drivers, informal ones operate with unlicensed drivers.

Logistic Contracting & Scheduling: The informality of the sector results in the formal sector being at a disadvantage. The contracting costs and scheduling in the formal sector are all documented, while that of the informal are more direct and ad hoc. The high degree of informality in the country generally prefers to operate through informal sectors, as most transactions are settled in cash. The operators need to obtain provincial route permits that are uncertain and get cancelled without notice. The informal operators work under the table to manage these regulatory gaps.

Operations: The main cost factor in operations is the fuel cost and the road operations. The fuel cost is relatively higher compared to the region, and given more than 85% of the trucks in operation are old and inefficient, this implies overuse of fuel. The road operations costs cover tolls, storage, warehousing, etc. There is a lack of warehousing on the routes and at the ports. The charges at the ports are prohibitive as the fee includes extra charges for loading and unloading time due to infrastructure deficiency and warehousing limitations, operators must give one day free for offloading and one day at a time for unloading. The operational costs of the informal sector are the same, but per Kg of weight carried is lower due to overloading. The lack of facilities on the highways results in extra costs and delays. The network connectivity issues, and security and law & order are also key detractors that enhance the costs. NLC operates as a predator and deprives the private sector of growth by competing based on public finance and acting as a monopoly on government contracts. The poor conditions and lack of farm-to-market roads also increase the costs and time to manage. Moreover, there is inconsistent load flow; trucks from Karachi to the north usually go full load, but on the way back, sometimes come on a lesser or no load at all. The informal sector operates differently, as they manage trucks locally as well.

Taxation: The tax rates have recently changed, and from a 2% of turnover have been enhanced to 4% of revenue or the highest slab on the income, whichever comes out to more. Not only is the taxation prohibitive, as the margins are between 8-10%, but the existence of a large informal sector prices out formal firms. Moreover, formal firms add a 15% sales tax to the costs, making them extremely expensive compared to informal operators. The non-feasible tax structure is limiting the flow of investments into the value chain.

Value Chain Binding Constraints

Pakistan's road logistics sector sits at a complex crossroads, where structural gaps, institutional fragmentation, and market distortions are eroding its potential to serve as a backbone for national and export competitiveness. Despite being responsible for the vast majority of domestic freight movement, the sector remains deeply informal, improperly regulated, and severely under-invested, making it both inefficient and uncompetitive.

The critical issue is not just inefficiency and informality leading to non-compliance, but the state's failure to create a coherent institutional and policy ecosystem that can enable compliance, enforce regulations equitably, and foster formal growth. Fleet operators, especially those who comply with axle load limits, licensing requirements, and taxation, face an uneven playing field where the cost of doing business is penalized rather than rewarded. In contrast, informal operators—often backed by politically powerful industries like cement and sugar—continue to flout the law with little consequence, distorting market returns and inhibiting the formation of a sustainable logistics value chain.

The compliance burden is further aggravated by governance failures. The fragmentation of institutional authority—where roads fall under the Ministry of Communication, customs under FBR, ports under Maritime Affairs, and airports under Defence—means that no single ministry owns or drives the logistics agenda. This diffusion of responsibility creates a policymaking vacuum and prevents integrated infrastructure planning. The absence of a dedicated Ministry of Transport and Logistics stands out as a key bottleneck, as evidenced by the repeated collapse of reform programs like the National Trade Corridor Improvement Program. Without a singular focal point that can harmonize strategy across transport modes, taxation regimes, and trade facilitation, the sector remains reactive rather than forward-looking.

This policy incoherence plays out on the ground through outdated regulatory practices and perverse incentives. Route permits are inconsistent across provinces, with most vehicles registered

in Lasbela to exploit lower fees. Enforcement of axle load laws remains partial and selective—high on motorways, lax on GT roads—and the penalties are insufficient to deter violators. The informal sector has priced non-compliance into its business model, treating fines as a cost of doing business, as they can still walk away without fear of goods being confiscated or vehicles being impounded. The logo issue on vehicles is a good example, where excise departments and cantonments have different requirements.

The state entity, the National Logistics Cell (NLC), which could have played a catalytic role in fleet modernization and coordination, has instead become a monopolistic actor that distorts competition and hoards public contracts, all while resisting the very enforcement mechanisms that could level the playing field. As a result of this preferential treatment private sector is shy to invest. NLC is not involved in LCL business, however, they are not letting it get structured on the intent of entry. The offices of NLCs are better connected, as most of this is government land. See the Box in the text for a more detailed assessment of feedback on the role of NLC.

A Public Sector Monopoly: Is it efficient?

The National Logistics Cell (NLC) was established in 1978 with a narrow mandate: to step in during transport emergencies and ensure the delivery of essential imports like wheat and fertilizer. For a while, it remained a minor player, controlling just 3 to 4 percent of the freight market up until the mid-1980s. But over the years, its footprint has expanded dramatically. Today, NLC is a dominant force in Pakistan's logistics sector, moving around 60% of the country's crude oil and a substantial volume of other dry and liquid cargo. With a fleet of 2,000 vehicles and a dry freight capacity of 50,000 tones, it has evolved into one of the largest logistics operators in the country.

But this dominance has not come without costs—especially for the private sector. NLC's privileged position, backed by the state, distorts the playing field. Government rules routinely direct sensitive and strategic cargo to NLC, with over 80% of its trucks reportedly tied up in public sector work. This leaves little room for private logistics firms to compete, especially for high-volume, high-value contracts. In open competition, NLC's performance lags—its higher costs and less responsive service model mean that many businesses, from major textile exporters to food distributors, avoid using it altogether.

Despite this, government departments are still required to use NLC for freight—even when cheaper, faster private options are available. And when NLC declines a job, the fallback is often Pakistan Railways, another state-run entity that, like NLC, struggles to compete with private operators and is now largely confined to carrying public cargo. The government's insistence on using NLC—even for international freight forwarding—means private firms with more efficient, fuel-saving fleets are regularly passed over. Innovation is sidelined, cost-efficiency is ignored, and investment in better services is discouraged.

This is not just about logistics—it's about how the state shapes markets. NLC enjoys built-in advantages: access to public infrastructure, guaranteed contracts, and policy-level protection. That combination is stifling competition and discouraging private investment at a time when Pakistan urgently needs a modern, responsive freight sector to support its trade and economic growth. By favouring one actor so heavily, the government is effectively crowding out others—limiting the emergence of a more competitive, technology-driven, and investment-ready logistics industry. The result is a less efficient economy, where freight services are slower, pricier, and less innovative than they could be.

There is a need for revamping of the governance around the NLC in a way that the agency working on public funds acts as a facilitator and enabler of the private sector, rather than as a predator driving out competition.

At the operational level, the logistics chain is inhibited by inefficiencies that magnify costs and degrade service quality. Infrastructure is dilapidated, particularly in critical corridors like Karachi-Hyderabad. The lack of functional weighbridges, the absence of warehousing near production hubs and ports, and the unavailability of truck maintenance support on long-haul routes contribute to delays, spoilage, and unreliability. To accommodate for the lack of infrastructure at the ports, the fleet operators have to build in 'free days' for loading and unloading or maintaining parallel informal supply chains. For temperature-sensitive goods like insulin or perishable Agri-products, these constraints are not just cost drivers—they're existential risks.

