TeamLease®
Putting India to Work

India's Logistics Revolution

Big Bets, Big Jobs

Investments | Drivers of Job Growth | Skills | Technology | Talent Management

CONTENTS

Message from the CEO of the Logistics Sector Skill Council,India

Logistics sector of India is a 160 billion US dollar industry with a sustained CAGR in double digits ranging from 10%-18% depending on the sector. The sector employees 12 million people which is expected to increase with a yearly intake requirement of about 3 lakh people. It is, therefore, a sector for preferred employment.

On the flip side, despite having made a quantum jump in the logistics performance index from an earlier 54th position to the current 35th position, the logistics activity has a high cost attached to it. At 14% of the GDP, it is nearly double what is in an advanced nation, which is about 6-8%. Further, on the manpower front, this sector has been a non-aspirational one. Therefore, it has not attracted the best of talent. Regrettably, the country too has given this sector a miss as regards training of skilled manpower for the past 70 years.

LSSC (Logistics Sector Skill Council) created in 2015 is the apex body of the industry for:
(a) Setting standards
(b) Ensuring skilling of the manpower at the entry level and upskilling existing employees
(c) Provide pathways for placements and facilitate employment of skill trained manpower through Industry interaction

Within a short time of establishment, LSC has taken some significant steps. To name a few:
(a) Creating the occupational map and the qualification packs for a job role that allows lateral mobility and ensures upward career progression.
(b) For the first time, LSC has created Optional Trades in Logistics under the National Apprenticeship Promotional Scheme. This we feel could be a game changer for the industry.

This report contributes to the LSC mission to help business decision makers and policy leaders to understand the forces transforming the logistics sector and the immense potential that the sector can lend to skill development and job creation. It is also a great initiative to promote this sector and increase awareness among the youth.

TeamLease is one of the credible partners of LSC and has done substantial work in Staffing. We look forward to collaborating with TeamLease in a mutually beneficial win-win model, which would ensure retention of skill trained manpower in the sector.

I take this opportunity to wish them all success and I’m sure that LSC would benefit immensely from the takeaways of this report.

Sincerely,

Capt. Ramanujam

CEO, Logistics Sector Skill Council, India

Message from the Director General, Infrastructure Industry and Logistics Federation of India

A modern and efficient logistics sector is a sine qua non for robust economic growth. India is now among the world's fastest-growing economies and would become the fifth largest, this year. It is all set to climb further up. The logistics sector is vital for not only supporting faster GDP growth but also for improving our global business competitiveness. The logistics sector is indeed poised for a major growth phase that would see a greater infusion of modern technologies and rapid rise in the demand for skilled human resources.

My compliments and congratulations to TeamLease for its ‘Report on the Logistics Industry and the Knowledge Session on the Human Resource Requirements’ of this vital segment of the transportation and distribution value chain.

I wish TeamLease all the success.

Dr. Mahesh Y Reddy,

Director General,
Infrastructure Industry
and Logistics Federation of India

Foreword

Indian logistics is witnessing interesting times. Regulatory changes in the last couple of years have set this sector on the course of growth. The notion that logistics is a challenge is now changing fast. With evolving consumption patterns, new business models are emerging. Companies are gradually embracing high-end technology to bring efficiency. Intermodal transport is swiftly coming at the forefront as the nation aims at becoming more business-friendly by increasing speed and ease of movement and reduction in costs. In this report – India's Logistics Revolution: Big Bets, Big Jobs – we see details of how this sector can influence the Indian job market at different levels. This comprehensive report details India's dependence on logistics and presents a case of aligning talent management with other necessary capital investments.

The Primary motive of the present government's target is to reduce logistics cost to less than 9% of GDP from the current 14%, which requires constant upgradation and adoption of newer technologies at all the levels of the logistics chain. It translates to millions of jobs if seen minutely. This precisely justifies why logistics is known as the sunshine sector. Replacing redundant skills and keeping up with evolving trends requires an agility that will only come with a formal skill and education. Whether it is road, rail, packaging, warehousing or air freight, one needs to see each in isolation to gauge the momentum of skills required. In this age, companies are always evolving and innovating to meet customer demands, seeking to move from traditional to adaptive knowledge.

TeamLease touches upon several facets of talent requirement and management. Companies can take cues from each section and apply in their operations to get future-ready.

Sincerely,

Adarsh Hegde

Jt. Managing Director Allcargo Logistics Ltd

Preface

As India forges ahead with an aim to build a formidable stature in the global economy, and the government undertakes several transformational initiatives to boost the country's image as an investment destination and to leapfrog its ranking on the ease of doing business, infrastructural investments have taken center stage. A substantial Rs.6,00,000 crore is being committed towards infrastructure over this financial year. Going by precedence more than 50% of this investment (amounting to INR 3 lac crore) will be routed to the creation and upgradation of roads, railways and ports, and forms one of the primary drivers of transformational growth for the Logistics sector in India. The large scale investments are aimed at bringing down the cost of logistics from a staggering 14.4% of GDP. Logistics sector development directly contributes to domestic and international trade competitiveness. Trade competitiveness should stimulate demand and generate jobs.

Studies concerning the impact of developments in the logistics sector on economic growth in 32 OECD countries over the period 1994–2011 have established a strong relationship between investments in transport, logistics and infrastructure, and economic growth. Logistics sector development directly contributes to domestic and international trade competitiveness. That the Logistics sector is characterized by significant employment elasticity makes it the ideal investment vehicle to deliver on the ask for new jobs at scale. Realizing this potential, however, demands nothing less than a revolution. And revolutions require us to make big bets on this sector.

In addition to investments two other transformational drivers – domestic consumption led GDP growth and evolution of the logistics sector, in response to India's industry and economic requirement – are ushering in an inflection point in terms of job creation. The sector is expected to provide employment to 13.9 million people, up from the current 10.9 million, over the next four years (2018—2022), making it the largest job creator in the Infrastructure sector. However, much needs to be done for this potential to be realized and the sector itself needs to manage its evolution well – in terms of formalization, financialization, skill development and talent management. GST, as it gestates, will bring in formalization, is expected to ease out regulatory hurdles and smoothen the movement of goods across state borders. The according of infrastructure status to the sector will help players to raise monies at competitive interest rates. Skill development and Talent Management are enormous challenges the sector will face, in a near-future shaped by newer Supply Chain technologies, Artificial Intelligence, Robotics, IoT, Big Data and Predictive Analytics.

With transformation at its doorstep, and with many developments on the anvil, the sector will need to fundamentally restructure itself to prepare for the future. All of these changes alongside the interplay of sector demand – from Manufacturing, FMCG / FMCD Retail and Ecommerce – and technology will not only create innumerable jobs but also transform the skills landscape for logistics. The days of evolution have rendered the sector knowledge driven from being manual grunt work oriented. They have ushered in an era of gender equality and talent egalitarianism. The coming revolution will demand that good talent management practices are complimented with high-technology leverage.

If we go by the above trends Logistics is expected to become the largest infrastructure jobs engine for India. The sector will now ride high on growth, reorganization, technological disruption and skills reinvention. The day of reckoning for Logistics is here and the big bets on this sector will surely translate into a big number of jobs for India

Rituparna Chakraborty
Co-founder and Executive Vice President, TeamLease Services Limited

Background for the study

Trade competitiveness – domestic and global – is a key determinant of growth. Quality and efficiency of Logistics infrastructure is a great enabler of trade competitiveness. The Government of India is committing substantial infrastructure investments to achieve the 7% - 7.5% growth rate envisioned in the Economic Survey, 2018. A significant proportion of this investment will go into developing and improving Logistics infrastructure. This initiative is a primary factor in the creation of an unprecedented number of new jobs in the Logistics sector over the next four years.

The Indian Logistics sector is extremely inefficient. Logistics cost as a proportion of GDP is 14.4% - among the highest in the world. It is currently faced with several constraints including insufficient integration of transport networks, IT and warehouse distribution facilities and the severe shortage of skilled talent. However, things are beginning to look up for the sector. India has improved its ranking on the Logistics Performance Index (LPI) from 54 in 2014 to 35 in 2016.

Along with infrastructure investment, consumption and industry evolution will drive the growth of the INR 14,19,000 crore Logistics sector. The implementation of GST is expected to help the sector grow at 10.5% CAGR and cross INR 21,00,000 crore by 2022. The impact of each of these factors, and the related sub-factors, on the seven sub-sectors within Logistics [Road Freight, Rail Freight, Warehousing, Waterways, Air Freight, Packaging and Courier Services] is likely to result in 3 million additional jobs, upping the employment numbers in the sector from 10.9 million (current) to 13.9 million by 2022.

Road and Rail Freight constitute 92% of the size of the Logistics sector by revenue and about 8.2 million of the 10.9 million jobs. Functions- Transportation, Warehousing and Inventory Carrying represent 90% of all jobs in the sector. These sub-sectors and functional areas are witnessing disruptive change wrought by technologies such as Ecommerce, IoT, Robotics, Cloud Computing, Big Data Analytics and Augmented Reality. The effects of this disruption on jobs would be both positive (job creation of the high-skilled variety, thanks to 'intelligence') and negative (job loss, at administrative and labour intensive areas). For the purposes of this study, the scope has been restricted to freight movement. Passenger movement is excluded from the scope of the study.