The workforce challenge adds another layer of binding constraint to growth and investment. Over 95% of HTV drivers do not hold proper licenses due to a highly bureaucratic and inaccessible licensing regime. While the FOAP is running a driver training program and an institute, the overall skills base remains poor. The sector continues to operate outdated Bedford trucks from defunct factories, further indicating a lack of access to credit and modernization support. High leasing costs and the absence of formal financial instruments for fleet upgradation have perpetuated reliance on inefficient, unsafe, and environmentally damaging vehicles. Efforts to experiment with electric trucks are costly, and without government backing for charging infrastructure and import facilitation, such innovations will remain pilot-scale at best.

From a supply chain perspective, the segmentation of logistics into formal, informal, and quasi-governmental domains like NLC has created silos of operation rather than a unified market. Multinational and compliance-focused firms are boxed into costly operational models, while informal players continue to thrive by bypassing taxes, safety norms, and environmental standards. This is not just a policy issue—it's a market design failure. True market transformation will require both disincentivizing informality and enabling formality through financial, regulatory, and institutional support mechanisms. These should include reduced sales tax for logistics services, easier access to leasing and insurance, and duty exemptions for fleet renewal, just as countries like Turkey and Iran did when scaling their trucking capacity.

Critically, the lack of multimodal integration has turned road logistics into an overstressed and underperforming mode. Rail freight remains unprioritized, despite its inherent cost advantages for bulk movement. Pakistan's entire Agri-logistics value chain—from farm to mandi to port—is undermined by the absence of reliable rail connectivity and proper warehousing. While Punjab's exit from wheat procurement could open the door to private sector investment in modern warehousing, policy clarity and infrastructure upgrades are urgently needed to translate that into actual capacity. Cold chain development is still in its infancy, with fragmented investments failing to create end-to-end temperature-controlled corridors for exports like fruits, vegetables, and fish.

Ultimately, what emerges from stakeholder insights is not a sector in need of piecemeal reforms, but one that requires a strategic reboot. A Ministry of Transport and Logistics must be established to coordinate across road, rail, port, air, and regulatory agencies. Axle load enforcement must be equitably applied, with a structured transition plan that enables informal operators to formalize without collapsing supply chains. The government must also create a dedicated window for fleet renewal, potentially through green financing and carbon credit schemes. Finally, without addressing law and order issues, especially in Sindh, and without transforming mandis into investment-worthy logistics hubs, even the best policy intentions will falter.

POLICY RECOMMENDATIONS

Policy Recommendations

Strategic Recommendations

The framework used for analyzing the strategic areas of support included six key pillars for developing a competitive and export-oriented logistics sector (see section on methodology). A seventh cross-cutting pillar has been added to cover the institutional governance aspects. These define the fundamental aspects of road logistics that must be improved to enhance the sector's competitiveness, productivity, and export orientation. The strategic level recommendations are discussed below:

1. **Institutional Governance:** *The institutional governance of the sector is in disarray. The sector, despite having a direct contribution of more than 10% to the GDP and an even greater bearing on export competitiveness, is still not recognized as an industry and is left struggling at the hands of a lack of decision-making and policy. A clear example of this has been the failure of any policy implementation on agreed-upon policies of the past. The sector needs to be recognized, and a dedicated ministry with autonomous control and mandate needs to be established.*

2. **Infrastructure Development:** *The condition, capacity, and suitability of road networks and associated services significantly influence logistics performance. The capacity of the N5 highway that is linked with the main seaport is out of capacity, and recent floods have impacted its condition. Similarly, the lack of and poor conditions on farm-to-market roads enhance costs, create delays and increase wear and tear. The lack of policy support and incentive to formalize the cool chain and the requite for road infrastructure for trucks and drivers and maintenance has resulted in huge inefficiencies retarding investments. The patchy nature of mobile networks and huge areas of no coverage result in reduced benefits for investments in more advanced tracking and real-time reporting technologies.*

3. **Transportation Efficiency:** *There is a need to introduce innovations to reduce transit times and enhance effectiveness. This will also include things like routing, scheduling and movement flows. The current structure is ad hoc and mismanaged, resulting in inefficient flow of goods. This needs to be regulated well for the sector to make investment decisions.*

4. **Cost Parameters:** *While infrastructure is essential, the cost composition of logistics depends on factors such as fuel cost and quality, vehicle maintenance and quality, labour costs and productivity, waiting times, toll costs, etc. It is essential to minimize these costs. The fuel price is an exogenous variable, but incentivizing investments in more efficient trucks can reduce this cost. The infrastructure improvement will reduce the wear and tear of the trucks. However, special financing products and suitable insurance products will reduce costs and enhance investments.*

5. **Regulatory Frameworks:** *For the sector to operate fairly and safely requires an extensive set of regulations. The essential part is that these must be easy to enforce and comply with and must be applicable fairly and not allow certain segments to distort competition. There is a need to harmonize provincial regulations and rules and improve enforcement and punitive action to ensure the formalization of the sector.*

6. **Technology & Digitalization:** *The adoption of technology, including elements like GPS tracking, fleet management systems, and automated scheduling and coordination and integration with platforms like PSW will be essential to improve operational efficiency and transparency in road logistics. These will only take place if there is financial viability. This will come with improved governance and incentives to make investments.*

7. **Environmental Effectiveness:** *There is a need for building a stronger approach and policies governing vehicle standards and vehicle types, optimizing routes that reduce carbon footprints, and coming up with mechanisms to measure and report emissions for consignments. The tariff and trade policy should encourage EV adoption and make investments in the required charging infrastructure. Also, support may be provided to start estimating the GHG emissions of trucks on key routes.*

Implementation of Existing Policy Actions

The government of Pakistan developed a comprehensive National Freight & Logistics Policy in 2020 that is yet to be approved or implemented. However, the policy makes a comprehensive set of recommendations and proposed actions. These have been assessed for this work and based on the feedback their relevance and importance are provided below:

Policy Action	Progress	Priority / Action Required
Revise Trucking Policy (Review and revise the Trucking Policy 2007 with a view to provide effective actions to develop, operate and maintain a modern vehicle fleet in Pakistan)	No Progress	This is a high priority action and must be developed and approved by the cabinet. This will facilitate investments and other incentives and encourage formalization.
Establish a Truck Renewal Programme (Develop in consultation with the industry a truck fleet renewal programme to modernize the fleet in line with international standards by providing incentives to the industry for modern vehicles and setting a sunset clause for older vehicles)	No Progress	The most critical problem in the trucking value chain is with operators' trucking fleet – that is due to the failure of production sector to produce trucks with euro 5 standards. A comprehensive programme needs to be developed.
Update and harmonize legislation Adopt and implement model Road Safety Act, which updates Provincial Motor Vehicle Ordinance 1965, across all provinces and territories, with a view to cover all types of vehicles, and harmonize rules, procedures and the safety standards applicable to ensure roadworthiness and safe transportation to avoid accidents and unnecessary road maintenance. This will include the latest road safety act and define vehicle age limits and vehicle fitness requirements, decommissioning of over-aged vehicles, registration of prime mover, as well as chassis and tank lorry, specify the registration procedure for non-standard delivery/transport vehicles, and harmonize weigh limits	Little Progress but only in Punjab province	No effective mechanism for effective implementation has been prepared and launched for decreasing the number of road accidents; harmonize weight limits across all types of roads. This must be implemented across all provinces in a harmonized manner.
Improve, Licensing and regulation of Heavy Transport Vehicle Improve the licensing procedure for the Heavy Transport Vehicle (HTV) in line with the guidelines for vehicle licensing and enforce vehicle manufacturing standards	No Progress	This action is dependent on revised national truck specifications for 2, 3, and multi-axle prime movers, which is still in progress. This needs to be speeded up.

Policy Action	Progress	Priority / Action Required
Enforcement of axle load regime Fully-enforce the axle load regime but offering necessary transition period before a rigid enforcement	Little Progress	NHA claims 100% enforcement of axle load on motorways only. No control plan for axle load regarding national highways, provincial roads and city-roads have been prepared and implemented. This needs to be ensured and the informal sector must comply fully or be penalized by closures of truck or confiscation or cargo
Develop National Road Consignment Note Define, enforce and promote national Road Consignment Note for domestic shipment where details of liability and responsibility of the carrier and the shipper should be defined along with the compensation in case of loss, damage or delay. Preferably this Road Consignment Note may be aligned with the CMR (International Road Convention). This will replace the different formats of 'bilty'.	No progress	This is essential for the formalization of those freight forwarders and operators working in an informal manner. These must be developed and implemented immediately.
Issue Project Cargo Permit at international gateways Simplify the process to obtain a permit for transporting over-sized project cargo by issuing the permission at international gateways, in particular at the ports, for the complete route. This will enhance and expedite delivery times significantly, rather than current practice with vehicles on standby for days.	No progress	A digital permit application platform, interlinked with destination country, which allows applicants to submit their application online, should be created where automated documentation verification is incorporated. Establish an online tracking system that provides applicants with real-time updates regarding the status of their permits.
Automate, certify and standardize weighbridges Implement automated and integrated weight-bridge system.	Little progress	No control plan for axle load regarding national highways, provincial roads and city-roads have been prepared and implemented. The plan must be developed process should be automated.
Designate and Develop HTV Parking Areas and Truck Stops Support the creation of suitable lorry parking and driver rest facilities in accordance with local and wider needs.	No progress	This is one of the most important areas in logistic value chain for smooth and secure functioning of the businesses and has been raised as a key concern. Incentives and clear process to be introduced for private sector provision of these.
Preparation of Road Transit Rules other than APTTA Prepare road transit rules to facilitate international trade with neighbouring countries. Clauses from CMR & TIR can be part of such rules.	Little progress	The Rules are essential to moderate governance and push formalization, these may be developed and implemented.

Policy Action	Progress	Priority / Action Required
Establishing Urban Consolidation/Logistics Centers in major cities Contributes to the reduction of freight traffic circulating within a target area by promoting the consolidation of cargo shipments at one or more urban terminals	No progress	Logistics Centers are required on urgent basis to facilitate international freight traffic. This is a critical infrastructure bottleneck and must be developed.
Develop designated routes for freight Develop designated routes for trucks in specified streets to avoid HTV traffic in residential areas. This is supported by the implementation of coordinated route navigation e.g. using ITS systems to optimize the delivery routes and timings	No progress	An ITS system must be developed, and its use made mandatory to avoid congestion and delays.
Promotion of greener freight in urban areas Work with the public and private sector to reduce lorry and van movements in urban areas by identifying and developing a series of 'green' projects with a view to preserving the liveability of city centres and reduce the negative externalities produced by freight vehicles in terms of emissions, noise and safety.	No progress	Plan for green transition needs to be developed, this may include estimation of emission, traffic decongestion, internal routes supported by EVs, the objective being to move towards net zero interventions.
Establish collection points at strategic location for collection and repacking of freight in rural areas for bulk transport to the main distribution networks	No progress	A plan to inbuilt with master plans of key urban cities need to be developed and implemented.
Work towards a single Ministry of Transport Work towards a unified and integrated Ministry of Transport, overseeing the Policy and Planning of all transport related matters under the purview of the Federal Government, to facilitate integration and harmonization of the transport sector	No progress	This is the most essential requirement, and the sector must be declared as a full sector with a dedicated Ministry or one consolidated authority.
Continue and prioritize the development of Pakistan Single Window and simplify the Customs clearance procedures Implement and prioritize the development of the Pakistan Single Window. In the process of adopting the Pakistan Single Window, streamline the processes covering the customs clearance procedures, including the statutory regulatory orders (SRO's) and rationalize the tax structures accompanying those	Little progress	The PSW initiative is ongoing and must continue with regular monitoring and impact assessment.

Policy Action	Progress	Priority / Action Required
Promote REIT for financing infrastructure Encourage multiple channels of private-sector investment fund particularly the application of Real Estate Investment Trust (REIT) model to finance logistics infrastructure, particularly of warehousing.	No progress	There is a need for innovative financing in the sector to bring in good quality infrastructure. REITs can be a good instrument and the rules may further be made conducive for warehousing business.
Review the withholding tax on gross turnover of freight forwarders Review the inadvertent consequences from the withholding tax on gross turnover of freight forwarders. The gross turnover contains 'pass-through' charges.	No progress	The taxation at present has become prohibitive at 4% of Gross Revenue—this needs to be addressed in consultation with the sector.
Preferential financing for logistics companies Seek to promote and offer preferential loan and financing to logistics companies. Logistics is to be recognized as a qualified 'industry' that is entitled to business loans at preferential interests. This will stimulate greater private-sector ability to invest and reinvest in the industry.	No progress	Financing products based on the model of logistics companies must be developed. The cash flow and CAPEX requirements are very specific and must be taken care for in the sachem.
Accept insurance guarantees as customs guarantee Consider recognizing and accepting Insurance Guarantees as a customs guarantee in lieu of bank guarantees. The approval for use of insurance guarantees can be made conditional based on history and track record of the respective logistics operators.	No progress	As bank guarantees eat up lot of working capital—the insurance guarantee may be used more effectively to ease or create financial space.
Align and develop logistics statistics Align and develop the logistics statistics concerning all relevant aspects of logistics. This will be incorporated in the National Transport Data Observatory, and support the public and private sector in decision making.	No progress	There are no official statistics or live dashboard monitoring and assessing the impact of the sector. The data generation for the sector must be improved.
Equal status for electronic documents Amend laws and procedures to give electronic documents the same status as signed, physical documents.	No progress	The regulations at the moment do not accept electronic documents at various stages of the value chain—this needs to be changed in the regulations.

Policy Action	Progress	Priority / Action Required
Establish Delivery Networks for E-Commerce Goods Establish Delivery Networks for E-Commerce Goods: Promote developing networks of "pick up and drop off points", where the receiver can choose to have e-commerce deliveries made to a convenient location, such as at convenience stores.	No progress	A comprehensive plan may be developed and private investors attracted to set up such facilitative infrastructure. The likes of TCS may be involved.
Install Truck scanners at border crossing points Install and operate truck scanners at border crossing points to examine compartment contents without the need for full physical examination	Installed. However, most of them are non-functional	There are resources available under the Pakistan Raises Revenue Project of the World Bank and these scanners must be made fully operational to increase speed of transit.
Improve clearance procedures and release of trucks and cargoes within 24 hours from the Ports and Border operations	No progress	Infrastructure and procedural requirements to be improved to reduce clearance time.
Revised domestic carriage acts (Review and enact the Carriage of Goods by Road Bill, 2013 by all Provincial Assemblies to regulate the domestic carriage of goods by road and replace the Carriers Act, 1865. It is necessary for the same bill to be enacted by all the provinces to maintain uniformity of domestic road transport legislation throughout the country.)	No progress	This has been a pending issue for several years and must be approved by the parliament.
Develop multimodal logistics in WeBoC (Improvement in WeBoC to enable it to process multimodal shipments, in particular in line with the TIR convention)	Little progress	The system of WeBoc to be upgraded or merged with the PWC integration.
Establish Accredited Training Organizations Award Accredited Training Organization to those organizations that meet the quality standards and deliver the capacity building programs. NAVTTC can designate Accredited Training Organizations where the courses qualify for government grants or incentives.	Little progress	Need investments to train driver and logistics support workers. This is essential.
Improve and enhance driver training Improve and enhance driver training in line with the driver licensing guidelines and adopt this within the various governments and the private vocational training institutes in order to inculcate professionalism and promote employment generation.	Little progress	Shortage of good skilled drivers is a critical issue and must be addressed.