Executive Summary

The INR 14,19,000 crore Logistics sector in India is set to create 3 million new jobs, over the next 4 years (2018 – 2022)

- Public investment of INR 6 lac crore (Budget outlay for 2018), in infrastructure, is the primary factor driving job growth
- About 50% of this investment [INR 3 lac crore] is going into building world-class road and rail freight and waterways infrastructure, and state-of-the-art, multimodal, logistics parks
- The second most important growth driver is the infrastructure status accorded to the Logistics sector in 2017. This will improve access to low cost, long-term, credit
- GST implementation – as growth driver – would formalize the sector and bring in operational efficiency
- A fast maturing domestic consumer market is a potent, demand-side, driver
- New players, better organized than incumbents, gaining market share and effecting the rapid evolution of the sector is the supply-side growth driver

Macro economic and regulatory factors will transform the Logistics sector and improve its global competitiveness, thereby reducing logistics costs from 14.4% of GDP by about 2% over the next four years

- Public investments targeted at reducing logistics costs and making the sector – and India – globally competitive should be followed up with private investments
- Budget provisions (2018) are also supportive of the sector’s long-term progress
- India’s ranking on the Logistics Performance Index (LPI) has risen to 35 in 2016 (up from 54 in 2014) with an all-round improvement on all the LPI parameters

Executive Summary

Each of the seven large, fast growing, logistics sub-sectors will create significant number of jobs over the next 4 years, totaling 3 million jobs

- Road Freight, an INR 960,000 crore market growing at 16.5% CAGR, will account for 1.89 million new, potential, logistics jobs (63% of all potential jobs in the sector)
- Rail Freight (40K incremental jobs), Waterways (450K incremental jobs), Air Freight (400K incremental jobs) and Warehousing (120K incremental jobs) will contribute a million more jobs over the next 4 years
- Courier Services, an INR 28,000 crore sub-sector and the second fastest (at 17.3% CAGR) will create 60K incremental jobs and Packaging, an INR 24,000 crore sub-sector will create 40K incremental jobs, over 2018 – 2022

Developing and optimizing logistics infrastructure across the country will result in a pan-India distribution of the 3 million new, incremental, jobs

- Besides roads and rail freight, government initiatives at the regional level are focused on better utilizing waterways (in locations where applicable), creating freight corridors, logistics hubs, multimodal logistics parks and logistics clusters
- Delhi-NCR, Mumbai, Chennai and Bangalore – the largest logistics job creating cities – are poised to generate 1.74 million incremental jobs (58% of all potential logistics jobs) across the sector between 2018 and 2022
- Kolkata, Hyderabad and Pune, together, will contribute 682K incremental jobs (22.75% of all potential logistics jobs) across the sector between 2018 and 2022. The balance would be contributed by other cities

Technology is having a profound impact on the logistics sector making certain skills redundant, forcing the aggregation of some other skills and eliminating certain jobs at the lower end of the hierarchy

- There is a clear and present need for the logistics workforce to up-skill itself to be knowledge- and technology-driven, and those who do not would risk obsolescence and job loss
- The impact of technology on jobs and skills varies, primarily, by hierarchy and depending upon the specific nature of disruption there could be skill redundancies or skill deficits and requirements for skill aggregation and re-skilling.
- Mumbai, Chennai, Delhi, Hyderabad and Pune have the largest skill gaps (each greater than 100K people). Significant skill gaps are present across all cities, especially at the lower and mid-levels of the hierarchy

Executive Summary

Logistics businesses are rapidly formalizing, adapting to the reality of talent management, and are faced with an immediate imperative to embrace technology, acquire new and relevant skills, and invest in continuous learning for business growth

- Challenges in attracting and retaining talent include perception of Logistics as a low-skilled sector, availability of formally trained talent and outdated work processes in the sector
- Employers are reorienting themselves for a relatively more egalitarian talent management era, encouraging gender diversity and embracing new technologies for business growth

1 million of the 13.9 million total potential logistics jobs in 2022 will be engaged in Ecommerce Retail Logistics (supporting last-mile consumer delivery)

- Tier-2/3/rural geographies will make up 43% of these 1 million potential jobs
- Maharashtra, Delhi, Andhra Pradesh and Karnataka will account for 67% of all Ecommerce Logistics jobs
- Skill requirements for the nascent Logistics sub-sector are relatively more stable, and roles and skills are likely to be shaped gradually by technology
- A linear business model – will add headcount in tandem with revenue growth

Overview

Logistics Sector Structure
and Sub-sectors | Growth Drivers

Logistics Sector Structure

[Sector size, 2017: INR 14,19,000 crore | Employment, 2017: 10.9 million]

Road Freight

Market Size [2017]: INR 960,000 crore
Employment [2017]: 7,990,000

Rail Freight

Market Size [2017]: INR 102,000 crore
Employment [2017]: 180,000

Waterways

Market Size [2017]: INR 34,000 crore
Employment [2017]: 900,000

Air Freight

Market Size [2017]: INR 6,000 crore
Employment [2017]: 700,000

Warehousing

Market Size [2017]: INR 49,000 crore
Employment [2017]: 570,000

Packaging

Market Size [2017]: INR 240,000 crore
Employment [2017]: 260,000

Courier Services

Market Size [2017]: INR 28,000 crore
Employment [2017]: 300,000

Data Source: Investindia & IBEF publications, 2017; Human Resource & Skill Requirements, 2017-22, by NSDC

India's Logistics Revolution - Big Bets, Big Jobs

Overview

The coming jobs boom, and what's driving it

Number of jobs in the Logistics sector [in millions]

Current (2017) | Projected (2022)

Data Source: Human Resource & Skill Requirements, 2017-22, by NSDC

Primary factors driving job creation

Public and Private Investments over INR 6 lac crore in 2018-19

- Freight Corridors
- Industrial Corridor (like DMIC)
- Logistics Hubs and Clusters
- Road Development
- Inland Waterways Development

Infrastructure Development

Economic resurgence at 7% - 7.5% GDP growth in 2018-19

- GDP Growth
- Increasing domestic consumption
- Consumer maturity, evolution and access to product and services
- Retail & Ecommerce growth

Domestic Consumption

Formalization, organized players gaining market share

- GST led efficiency and Warehouse Consolidation
- Infrastructure status of the sector
- Technology adoption and integration

Industry Evolution

Logistics will create **3 million** incremental jobs over the next 4 years (2018 through 2022) and employ **13.9 million** by 2022

India's Logistics Revolution - Big Bets, Big Jobs

Overview

Logistics to bag a giant proportion of investment by the government

Sub-sector	Growth Drivers: Investment	Growth Drivers: Domestic Consumption	Growth Drivers: Sector Evolution
Road Freight	• Bharatmala Pariyojana: 25,000 kms of highways to be built • National Highways: 50,000 kms being upgraded • Budget outlay (2018): INR 1.21 lac crore	• Increased demand from Manufacturing and Retail	• GST Implementation and Formalization
Rail Freight	• Dedicated Freight Corridor / DMIC: INR 25,000 crore worth contracts awarded • Investments in 12,000 wagons, 5,160 coaches, 700 locomotives • Budget Outlay (2018): INR 1.48 lac crore		
Waterways	• Sagarmala Pariyojana: INR 600 crore dedicated for 2018 • 106 new National Waterways being made operational • Budget Outlay: INR 4,300 crore		• Utilization boost: cost-effective mode with 30% current utilization
Air Freight		• Increased aggregate consumer demand • Growth in Retail, Ecommerce, QSR	• Evolved 3PL / 4PL business models • Demand from farmers • GST Implementation and W arehouse consolidation
Warehousing	• Multi-modal logistics parks at 15 locations all over India at an estimated cost of Rs 33,000 crore • 100% FDI through automatic route		

Logistics to bag a giant proportion of investment by the government

Sub-sector	Growth Drivers		
	Investment	Domestic Consumption	Sector Evolution
Packaging	Bharatmala Pariyojana: 25,000 kms of highways to be built National Highways: 50,000 kms being upgraded Budget outlay (2018): INR 1.21 lac crore	• Growth in Food industry and Beverage and FMCG/FMCD • Consumer evolution and related innovation	
Courier Services			

Data Source: Sector study, Investindia, 2017

Sub-sector study -market trend in India, IBEF, 2017-18

About **50%** of the **INR 6 lac crore** infrastructure investment has been earmarked for Logistics infrastructure