Source: Adapted from the National Freight and Logistics Policy 2020, Government of Pakistan

Prioritized Recommendations

The above recommendations and actions are holistic and cover all aspects of the road logistics sector. The main prioritized recommendations in the report are as follows:

1. Institutional Governance and Financial Enablement

- **Official Notification of Industry Status:** Immediately publish the gazette notification recognizing the trucking sector as an industry. This will enable freight operators to access formal banking channels, leasing options, and structured financing to modernize their fleets.
- **Dedicated Ministry or Focal Authority for the Logistics Sector:** It is important to realize that logistics is an interconnected sector, and one mode is not independent of the other. Therefore, a focused approach is required to help the sector grow.
- **Access to Green Financing:** Develop tailored green finance products through public and private banks to support replacing outdated diesel trucks with fuel-efficient, environmentally friendly models. This should include concessional loan terms and subsidies for more efficient, compliant vehicles.
- **Inclusive Financial Support:** Ensure small freight operators, independent transporters, and new market entrants have equitable access to credit and leasing facilities. Partnerships with larger entities like NLC should be encouraged to support knowledge sharing and onboarding.

2. Infrastructure Development

- **Upgradation of National Highways and Regular Maintenance:** The Hyderabad-Sukkur motorway needs to be completed and the existing national highway must also be repaired. There is a need for enhanced police checkpoints and security to avoid theft and vehicle damage.
- **Warehousing and infrastructure at Ports:** There is a need for advanced warehousing across the country and at strategic crossing points like main highways with farm-to-market roads. The master plan for this needs to be developed as a top priority.
- **Missing Farm-to-Market Roads:** The country still lacks critical road connectivity. A holistic plan linking farm to market to port must be developed and implemented.
- **Network Connectivity:** To implement and use digital solutions, network connectivity across all road networks is essential. This must be ensured by enhanced investments by USF in underserved areas.

3. Technology Adoption and Innovation

- **Awareness Forums:** Conduct an annual national forum to introduce private sector stakeholders to global trends in freight technology, digital platforms, and best practices in logistics efficiency.
- **E-Governance in Freight Management:** Launch an integrated online permit issuance system to improve transparency, reduce delays, and enhance operational efficiency.
- **Digital Weighing and Toll Systems:** Establish a centralized, tamper-proof system for weight checks on highways and motorways to reduce bribery, lower freight costs, and ensure compliance.

4. Capacity Building and Human Resource Development

- **Driver Training Institutes:** Set up certified training schools focused on developing professional truck drivers who are well-versed in international freight regulations, road safety, and cross-border protocols.

- **Workshops on Regulatory Benefits:** Organize regular workshops to train logistics companies, fleet managers, and freight forwarders on how to leverage government reforms, financing schemes, and compliance tools for operational growth.

- **Inclusion and Gender Empowerment:** learning from the experience of Engro, women drivers may also be trained, and specific quotas may be set for the inclusion of women drivers.

5. Sustainability and Long-Term Vehicle Modernization

- **Support networks to comply with Euro 5 Standards:** Support partnerships with prime movers of left-hand drive truck operators in Afghanistan and gradually improve the move towards Euro 5 compliant diesel and look at investments in LNG infrastructure required to enhance the use of trucks on this fuel.

- **Fleet Renewal Support:** Provide incentives and policy support for upgrading existing freight fleets with vehicles that meet international environmental and performance benchmarks.

6. Regulatory Streamlining and Export Facilitation

- **Full Implementation of Axle Load Regulations with Strong Penalties:** There is a need to fully implement the load restrictions, and strict action should be introduced in case of non-compliance. Strong actions must ensure that vehicles are impounded, and goods are seized. Simple fines will not ensure compliance.

- **Harmonization of Provincial Rules Requirements:** The Motor Vehicle Rules 1969 and the provisions contained within them must be harmonized across all provinces.

- **Visa Facilitation for Freight Forwarders:** Implement immediate compliance by the Ministry of Foreign Affairs with the Ministry of Communications' directive to expedite visa issuance for registered freight forwarders, improving cross-border logistics and export competitiveness.

- **Customs and Documentation Modernization:** Introduce legal equivalency for electronic documentation in logistics, enabling smoother cross-border operations, e-commerce delivery networks, and reverse logistics systems.

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ANNEXURES

Annexure 1: E-LPI Index Methodology

To construct the E-LPI, qualitative and quantitative data were collected from key stakeholders involved in Pakistan's international logistics value chain (See list in Annex 2). The respondents covered include freight forwarders, logistics operators, customs agents, shippers, dry port managers, and government officials from relevant departments.

Data were gathered through a mix of in-person and telephonic/online interviews, ensuring access to diverse and geographically distributed perspectives. Respondents were asked to provide informed assessments of Pakistan's logistics performance concerning regional and international practices. Their evaluations covered four core dimensions of logistics capability: (i) strategic positioning, (ii) network optimization, (iii) value-added services and performance evaluations, and (iv) cost and time effectiveness. Each response was recorded using a **5-point Likert scale**, where 1 denoted "very poor" and 5 indicated "excellent."

Indicators and Parameters

Eight indicators have been used to measure the four performance dimensions. These are as below:

1. **Strategic positioning:** Measured through infrastructural quality and capacity of roads, dry ports, warehouses, distribution points, and border crossing yards; the strength of the freight forwarding network; efficiency of outbound logistics; and adequacy of organizational structure. These parameters were designed to assess how well the road logistics sector leverages Pakistan's strategic geographic location to support export growth.

2. **Network optimization:** Evaluated using parameters such as cooperation among stakeholders, information-sharing mechanisms, standardization practices, industry discipline, and customs clearance efficiency.

3. **Value-added services and performance evaluation:** Parameters for value-added services included the generation of new ideas, adaptability to market changes, and flexibility in service provision. Performance evaluations focused on functional assessment, process tracking, comparison with benchmarks, tracking and tracing capabilities, and timeliness of deliveries.

4. **Cost and time effectiveness:** Assessed using parameters such as operational costs (fixed and variable), time value (including travel time and service quality), and external costs related to environmental degradation, congestion, and accidents.

In addition, four supplementary indicators were included to capture emerging priorities in logistics performance:

5. **Transportation cost-effectiveness**
6. **Transportation time efficiency**
7. **Adoption of technology and digitization**
8. **Environmental effectiveness** was assessed with a specific focus on reducing the sector's carbon footprint.

Each of these indicators was rated by respondents based on their impact on enhancing export competitiveness from a regional perspective.

Index Construction and Statistical Method

To compile individual responses into a single composite score, the study employed **Principal Component Analysis (PCA)**, a widely used statistical technique for dimensionality reduction and aggregation. PCA enables the extraction of a principal component that captures the maximum variance across multiple correlated variables—in this case, the eight core indicators.

Before applying PCA, the survey scores were **standardized** to ensure comparability by subtracting the mean and dividing by the standard deviation for each indicator. This normalization process eliminates scale bias and aligns the data for effective aggregation.

The PCA was performed on the **correlation matrix** of the eight indicators. The eigenvalue analysis revealed one dominant component with an eigenvalue greater than 1, which was also significantly larger than the remaining eigenvalues. According to standard PCA retention criteria, including the **Kaiser Criterion** and the **scree plot**, only the first principal component was retained. This component serves as the **final E-LPI** score, representing a weighted average of the original indicators, where the weights were chosen to maximize the proportion of explained variance.

Rationale and Relevance

The methodological approach, which relies on perception-based data from key logistics stakeholders, reflects the operational reality of Pakistan's road freight sector, especially in the context of data scarcity and outdated official statistics. The use of stakeholder insights ensures relevance, practical applicability, and a high degree of contextual sensitivity. Additionally, the E-LPI provides a replicable and scalable framework for periodic assessment of logistics sector performance and policy effectiveness.

By combining structured stakeholder input with rigorous statistical analysis, the policy paper contributes a novel index that not only benchmarks Pakistan's road logistics competitiveness but also identifies actionable gaps for policy intervention—particularly in light of the country's aspirations under regional trade initiatives like **CPEC**, and in alignment with global sustainability standards such as the **EU Green Deal**.

A detailed methodology and results of the PCA are provided in Annex 3.

Annexure 2: List of Meetings & Stakeholder Data Collection

CORPORATE SECTOR KIIs			
1	Iftikhar Hussain Butt	Momentum Logistics	
2	Baber Bedat	Transhold	
3	Kazim Saeed	Pakistan Agriculture Coalition	
4	Babar Saleem	Agility	
5	Kamran Nishat	Mulphico	
6	Ali Traiq	TAQ Cargo	
7	Saira Awan Malik	TCS	

SR@	NAME & DESIGNATOIN	COMPANY /DEPARTMENT	CONTACT #
PUBLIC SECTOR			
1	**Mr. Shahbaz Latif Mirza** Director, Roads	Ministry of Communications, Islamabad	051-9201252 / 051-9220190
2	**Mr. Sayyar khan** Deputy Chief	National Transport Research Center	051 925 0442 / 0345 5324497
3	**Mr. Yousaf Zia** Deputy Chief	National Transport Research Center	051925 0442 /
4	**Mr. Zia-ul-Islam** Deputy Director	National Highway and Motorway Police	051 9320294-5 /
5	**Mr. Zubair khan** Deputy Secretary	Ministry of Commerce	051-9202621 / 03349042854
6	**Dr. Waseem** Director	Transport Planning Unit, Transport Department, Government of Punjab	03354898891
7	**Dr Abdul Basit** Director	Urban Unit, Planning & Development Board, Government of Punjab	03218854982
8	**Engr. Muhammad Ammar** Deputy Secretary	Communications & Works department	03434870657
FREIGHT FORWARDERS / OPERATORS			
9	**Mr. Jamil Ahmed** Chairperson Pakistan international Freight Forwarders Association (PIFFA)	Vision Logistics (Pvt) Ltd., Suite no.14, 2nd floor, central plaza, new garden town, Barkat market, Lahore.	03334227999
10	**Mr. Malik Tariq Hayat** Managing Director	Pak. Caspian Trade Links 384/2-B, Shahzaib Plaza, Lala Rukh, WahCantt.	0514-513133 / 0333 5704520
11	**Mr. Shabbir Ahmed** Managing Director	Akhunda International Transport (Pvt) Ltd Near four Brother Hotel, Afiyatabad, Sust District Hunza/Nagar, Gilgit Baltistan	0345-5351104 / 0355-4102594

SR@	NAME & DESIGNATOIN	COMPANY /DEPARTMENT	CONTACT #
FREIGHT FORWARDERS / OPERATORS			
12	**Mr. Muhammad Ali Quaid** Managing Director	Ali Trading Company Quaid House, Main Bazar, Sust	0310-0011150
13	**Mr. Ramiz Ali Rabbani** Director, S.A. Enterprises	Best Trans (Pvt) Ltd. 1st Floor 14-B Sector E, Rofi Block, Opposite Grand Mosque, Bahria Town, Lahore	042-35976165 / 0313-5376712
14	**Mr. Shoaib Jawed Savul** Director	Abdul Aziz Savul& Co. (Pvt) Limited, Suit # 1205, 12th Floor, Q.M. House, Ellander Road, Opp. Shaheen Complex, Karachi	021-32603601 / 0333-3418949
OFFICIALS FROM DRY PORT SIALKOT			
15	**Mr. Navid Iqbal Sheikh** Chairman	Sialkot Dry Port Trust, Dry Port Road, Sambrial, Sialkot	052-9200527 / 0300-8613419
16	**Mr. Sattar Ali** Secretary	Silk Route Dry Port / Old National Bank Building, Sust Hunza	0313-5702288

RESPONDENTS FOR PCA DATA

SR@	NAME & DESIGNATOIN	COMPANY /DEPARTMENT	CONTACT #
PUBLIC SECTOR			
1	**Mr. Shahbaz Latif Mirza** Director, Roads	Ministry of Communications, Islamabad	051-9201252 / 051-9220190
2	**Mr. Sayyar khan** Deputy Chief	National Transport Research Center	051 925 0442 / 0345 5324497
3	**Mr. Yousaf Zia** Deputy Chief	National Transport Research Center	051925 0442 /
4	**Mr. Zia-ul-Islam** Deputy Director	National Highway and Motorway Police	051 9320294-5 /
5	**Mr. Zubair khan** Deputy Secretary	Ministry of Commerce	051-9202621 / 03349042854
6	**Dr. Waseem** Director	Transport Planning Unit, Transport Department, Government of Punjab	03354898891
7	**Dr Abdul Basit** Director	Urban Unit, Planning & Development Board, Government of Punjab	03218854982
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10	**Mr. Malik Tariq Hayat** Managing Director	Pak. Caspian Trade Links 384/2-B, Shahzaib Plaza, Lala Rukh, WahCantt.	0514-513133 / 0333 5704520
11	**Mr. Shabbir Ahmed** Managing Director	Akhunda International Transport (Pvt) Ltd Near four Brother Hotel, Afiyatabad, Sust District Hunza/Nagar, Gilgit Baltistan	0345-5351104 / 0355-4102594
12	**Mr. Muhammad Ali Quaid** Managing Director	Ali Trading Company Quaid House, Main Bazar, Sust	0310-0011150
13	**Mr. Ramiz Ali Rabbani** Director, S.A. Enterprises	Best Trans (Pvt) Ltd. 1st Floor 14-B Sector E, Rofi Block, Opposite Grand Mosque, Bahria Town, Lahore	042-35976165 / 0313-5376712
14	**Mr. Shoaib Jawed Savul** Director	Abdul Aziz Savul& Co. (Pvt) Limited, Suit # 1205, 12th Floor, Q.M. House, Ellander Road, Opp. Shaheen Complex, Karachi	021-32603601 / 0333-3418949
15	**Mr. Muhammad Hussain** Rajvani Director	CASP Logistics (Private) Limited, Office # 618, 6th Floor, Block-A, Saima Trade Tower, I.I. Chundrigar Road, Karachi	021-32275008 / 0321-8258030
16	**Representative** Managing Director	Northern Areas Transport Corporation (NATCO), Gilgit-Baltistan	05811-920764 / 05811-920865
17	**Mr. Daulat Karim** Managing Director	Hunza Xinjiang Trading Company, A.A. Samad Market, Dry Port Sust, Gojal	05813-440209 0333 5497370
18	**Mr. Rubab Meraj** Director	North South Transport Network (Pvt) Ltd. 403, 3rd Floor, Liberty Tower, Sir Syed Road, Gulberg-III, Lahore	042-35755051/ 042-35756540
19	**Mr. Muhammad Majeed** Managing Director	Micro Star Traders, Transport Company, Muhammad Abad No. 1, Danyore, Gilgit	0312 4121525
20	**Mr. Tahir Ali / Representative** General Manager	Agility Logistics (Pvt) Ltd. 2nd Floor, Progressive Centre, Block-6, PECHS, Main Shahrah-e-Faisal, Karachi	021-111-436-436
21	**Mr. M. Qamar-ul-Azam / Representative** Chief Operating Officer	BSL (Pvt) Ltd. 3-Ground Floor, K.D.L.B Building, 58 West Wharf Road, Karachi Karachi Terminal: S-63, Hawksbay Road, S.I.T.E., Karachi	021-111-786 021-3235-4384-6
22	**Raja Shahbaz Khan** Director	Pamir Marcopolo (Pvt) Ltd. Plot No. 13-P, F-7 Markaz, Islamabad	0311-1388849