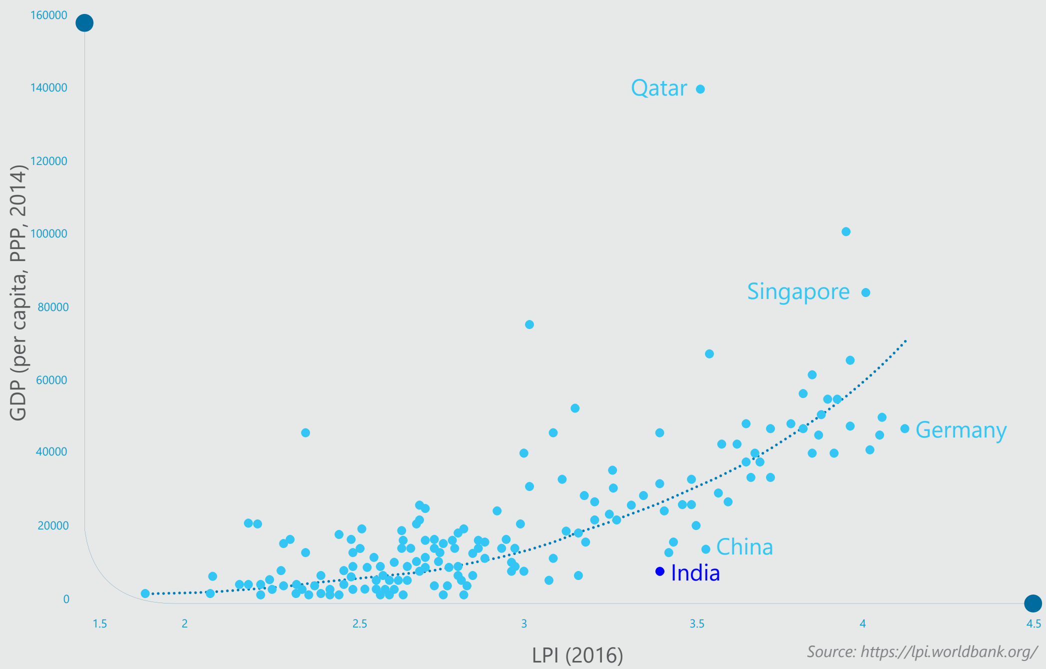
Logistics and the Economy

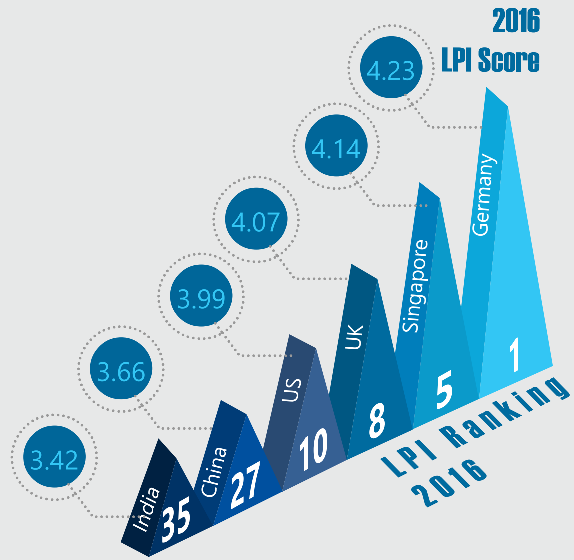
Causal Model |
Logistics Performance Index (LPI)
and Economic Growth |
Impact of Infrastructure Status,
GST and Budget Provisions

Logistics and the economy

There is a strong cause-effect relationship between logistics infrastructure and economic growth

Logistics Performance Index (LPI) has a direct correlation with GDP



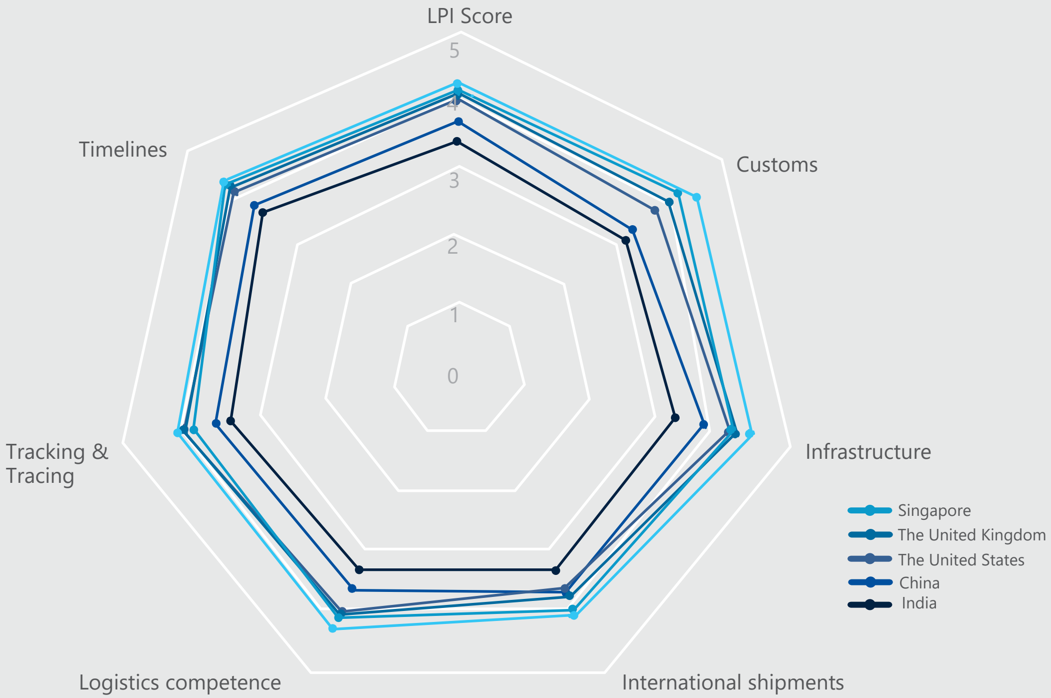


The **LPI** is an interactive benchmarking tool created by the World Bank to help countries identify the challenges and opportunities they face in their performance on trade logistics and what they can do to improve their performance.

High income countries rank highly on the Logistics Performance Index (LPI) as well [Germany ranks No. **1** and Singapore at No. **5**]

The vital nature of logistics and its interdependence with the economy

LPI benchmarking



Studies of **32** OECD countries between 1994 and 2011 have demonstrated a strong relationship between **Logistics variables** and **Economic Growth**.

Source: The Impact of Logistics Industry on Economic Growth: An Application In OECD Countries, Eurasian Journal of Social Sciences

India substantially improved its ranking from 54 (2014) to **35** (2016) on LPI (3.08 to **3.42)**

Improvements – Customs (65 to **38)** and Logistics competence (52 to **32)**

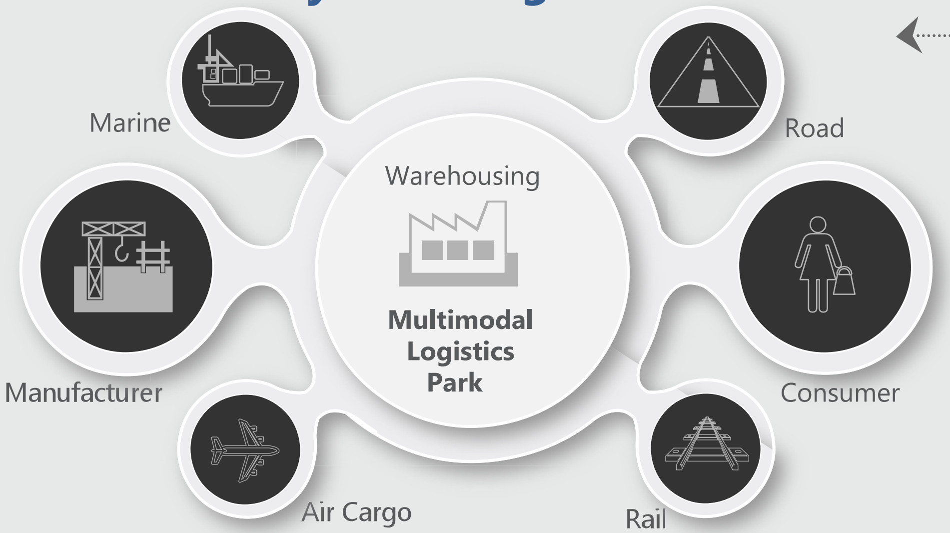
Timelines – progress in 2016 limited

Data Source: World Bank - World Development Indicators, 2016

India's Logistics Revolution - Big Bets, Big Jobs

Logistics and the economy

Infrastructure Status is a shot in the arm for the already booming sector



Inland Container Depot (ICD)	Cold chains	Warehousing
Min Investment: Rs. 50 Cr Min Area: 10 acre	Min Investment: Rs. 15 Cr Min Area: 20 ksft	Min Investment: Rs. 25 Cr Min Area: 100 ksft

Data Source: Business Today- How the new infrastructure status will impact the logistics sector, 2017

2%
estimated reduction
in 14.4% overall Logistics cost
(as % of GDP)

Data Source: Financial Express - Infrastructure status of logistics to spur growth, create jobs, 2017

1

HIGHER INVESTMENT

Propels private investments in **Integrated Logistics**

- Long term financing with enhanced limits
- Large tranches from External Commercial Borrowings, Insurance and Pension Funds
- Eligibility to borrow from India Infrastructure Finance Company

2

LOWER COST

Reduces Logistics Costs

- Credit at competitive rates: reduced Cost of Capital
- Makes the sector competitive on both domestic and international trades

3

GREATER BENEFIT

Enables financialization, modernization and formalization;
and substantially improves business efficiency

India's Logistics Revolution - Big Bets, Big Jobs

Logistics and the economy

.. As is the impact of GST as it gestates

1

Ease of interstate transportation of goods

- Increased efficiency
- Reduced cost

30%-40%

reduction

in logistics costs

Data Source: TeamLease Analysis, 2018

2

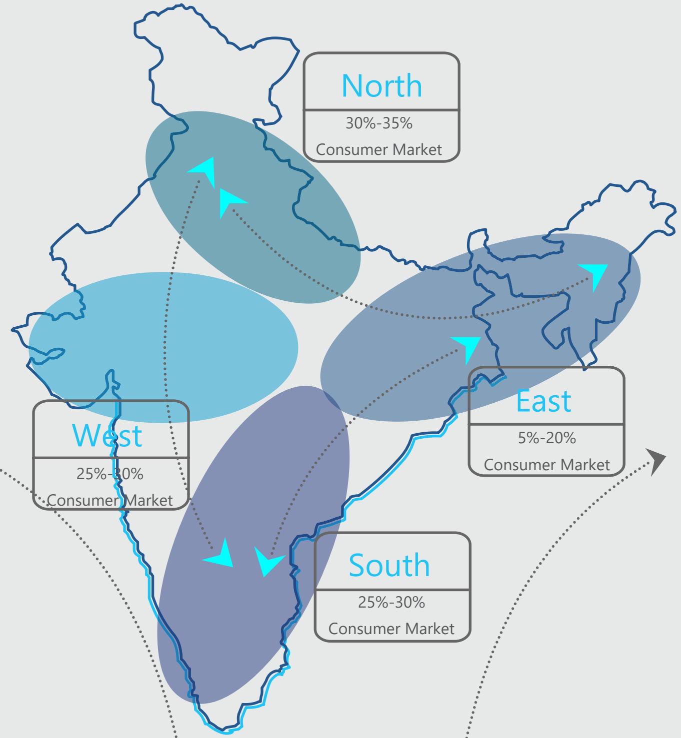
Consolidation of warehouses and supply chain overhaul

- Hub & spoke model of freight movement
- Less stoppage, less paper work, faster movement

Freight times cut by up to

50%

Data Source: Road Infrastructure in India, IBEF, Mar-2018



Data Source: JLL- Indian logistics - Taking giant leaps forward, 2015

in GDP by upto 100-200 bps

Data Source: WB Infrastructure Development Update, 2014

3

Logistics sector expansion

- New players [esp. 3PL, 4PL]
- Stronger existing players

5.9%

CAGR through 2021 -

logistics contributing 5% to GDP

Data Source: Road Infrastructure in India, IBEF, Mar-2018

4

Formalization of the sector

- Transparency
- Tax Revenue Mobilization

9.2%

potential tax revenue increases

Data Source: TeamLease Analysis, 2018

Budget provisions are a mixed bag for the sector...