SR@	NAME & DESIGNATOIN	COMPANY /DEPARTMENT	CONTACT #
FREIGHT FORWARDERS / OPERATORS			
23	**Mr. Sattar Ali** Secretary Silk Route Dry Port / Old National Bank Building, Sust Hunza	Xinjiang Gawadar International (Pvt) Ltd.	0313-5702288
24	**Haji Fateh Khan / Representative** President	Head Office: Flat No. 1, 1st Floor, Al-Furqan Centre, Jamaluddin Afghani Road, Quetta	081-2838533
25	**Mr. Salman Akram / Representative** Chief Executive Officer	TCS Logistics (Pvt) Ltd. 101-104, Civil Aviation Club Road, Karachi	021-111 123 456
26	**Khawaja Ahmed Shahzad / Representative** Chief Executive Officer	Abdullah Terminal, Band Road, Lahore	042-37506432
27	**Mr. Muhammadi** Managing Director	MZ Enterprises International (Private) Limited Office # 7, Near Police Station Danyore, Gilgit	0355-5557474 0333-8488886
28	**Mr. Sattar Ali** Chief Executive Officer	Xinjiang Gwdr Trade & Tourism Company (Pvt) Ltd Office No. 1, GRSO, Building Sost, Near Dry Port ChowkGojal, Hunza	0333-5702288
29	**Mr. Muhammad Tayyab /** Representative Director	Al Tijjar Logistics (SMC-Private) Limited Suite # 1201, 12th Floor, Muhammadi Trade Tower, Altaf Hussain Road, New Challi, Karachi	021-32371138-39
30	**Mr. Muhammad Yaseen** Director/CEO	Yaseen Transport Company (Private) Limited 1st Floor, National Plaza, Choharmal Road corner M.A. Jinnah Road, Quetta	081-2838476 0300-8380124
31	**Mr. Hameedullah** C.E.O	Global Shipping Services (SMC-Private) Limited D-44, Clifton, Block-1, Near Altamash Hospital, Karachi	021-35862503 0301-3000009
32	**Mr. Abdul Mateen /** Representative SVP	Raaziq International (Private) Limited Raaziq Group, Head Office, The Enterprise, Building-2, 4th Floor, 15-KM Multan Road, Lahore	042-37516307
33	**Mr. Anjum Shahzad /** Representative Regional Network Operations	Leopards Courier Services (Private) Limited, 19-F, Block-6, PECHS, Karachi	021-34398412
34	**Mr. Rashid Iqbal /** Representative Director	New Chishtian Logistics (Private) Limited Chishtian House, Near River View Society, Alipur Road Link, Abdul SattarEdhi Road, Lahore	042-35966857
35	**Mr. Muhammad Kamran Khan Wazir / Representative** Director	Saifran Logistics (Private) Limited	021-32350820

SR@	NAME & DESIGNATOIN	COMPANY /DEPARTMENT	CONTACT #
FREIGHT FORWARDERS / OPERATORS			
36	**Mr. TaimurBadat / Representative** Director	Sinotrans Logistics Pakistan (Pvt) Limited 3-R, 3rd Floor, Bahria Complex III, Lalazar, M.T. Khan Road, Karachi	021-35642730
37	**Mr. Ali Khan** Director	Kozak Logistic (Pvt) Limited Suit # 704, 7th Floor, Business & Finance Centre, I.I. Chundrigar Road, Karachi	0300-3505820 0333-7753778
38	**Mr. Mubashar Hussain /** Representative Director	PKG International Shipping & Logistics Limited PKG House, 28-C, OPF Housing Society, Khayaban-e-Jinnah Road, Lahore	041-111-111-754 03004638126
39	**Mr. Nazir Ur Rehman Usmani** Chief Executive	Golden Peak Global Transport (Private) Limited Office # 104, 1st Floor Emporium Mall, Gulberg Green, Islamabad	0300-5092956
40	**Mr. Fazal Rabbani** Managing Director	Rabbani Trade Links (Private) Limited Main Bazar Afiat Abad, Sost Gojal Hunza, Gilgit-Baltistan	05813-440009
41	**Mr. Aziz Ahmed** Chief Executive Officer	Rozik International Trade (SMC-Private) Limited Al Mehmood Hotel, Sost Hunza, Gilgit-Baltistan	0335-9166654
42	**Mr. Muhammad Ali** Director	ZASA Logistics International (SMC-Private) Limited	051-7836006 0355-5775767
43	**Mr. Naeem Uddin** General Manager	Celerity Supply Chain (Private) Limited	UAN: 021-111-272-000
44	**Mr. Gulzar Afzal Khan** Chief Executive Officer	Secure Logistic Group (Pvt) Ltd.	051-87792246
45	**Mr. Yousaf Ali** Managing Director	Trans global Gateway Logistics (Pvt) Ltd.	0355-4369978
46	**Mr. Waseem Badami** Managing Director	Badami Transportation & Logistics (Pvt) Ltd.	0314-4411228
47	**Mr. Aslam Pervez** Chief Executive Officer	ZAPU-Khan Global Trade & Tourism Transportation (Pvt) Ltd.	0344-9507186
48	**Mr. Abid Ali** Director/CEO	Abid Logistic (Pvt.) Ltd.	0301-5525041
FREIGHT FORWARDERS / OPERATORS			
49	**Mr. Navid Iqbal Sheikh** Chairman	Sialkot Dry Port Trust, Dry Port Road, Sambrial, Sialkot	052-9200527 / 0300-8613419
50	**Mr. Sattar Ali** Secretary	Silk Route Dry Port / Old National Bank Building, Sust Hunza	0313-5702288

Annexure 3: PCA Methodology & Results

By converting data into a new coordinate system, Principal Component Analysis (PCA), a linear dimensionality reduction technique, finds the principal components—the directions that capture the greatest variation in the data. It pinpoints the key characteristics (principal components) that account for the greatest amount of variation in the data. For applying PCA, first of all, the data is converted into standardized form to ensure that all features of the data are on the same scale. Standardizing data ensures that the data has a zero mean and a standard deviation equal to one. The following equation is used to standardize the data;

$$Z = \frac{(X- \mu)}{\sigma}$$

Where; Z= standardized value ; X = original value *;μ is population mean where* $\mu = \{\mu_1 + \mu_2 + \ldots\ldots + \mu_n\}$; σ = *is population mean where* $\sigma = \{\sigma_1 + \sigma_2 + \ldots\ldots + \sigma_n\}$. At the second stage, the covariance/correlation values are checked to analyze whether the association among the data of variables under consideration is strong or near 1 or not in any direction. PCA is applied to reduce the dimensionality of data where there is generally an issue of multicollinearity. Covariance is generally found by using the following formula;

$$Cov(x_1,x_2) = \frac{(\sum_i^n{}_{-1}(x_1 - x_1)\ (x_2 - \overline{x_2})}{n - 1}$$

After confirmation of high covariance among the data, PCA is applied. PCA finds new axes where the data spreads out the most. The direction of largest variation, or most spread, is the first principal component (PC1). Perpendicular to PC1, the second principal component (PC2) is the next best direction, and so forth. For matrix A (a square matrix), an eigenvector x (which is a non-zero vector) with its corresponding eigenvalue λ (a scalar measure) satisfy the following;

$$AX = \lambda X$$

further satisfy the following conditions

$$AX - \lambda X = 0$$

$$(A - \lambda I)X = 0$$

Where I is an identity matrix of the same shape as A and the above equations will be true only if;

$$|A - \lambda I| = 0$$

The above equation is called a deterministic equation (Muirhead & Anderson, 1986). Since PCA is an unsupervised learning approach, target variables are not known in advance. It is frequently used to streamline datasets without sacrificing important information in machine learning and exploratory data analysis. The advantages of PCA include handling of multicollinearity, noise reduction, data compression and outlier detection, while its limitations include data scaling sensitivity, information loss, assumption of linearity and risk of over-fitting.

Table: Correlation Matrix

	st	no	va	pe	ftc	tte	atd	ee
st	1							
no	0.931	1						
va	0.546	0.4738	1					
pe	0.9824	0.9115	0.5914	1				
ftc	0.5044	0.4326	0.6894	0.5115	1			
tte	0.5978	0.5479	0.4332	0.6216	0.4864	1		
atd	0.8973	0.966	0.492	0.9118	0.4116	0.5575	1	
ee	0.9824	0.9828	0.5187	0.9635	0.4766	0.5828	0.9484	1

Where st = strategic positioning; no = network optimization; va = value added services; pe = performance evaluation; ftc = freight transportation cost; tte = transportation time efficiency; atd = adoption of technology / digitization; ee = environmental effectiveness.

Table: PCA analysis (Un-rotated = principal)

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	**5.87907**	**4.80811**	**0.7349**	**0.7349**
Comp2	**1.07095**	**0.509755**	**0.1339**	**0.8688**
Comp3	0.561196	0.259794	0.0701	0.9389
Comp4	0.301402	0.166192	0.0377	0.9766
Comp5	0.13521	0.089233	0.0169	0.9935
Comp6	0.045977	0.039779	0.0057	0.9992
Comp7	0.006198	0.006198	0.0008	1
Comp8	0	.	0	1

Table: PCA analysis (eigenvectors)

Variable	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Comp 6	Comp 7	Unexplained
st	**0.3982**	-0.1487	-0.0626	-0.055	-0.5297	0.152	0.5833	0
no	**0.3889**	-0.2558	-0.0974	-0.1008	0.379	0.5106	-0.4319	0
va	**0.2737**	0.5733	-0.3517	0.6739	0.0764	0.1099	0.0259	0
pe	**0.4001**	-0.1102	-0.0487	0.0642	-0.4635	-0.5102	-0.5884	0
ftc	**0.2562**	0.6576	-0.0756	-0.6982	0.0617	-0.0698	-0.007	0
tte	**0.2851**	0.1908	0.9174	0.1848	0.0587	0.0542	0.0092	0
atd	**0.3846**	-0.2456	-0.0805	0.0234	0.5851	-0.567	0.3476	0
ee	**0.4005**	-0.2062	-0.0816	-0.0795	-0.0738	0.3383	0.0737	0

Table: PCA analysis (orthogonal verimax)

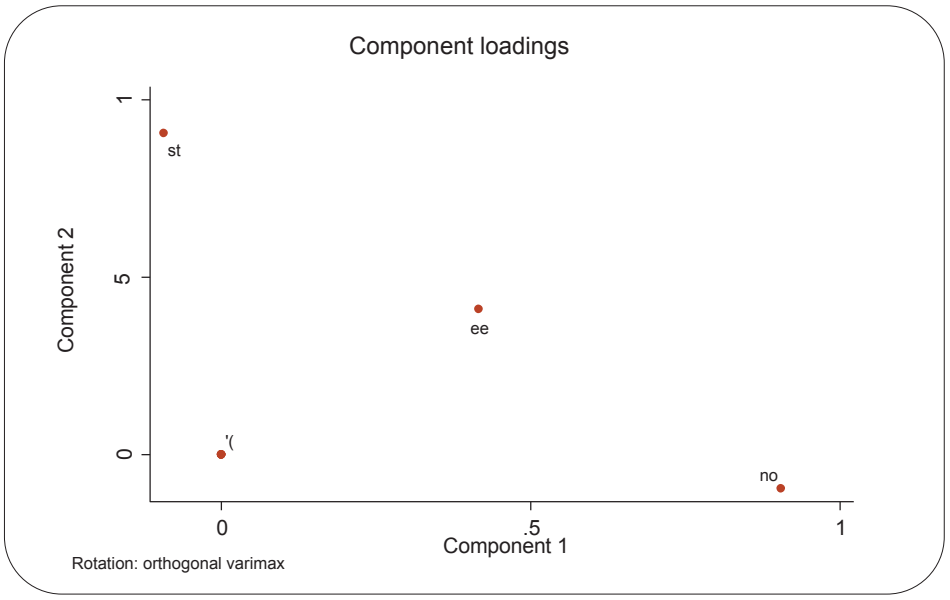
Component	Variance	Difference	Proportion	Cumulative
Comp1	1.50684	0.01367	0.1884	0.1884
Comp2	1.49317	0.493164	0.1866	0.375
Comp3	1	2.36E-06	0.125	0.5
Comp4	1	8.91E-07	0.125	0.625
Comp5	0.999999	1.24E-06	0.125	0.75
Comp6	0.999998	1.22E-06	0.125	0.875
Comp7	0.999997	.	0.125	1

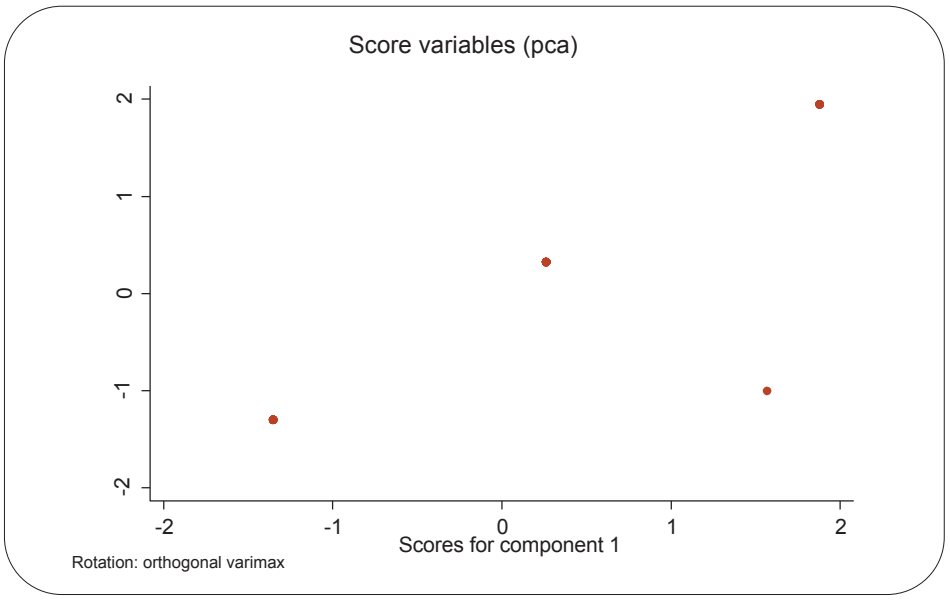
Table: PCA analysis (Principal component loadings)