PROS

Inclusion of Logistics parks in the harmonized list of infrastructures

↓ Cheaper credit, longer tenure of debt

Development of online logistics portal

↓ Ease of doing business [Single window clearance]

Rationalisation of customs duty provisions and assessment

↓ Ease of doing business [lesser documentation]

Reduction in Corporate Tax rate to 25% for companies with > Rs.250 Cr. turnover in 2017

↓ Improved profitability for Logistics businesses

CONS

Levy of Social Welfare-Surcharge (10%) on customs of trade import in the first schedule, while abolishing Education Cess (3%)

↓ Lowers demand for Logistics since demand for imported goods reduces

Tax rates on import of motor vehicles raised – Completely Knocked Down [CKD, 10% to 15%]; Completely Built Up [CBU, 20% to 25%]

↓ Lowers demand for Logistics since demand for imported motor vehicles reduces

NEUTRAL

Audits allowed at premises of Licensed Warehouses

Valuation provisions for IGST computation of goods

.. Overall, these are designed to enable transformation, therefore will help job creation in the sector

Data Source: https://www.indiabudget.gov.in

Sub-Sector Growth

Growth Drivers by sub-sector |
Job creation

Growth Drivers for Road and Rail Freight sub-sectors

Data Source: TeamLease Analysis, 2018

500K**

Economic Growth

- Growth at 1 – 1.5 x GDP
- Manufacturing and Retail– rise in
- Domestic consumption and consumer maturity
- Growth of international trade at 10%-15% p.a

100K**

Rising Outsourcing

- Current level of outsourcing: 52% and growing
- Organized players gaining market share– less fragmentation

850K**

Infrastructure Investments

- Rs. 14.2 lac crore investments envisaged during the 12th five year plan (2012-17)
- Dedicated Freight Corridors, DMIC, JNPT container terminal, Inland waterways

380K**

Supply-side Shifts

- Private Investment on an upswing
- Superior quality of service with 3PL/4PL
- Specialization of services [Project / Express Logistics

100K**

Regulatory Reforms

- GST Implementation
- Privatization of train containers operations, rail infrastructure
- PPP – Ports, Airports, Roads, Logistics parks
- Enabling regulations for coastal shipping and rail transportation

Data Source: TeamLease Analysis, 2018

Data Source: https://www.indiabudget.gov.in
Data Source: Human Resource & Skill Requirements, 2017-22, by NSDC; Investindia & IBEF publications, 2017

The Road Freight sub-sectors will create **1.8 million** incremental jobs, and the Rail Freight sub-sectors will create **40K** incremental jobs, over the next 4 years (2018 through 2022)

Road Freight	Market Size (INR '000 cr)	Employment (million)
Current (2017)	960	7.99
Projected(2022)	1,765 [CAGR: 16.5%]	9.88

Rail Freight	Market Size (INR '000 cr)	Employment (million)
Current (2017)	102	0.18
Projected(2022)	128 [CAGR: 5.9%]	0.22

*** Incremental Job Creation due to the specific growth driver over 2018– 2022*

Data Source: Human Resource & Skill Requirements, 2017-22, by NSDC; Investindia & IBEF publications, 2017

Growth Drivers for Air Freight and Waterways sub-sectors

200K**

Ease of Doing Business

Data Source: Doing business in India, World Bank Group, 2017

- India jumped 30 places in the Ease of Doing Business rankings, climbing to 100th in 2017

50K**

Leading emerging market

Data Source: The 2018 Agility Emerging Markets Logistics Index, 2017

- In the annual ranking of the world's 50 leading emerging markets as measured by size, economic strength, infrastructure, transport connections and business climate, India remains second

300K**

Scale and Cost

Data Source: Indian Logistics– Taking Giant Leaps Forward, JLL, 2017

- Waterways are 50% cheaper than road and nearly 30% cheaper than rail (as per JLL study, 2017). The coastal leg, apart from being more fuel efficient, can also carry larger parcel sizes and provides a great opportunity for consolidation of loads

100K**

Customs Reforms

- Customs reforms have helped to make customs clearance in India much easier

100K**

Economic Outlook

- Investments in waterways and port infrastructure, positive expectations of cruise shipping

100K**

Growth in cargo at ports

- The share of major ports in the total traffic handled by Indian ports increased from 56.5 per cent in 2015-16 to 57.2 per cent in 2016-17

Data Source: Indian Logistics – Taking Giant Leaps Forward, JLL, 2017
Data Source: Human Resource & Skill Requirements, 2017-22, by NSDC; Investindia & IBEF publications, 2017

Air Freight will create **400K** incremental jobs, and Waterways will create **450K** incremental jobs, over the next 4 years (2018 through 2022)

Air Freight	Market Size (INR cr.)	Employment (million)
Current (2017)	6000	0.7
Projected(2022)	11,550 [CAGR: 17.8%]	1.1

Waterways	Market Size (INR '000 cr)	Employment (million)
Current (2017)	34	0.9
Projected(2022)	42 [CAGR: 5.6%]	1.35

*** Incremental Job Creation due to the specific growth driver over 2018 – 2022*

Data Source: Human Resource & Skill Requirements, 2017-22, by NSDC; Investindia & IBEF publications, 2017

Sub-Sector Growth

Growth Drivers- for the Warehousing sub-sector

15K** Customer Centricity

- Increasing expectation of quality of service
- Shift from 'Godown' to 'Modern' services
- Rising importance of soft skill s

5K** IT adoption

- Inventory tracking & management
- Streamlining operational complexity and cost
- Ergonomics and safety

25K** Changing Landscape

- Rise of 3PL and 4PL service providers
- Prominence given to Dedicated Freight Corridors
- High-end service provisions in modern warehouses

35K** Regulatory Reforms

- Warehousing and Development Regulation Act (WDRA), Private Entrepreneurs Guarantee
- Awareness of new norms and policies in the organization
- 100% FDI through the automatic route

40K** Growing Customer Segments

- Growth of Retail, E-commerce, Quick Service Restaurants (QSR), Containerization
- Domestic consumption growth, demand from farmers, exports and imports

The Warehousing sub-sector will create **120K** incremental jobs over the next 4 years (2018 through 2022)

Warehousing	Market Size (INR '000 cr)	Employment (million)
Current (2017)	49	0.57
Projected(2022)	60.9 [CAGR: 5.6%]	0.69

Data Source: Human Resource & Skill Requirements, 2017-22, by NSDC; Investindia & IBEF publications, 2017
*** Incremental Job Creation due to the specific growth driver over 2018 – 2022*

Data Source: Human Resource & Skill Requirements, 2017-22, by NSDC; Investindia & IBEF publications, 2017

Growth Drivers for the Packaging sub-sector

Growing Food & Beverage sector

15K**

- Contributes 85% of the overall demand
- Growing popularity of processed foods

Consumption Trends

5K**

- Evolving consumer and retail, e-commerce boom
- Increased adoption of packaged foods
- Increased packaging demand from tier-2 and tier-3 retail/ecommerce

Rising Incomes

5K**

- Higher disposable incomes lead to better packaging
- Preferences to shop in modern retail

Packaging Innovation

10K**

- 'Sachetization' has become a major driving force in the sector
- New products, product categories and ecommerce shipments demand ongoing innovation

Urbanization

5K**

Data Source: Indian Logistics– Taking Giant Leaps Forward, JLL, 2017

- A 7% increase in urbanization to 40%, by 2020, means higher
- demand for packaged foods Changing lifestyles, door deliveries,
- and to-go purchases have increased demand for packaging in general

Data Source: Human Resource & Skill Requirements, 2017-22, by NSDC; Investindia & IBEF publications, 2017

*** Incremental Job Creation due to the specific growth driver over 2018 – 2022*

The Packaging sub-sector will create **40K** incremental jobs over the next 4 years (2018 through 2022)

Packaging	Market Size (INR '000 cr)	Employment (million)
Current (2017)	240	0.26
Projected(2022)	285 [CAGR: 4.4%]	0.3

Data Source: Human Resource & Skill Requirements, 2017-22, by NSDC; Investindia & IBEF publications, 2017

Growth Drivers for the Courier Services sub-sector

Improved End-user Technology

5K**

- Proof of Delivery (PoD) and Cash on Delivery (CoD) are way more user-friendly today, thanks to technology
- GPS and other sophisticated tracking technology have vastly improved timeliness and predictability of delivery

Dynamic Market and aggressive players

40K**

- Courier players are aggressively expanding Indian and overseas operations

Multi-mode transportation model

15K**

- The sector is innovating to bring out revolutionary concepts such as express delivery and one-day delivery, that enable goods to be shipped via multiple modes of transport, including airways and railways

Data Source: Human Resource & Skill Requirements, 2017-22, by NSDC; Investindia & IBEF publications, 2017
*** Incremental Job Creation due to the specific growth driver over 2018 – 2022*

The Courier Services sub-sector will create **60K** incremental jobs over the next 4 years (2018 through 2022)

Courier Services	Market Size (INR '000 cr)	Employment (million)
Current (2017)	28	0.3
Projected(2022)	53 [CAGR: 17.3%]	0.36

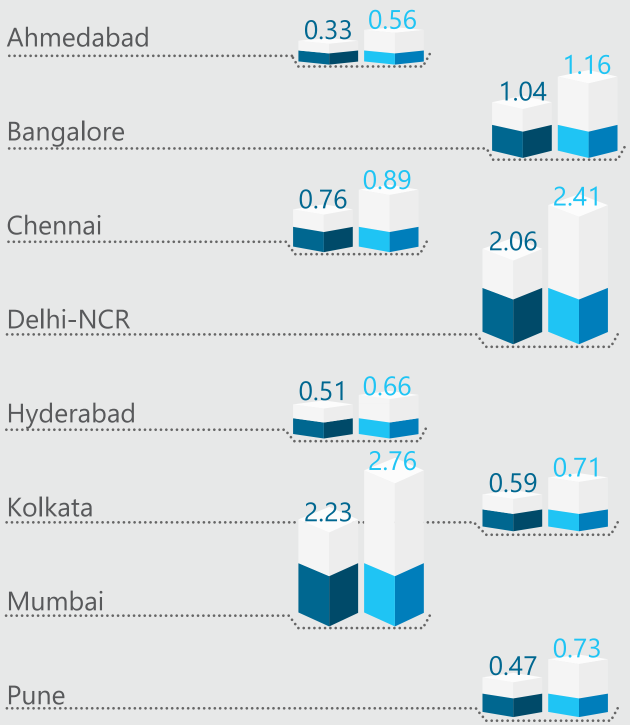
Data Source: Human Resource & Skill Requirements, 2017-22, by NSDC; Investindia & IBEF publications, 2017

Analysis of sub-sectors across key cities

Growth drivers | Job creation

Jobs Distribution by sub-sector and cities - Road Freight

Road Freight Jobs [in millions] Current (2017) | Projected (2022)



Data Source: http://nhai.gov.in; TeamLease Analysis, 2018

KEY GOVERNMENT INITIATIVES

Bharatmala Pariyojana

Investment outlay:
INR 5.35 lac crore (2017 – 2022)

•Bharatmala Pariyojana is a new umbrella program for the highways sector that focuses on optimizing efficiency of freight and passenger movement across the country by bridging critical infrastructure gaps through effective interventions like development of Economic Corridors, Inter Corridors and Feeder Routes, National Corridor Efficiency Improvement, Border and International connectivity roads, Coastal and Port connectivity roads and Green-field expressways.

•25,000 kms of new roads in the highway sector [Economic Corridors, Inter Corridors and Feeder Routes, National Corridor Efficiency Improvement, Border and International connectivity roads, Coastal and Port connectivity roads and Green-field expressways].
•Regional Impact of Key Infrastructure Investments: pan-India

NHDP Project

Investment outlay:
INR 1.21 lac crore (2018 – 2020)

•The National Highways Development Project (NHDP) is a project begun in 1998 to upgrade, rehabilitate and widen major highways in India to a higher standard.

•The National Highway Development Program will upgrade 50,000 km of National Highways over 2 years.

•Regional Impact of Key Infrastructure Investments: Highest in Delhi-NCR, Ahmedabad and Mumbai, moderate in the rest of the cities.

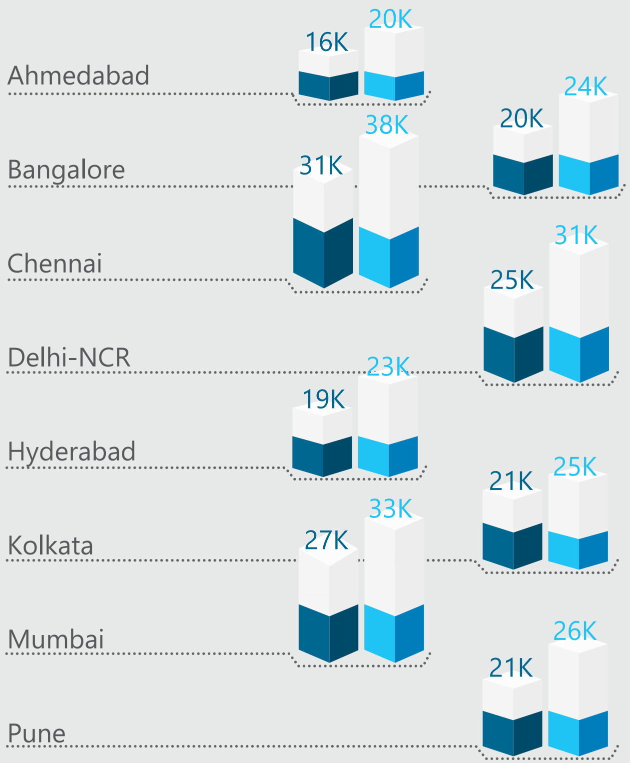
Data Source: http://nhai.gov.in

The two mega road projects would be instrumental in generating **1.89 million** incremental jobs in the Road Freight sub-sector over the next 4 years (2018 through 2022)

Analysis of sub-sector across key cities

Jobs Distribution by sub-sector and cities - Rail Freight

Rail Freight Jobs **Current (2017)** | **Projected (2022)**



Data Source: www.dfccil.gov.in; TeamLease Analysis, 2018

KEY GOVERMENT INITIATIVES

DMIC

Investment outlay:
INR 5.75 lac crore (2017 – 2022)

•Delhi Mumbai Industrial Corridor is conceived to be developed as a Model Industrial Corridor of international standards with emphasis on expanding the manufacturing and services base and develop DMIC as the 'Global Manufacturing and Trading Hub'

•It includes 24 industrial regions, eight smart cities, two international airports, five power projects, two mass rapid transit systems, and two logistical hubs.

•Regional Impact of Key Infrastructure Investments: Uttar Pradesh, Haryana, Rajasthan, Madhya Pradesh, Gujarat and Maharashtra

DFC

Investment outlay:
INR 25,000 crore (2018 – 2020)

•The Dedicated Freight Corridor (DFC) is a Ministry of Railways, Transport and Highways (MoRTH) initiative, under the Eleventh Five Year Plan of India (2007–12). DFCs are being built on the Eastern and Western freight corridors, covering a length of 3,360 km.

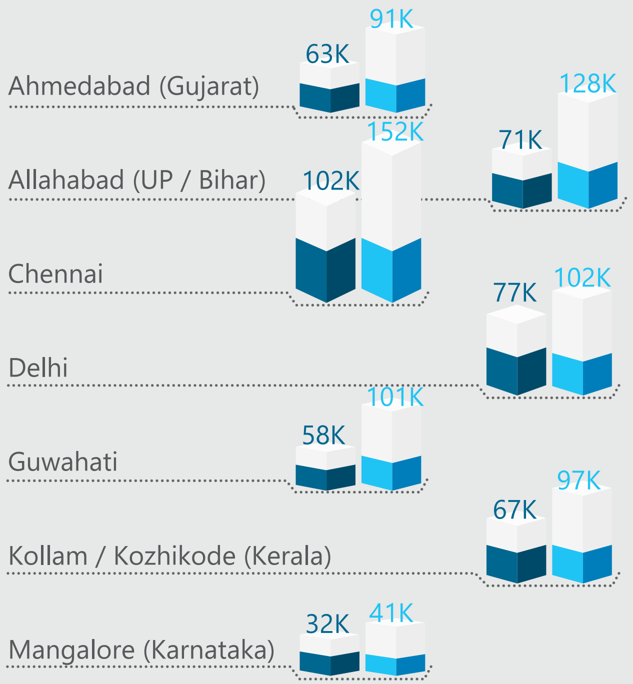
•Regional Impact of Key Infrastructure Investments: Uttar Pradesh, Punjab, Maharashtra and West Bengal

Data Source: www.dfccil.gov.in

The Industrial and Freight Corridors would be instrumental in generating **40K** incremental jobs in the Rail Freight sub-sector over the next 4 years (2018 through 2022)

Jobs Distribution by sub-sector and cities - Waterways

Waterways Jobs **Current (2017)** | **Projected (2022)**



Data Source: iwai.nic.in, http://makeinindia.com; TeamLease Analysis, 2018

KEY GOVERNMENT INITIATIVES

Sagarmala Pariyojana

Investment outlay:
INR 600 crore for 2018

•The Sagarmala is an initiative conceptualized by the government of India in March, 2015, which aims to promote port-led development in the country by harnessing India's 7,500 km long coastline, 14,500 km of potentially navigable waterways and strategic location on key international maritime trade routes

•Lifetime investment outlay: INR 8 lac crore

•Involves setting up of 6 mega ports, modernization of several more ports, development of 14 Coastal Economic Zones and 29 Coastal Economic Units

•Regional Impact of Key Infrastructure Investments: West Bengal, Odisha, Tamil Nadu, Karnataka and Maharashtra

New National Waterways

Investment outlay:
INR 3,700 crore for 2018

•106 new National Waterways are being built, as part of the Bharatmala Pariyojana, to improve the utilization of freight by waterways