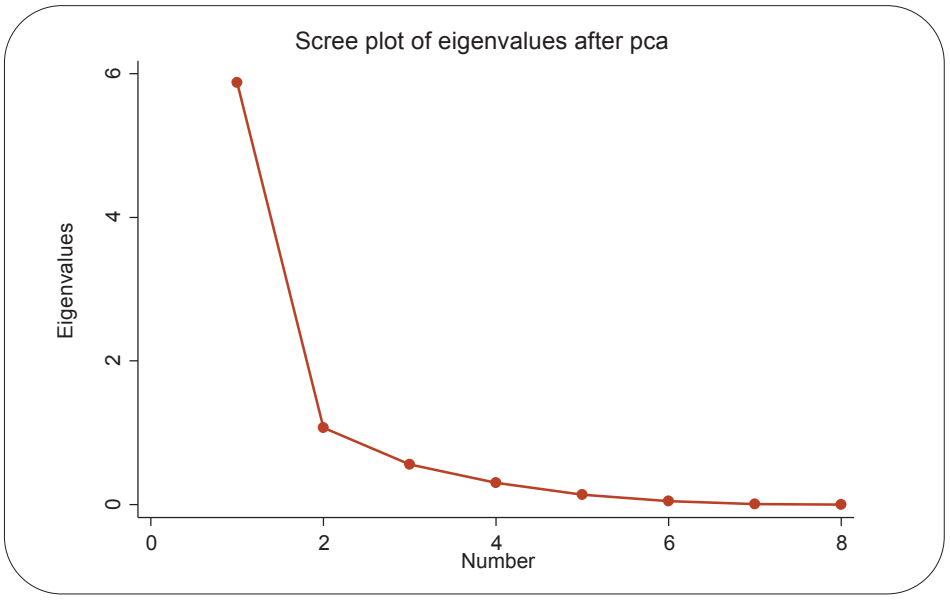
Variable	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Comp 6	Comp 7
st	**0.3982**	-0.1487	-0.06264	-0.05501	-0.5297	0.152	0.5833
no	**0.3889**	-0.2558	-0.09742	-0.1008	0.379	0.5106	-0.4319
va	**0.2737**	0.5733	-0.3517	0.6739	0.07645	0.1099	0.02589
pe	**0.4001**	-0.1102	-0.04866	0.06424	-0.4635	-0.5102	-0.5884
ftc	**0.2562**	0.6576	-0.07555	-0.6982	0.06172	-0.06979	-0.00701
tte	**0.2851**	0.1908	0.9174	0.1848	0.05868	0.05423	0.009159
atd	**0.3846**	-0.2456	-0.08052	0.02345	0.5851	-0.567	0.3476
ee	**0.4005**	-0.2062	-0.08156	-0.07946	-0.07376	0.3383	0.07374

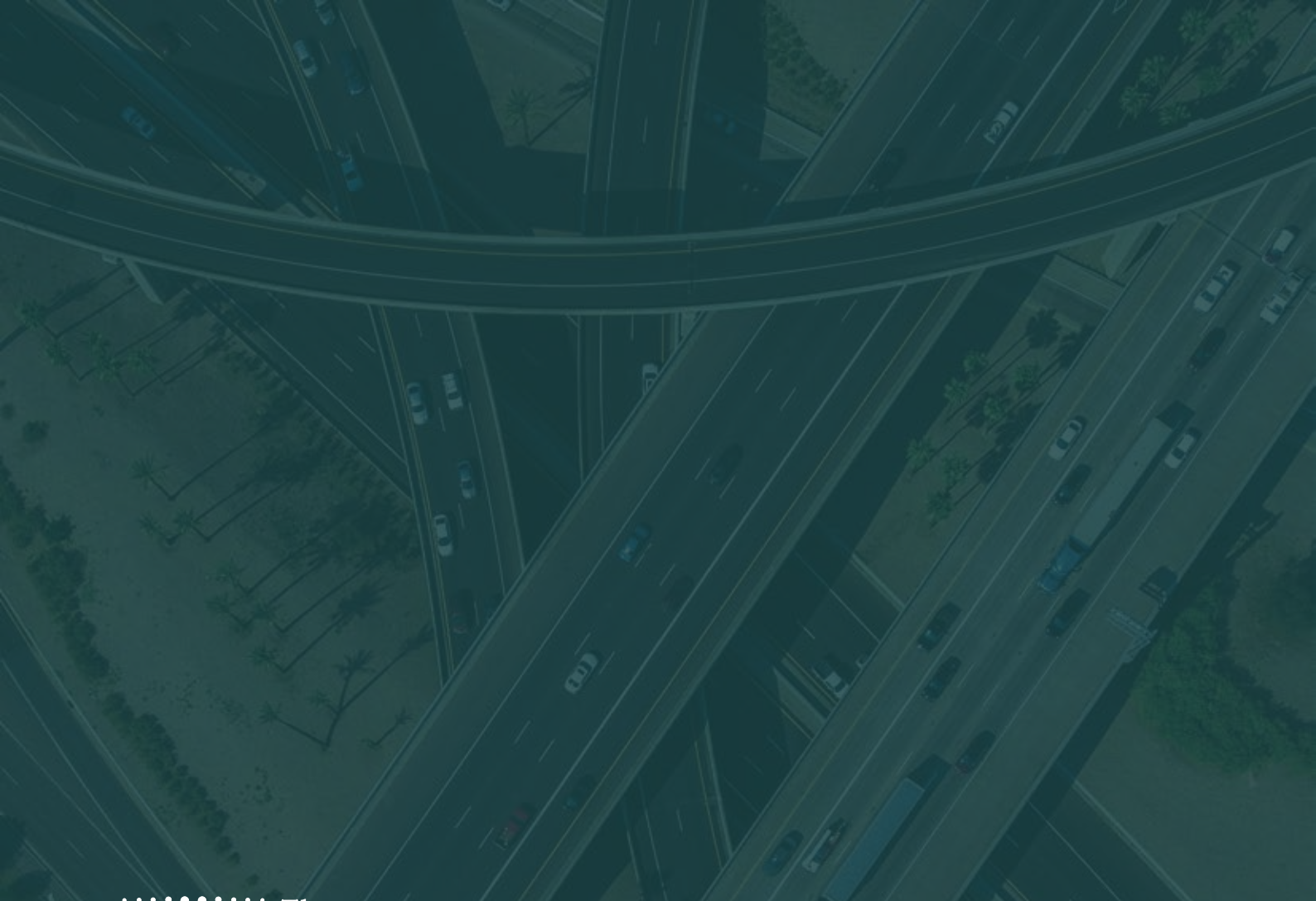
PCA analysis (Average Score)

Variable	Score
st	1.8
no	1.84
va	1.92
pe	1.82
ftc	1.96
tte	1.56
atd	1.88
ee	1.82
Average Total Score	**1.825**


Component loadings
Component 2
1
5
0
st
ee
'(
no
0
.5
1
Component 1
Rotation: orthogonal varimax


Score variables (pca)
2
1
0
-1
-2
-2
-1
0
1
2
Scores for component 1
Rotation: orthogonal varimax


Scree plot of eigenvalues after pca
Eigenvalues
6
4
2
0
0
2
4
6
8
Number



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