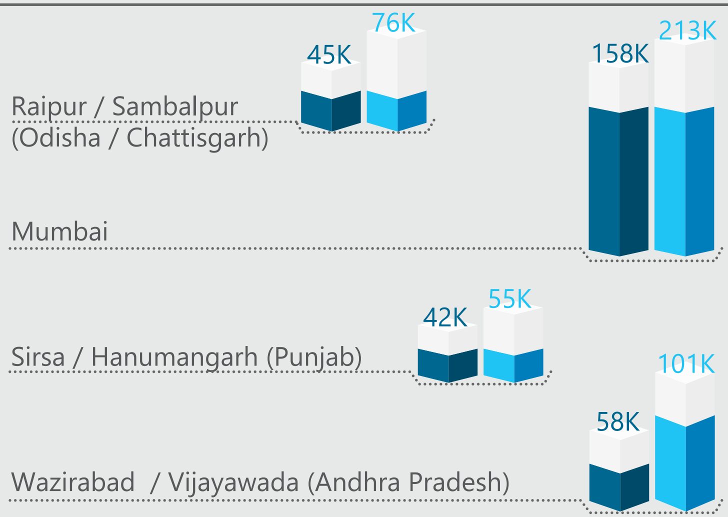
•Regional Impact of Key Infrastructure Investments: pan-India

Data Source: Developing Ports: Sagarmala Project - Make In India, http://makeinindia.com

Analysis of sub-sectors across key cities

Jobs Distribution by Sub-sector and Cities - Waterways

Waterways Jobs **Current (2017) | Projected (2022)**



Data Source: iwai.nic.in, http://makeinindia.com; TeamLease Analysis, 2018

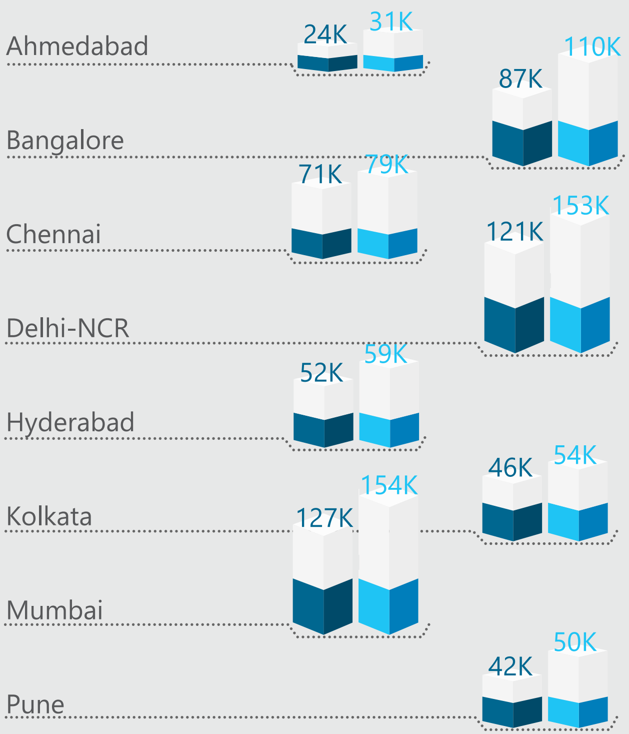
Better utilization of waterways via the above two projects would be instrumental in generating **450K** incremental jobs in the Waterways sub-sector over the next 4 years (2018 through 2022)

India's Logistics Revolution - Big Bets, Big Jobs

Analysis of sub-sectors across key cities

Jobs Distribution by sub-sector and cities - Warehousing

Warehousing Jobs **Current (2017) | Projected (2022)**



Data Source: http://morth.nic.in; TeamLease Analysis, 2018

KEY GOV INITIATIVES

Multimodal Logistics Parks

Investment outlay:
INR 33,000 crore
(2017-18 – 2021-22)

- The MLPs are an initiative carried out under the Logistics Efficiency Enhancement Program (LEEP) spearheaded by the Ministry of Road Transport and Highways (MoRTH)
- LEEP aims to enhance freight transport in India by reducing costs and time, and improving the tracking and traceability of consignments through infrastructural, procedural, and information technology interventions.
- Regional Impact of Key Infrastructure Investments: Highest in Bangalore, Delhi-NCR and Mumbai. Moderate in Ahmedabad, Chennai, Hyderabad, Kolkata and Pune.

Logistics Clusters

Investment outlay:
part of the MLP investment

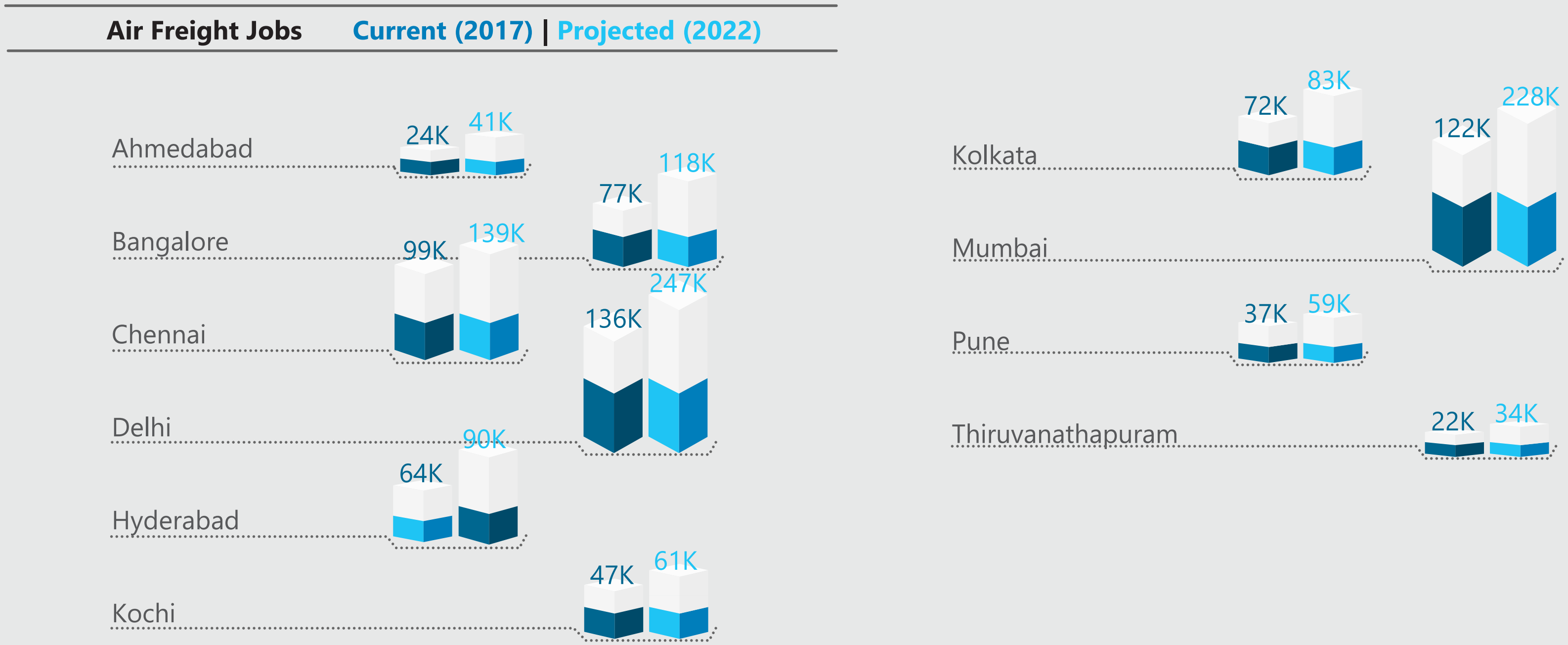
- 35 clusters, accounting for half the total freight movement, have been identified for building logistics parks
- Regional Impact of Key Infrastructure Investments: Highest in Delhi-NCR, Chennai, Bangalore, Vijayawada, Surat and Hyderabad. Moderate in the remaining cities.

Data Source: What multimodal parks can do for logistics in India, Asian Development Bank Research, Sep 2017

The Warehousing sub-sector will create **120K** incremental jobs over the next 4 years (2018 through 2022)

Analysis of sub-sectors across key cities

Jobs Distribution by sub-sector and cities - Air Freight



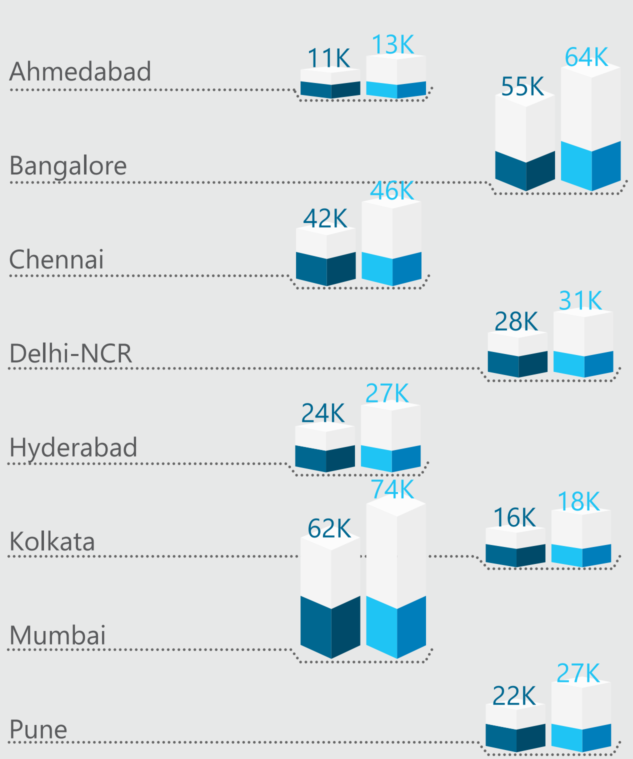
Data Source: TeamLease Analysis (2018) based on an extrapolation of data from Air Cargo Logistics in India, Working Group Report, 2012

The rapidly growing Air Freight sub-sector will create **400K** incremental jobs over the **next 4 years** (2018 through 2022)

Analysis of sub-sectors across key cities

Jobs Distribution by sub-sector and cities - Packaging and Courier Services

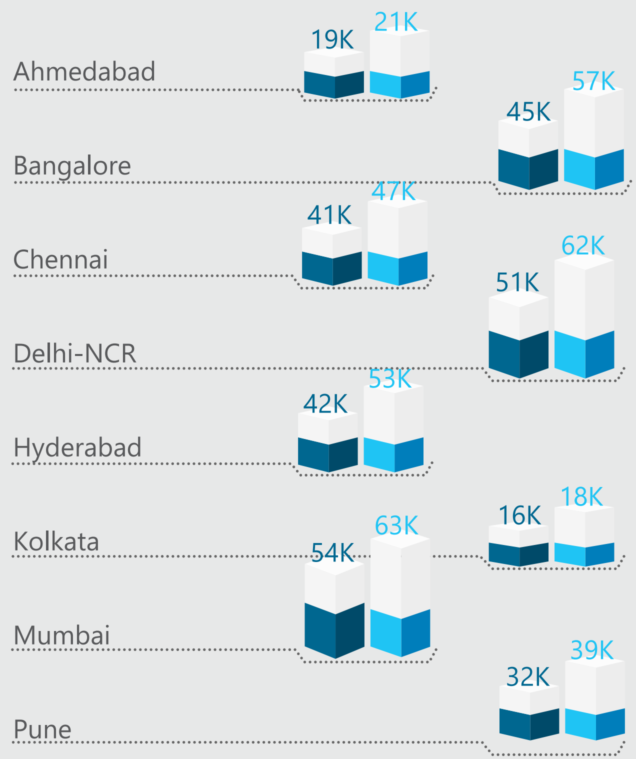
Packaging Jobs **Current (2017)** | **Projected (2022)**



The Packaging sub-sector will create **40K** jobs over the next 4 years (2018 through 2022)

The Courier Services sub-sector will create **60K** jobs over the same time period.

Courier Services Jobs **Current (2017)** | **Projected (2022)**



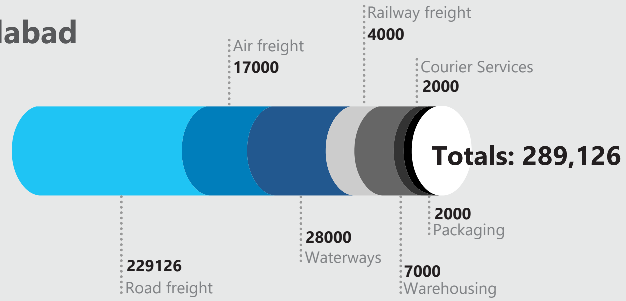
Data Source: Human Resource & Skill Requirements, 2017-22, by NSDC

India's Logistics Revolution - Big Bets, Big Jobs

Analysis of sub-sectors across key cities

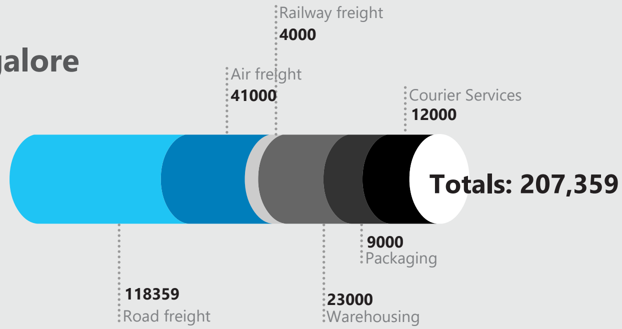
New, incremental, job creation in the Logistics sector, by city– 2018-2022 [with examples of projects underway]

Ahmedabad



- o Vadodara-Anleshwar Industrial Area
- o Dholera-Ahmedabad Investment Region

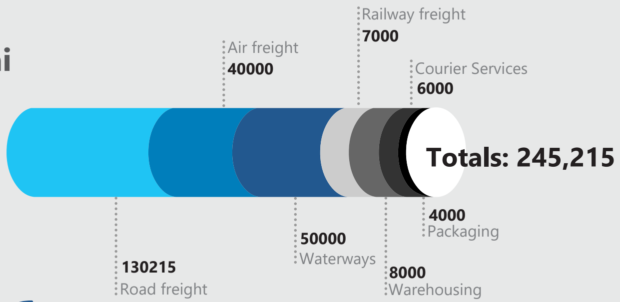
Bangalore



- o Chennai-Bangalore Industrial Corridor Master Plan to be Ready in 1 Year
- o Master plan for Chennai-Bangalore-Chitradurga Industrial Corridor on the anvil

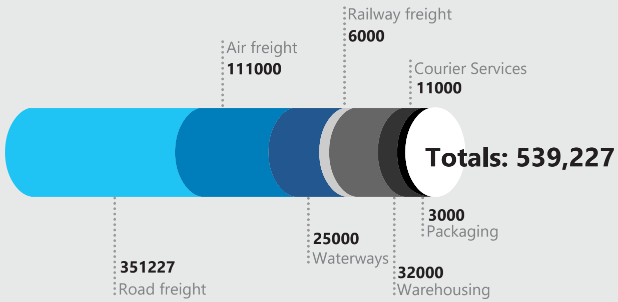
Road freight
Air freight
Waterways
Railway freight
Warehousing
Courier Services
Packaging

Chennai



- o Arterial road network connecting Nemilichery, Nallur and Minjur
- o Chennai Metro Corridor from Washermenpet to Chennai Central station to Chennai International Airport

Delhi



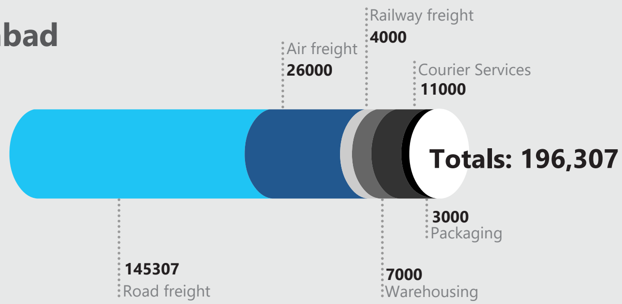
- o N-S Delhi elevated corridor from Signature Bridge to NH8
- o Elevated Cycle Corridor along Satpullah Nallah

Figures indicate number of new, incremental, jobs estimated to be created between 2018 and 2022

Analysis of sub-sectors across key cities

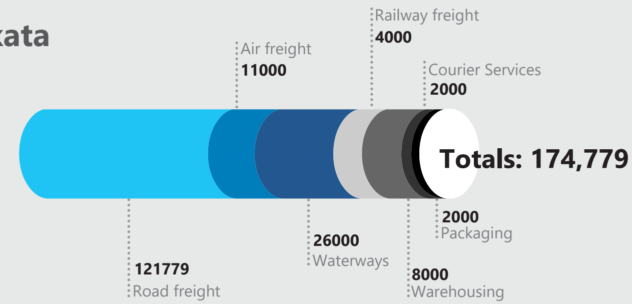
New, incremental, job creation in the Logistics sector, by city – 2018-2022 [with examples of projects underway]

Hyderabad



- Four model road corridors totalling 97km, with INR 1,930 crore investment

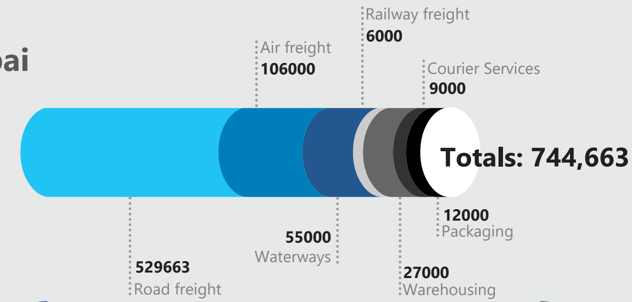
Kolkata



- Ghoshpukur – Salsalabari NH (1 & 2) for 54km with investments of INR 3476 Crore

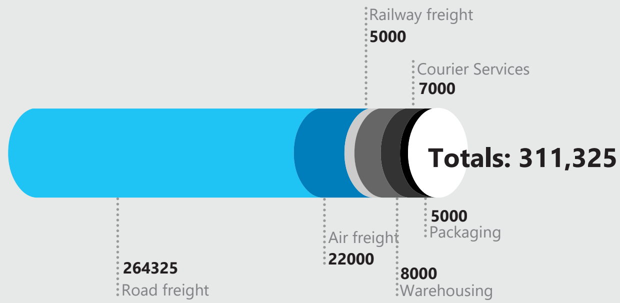
Road freight
Air freight
Waterways
Railway freight
Warehousing
Courier Services
Packaging

Mumbai



- 4 Laning of Solapur-Maharashtra / Karnataka Border
- Metros 2A, 3, 5, 6, 7 corridors sanctioned

Pune



- 4 laning of Pune Solapur Section of NH 9
- 128-km eight-lane Ring Road - connectivity to the airport

Figures indicate number of new, incremental, jobs estimated to be created between 2018 and 2022

New, incremental, job creation in the Logistics sector, by city – 2018-2022 [with examples of projects underway]

Kochi
14000 Air Freight

Thiruvanathapuram
12000 Air Freight

- Air freight stations servicing import volume
- Waterway-airport connectivity at Kochi, Thiruvanthapuram and Kannur

Allahabad (UP / Bihar)
57000 Waterways

- The Gandak-Ghaghra-Karamnasa-Kosi-Punpun-Sone National Waterways

Guwahati
43000 Waterways

- The Dhansiri / Chathe National Waterways

Wazirabad / Vijayawada (AP)
83000 Waterways

- Pennar and Tungabhadra National Waterways

Raipur/Sambalpur(Odisha/Chattisgarh)
31000 Waterways

- The Birupa - Badi Genguti – Brahmani National Waterways

Kollam / Kozhikode (Kerala)
30000 Waterways

- Alappuzha-Changanassery Canal

Sirsa /Hanumangarh (Punjab)
13000 Waterways

- Beas, Indira Gandhi Canal and Sutlej

Mangalore (Karnataka)
9000 Waterways

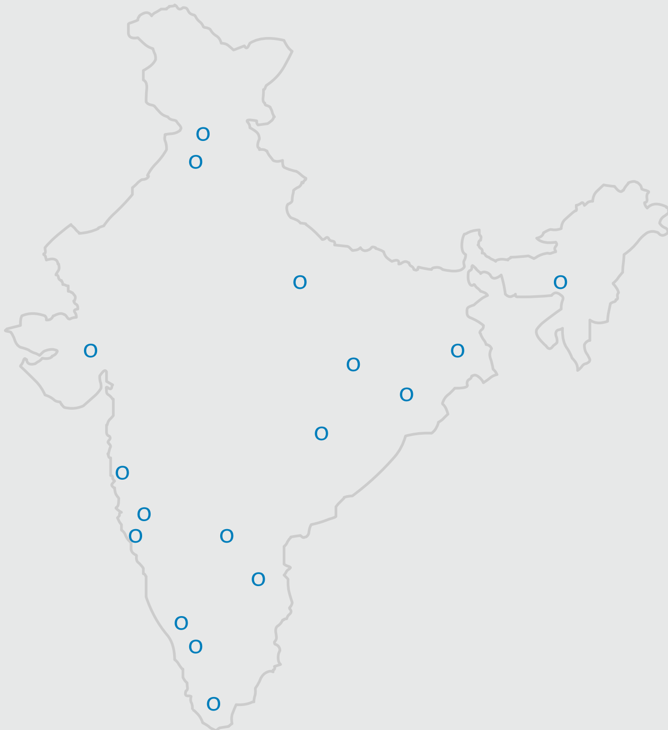
- The Kabini, Kali, Malaprabha National Waterways

Figures indicate number of new, incremental, jobs estimated to be created between 2018 and 2022

Snapshot of Job Creation in the Logistics sector- Today and Tomorro w

City	Today's Jobs (2018)	Tomorrow's Jobs (Projected-2022)
Ahmedabad	0.49	0.78
Bangalore	1.28	1.48
Chennai	1.15	1.40
Delhi	2.51	3.05
Hyderabad	0.72	0.92
Kolkata	0.86	1.03
Mumbai	2.79	3.54
Pune	0.62	0.93
Kochi	0.05	0.06
Thiruvanathapuram	0.02	0.03
Allahabad (UP / Bihar)	0.07	0.13
Wazirabad / Vijayawada (Andhra Pradesh)	0.09	0.17
Guwahati	0.06	0.10
Raipur / Sambalpur (Odisha / Chattisgarh)	0.05	0.08
Kollam / Kozhikode (Kerala)	0.07	0.10
Sirsa / Hanumangarh (Punjab)	0.04	0.06
Mangalore (Karnataka)	0.03	0.04
ALL TOTALS	**10.90**	**13.90**

Figures indicate number of jobs, in million



Skill Requirements in the Logistics Sector

Todays and tomorrow's skills |
Skill gaps | Changing Nature of Work

India's Logistics Revolution - Big Bets, Big Jobs

Skill Requirements in the Logistics sector

Road & Rail Freight

Today's Skills	Tomorrow's Skills
Knowledge of:	**Knowledge of:**
Routes and geographies	GPS tools and GPS enabled vehicles / instruments
Road/ track safety practices	Sophisticated communication and coordination technology
Traffic and permit rules	
Taxation rules (borders / checkposts)	Data Analytics and route optimization techniques
Ability to coordinate with:	**Ability to deal with:**
Pickup/delivery site representatives	Automated systems and self-driven vehicles
Regulatory authorities	Online regulatory systems

Packaging

Today's Skills	Tomorrow's Skills
Packaging development, standards and administration	Smart packing with rapid printing and RFID tagging
	3-D printing and design thinking
Package & Label design [Photoshop, CorelDraw, InDesign]	Usability and space/material saving and cost optimization
Safety, Fragility, Tamper and inflammation-proofing techniques	AI for predictive maintenance and quality, process and Logistics automation
Design engineering, pallet, skid, export packaging	
Material Sciences, Printing Techniques, Quality Control	

Warehousing

Today's Skills	Tomorrow's Skills
Specialized Skills:	**Specialized Skills:**
Inventory Management, picking & packing	Operating intelligent AI systems (such as semi-automated forklifts)
Inventory handling and handling warehouse equipment (Pallet trucks, forklifts etc)	Working knowledge of cloud inventory and machine learning based systems
Working knowledge of Warehouse Management Systems (WMS)	Sophisticated tracking and training systems such as then employing RFID
Knowledge of:	**Knowledge of:**
Logistics Management Concepts [FIFO, Kanban, etc]	Neural network and AI based decision systems
Standard warehouse processes	Multi-modal logistics, processes and related systems

Data Source: Human Resource & Skill Requirements, 2017-22, by NSDC

India's Logistics Revolution - Big Bets, Big Jobs

Skill Requirements in the Logistics sector

Air Freight| Courier Services

Today's Skills	Tomorrow's Skills
Know-how of the critical elements of each step in the courier process from pick-up to delivery	Working knowledge of smart routing and navigational AI software
Awareness of the nature, value and time-based sensitivities of the mail items handled	Remote / Rural delivery employing drones
Read maps or use GPS systems to find the location of a delivery; bills of lading, manifests, credit-card slips, delivery receipts, labels, tags and identification lists	Leveraging business Analytics and GIS based market / customer intelligence
Excellent Routing and Directional Skills	Acquaintance with logistics automation systems

Waterways

Today's Skills	Tomorrow's Skills
Alternate watches with the captain and other officers	Increased use of technology - A range of new and specific technical skills will be required
Inspect the cargo hold during loading, to ensure that the cargo is stowed according to specifications	Increased understanding of new materials, new processes and new working practices relevant to the globalised nature of business
Assist with docking the ship	Extensive asset management skills
Monitor the ship's position, using charts and other navigational aides	
Make announcements to passengers, when needed	

Skills obsolescence is pervasive across sub-sectors, **is knowledge and technology driven**, and will transform potentially every role in a logistics organization

Data Source: Human Resource & Skill Requirements, 2017-22, by NSDC

India's Logistics Revolution - Big Bets, Big Jobs

Skill Gaps– by Geography and hierarchy

	Junior	Mid	Senior	Total Skill Gap (in '000s)
Ahmedabad	33	26	7	66
Bangalore	51	47	-3	95
Chennai	64	51	5	120
Delhi	87	35	-2	120
Hyderabad	103	16	-1	118
Kolkata	43	31	8	82
Mumbai	185	53	5	243
Pune	61	42	3	106

- Skill gap extreme at junior levels, indicates severe short supply and lack of junior level talent
- Ahmedabad, Kolkata and Chennai - exceptions; junior levels comprise 50% or less of the total skill gap
- Bangalore, Delhi and Hyderabad have surplus senior talent

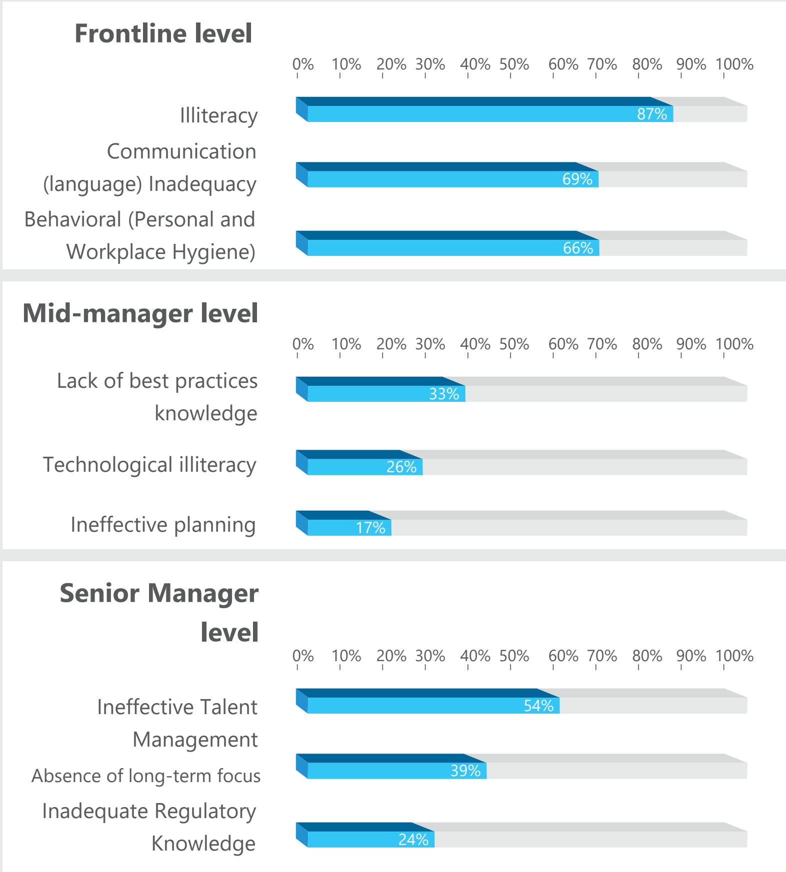
Numbers [in '000s] indicate demand-supply gap (2018-22) by city and by hierarchy A positive number is a skills deficit, and a negative number is a skills surplus

Total Skill Gap across the 8 primary logistics hubs: **950K**

Data Source: TeamLease Jobs and Salaries Analysis, 2018

Top 3 skill gaps across sub-sectors [Survey Findings]

Numbers indicate percentage of talent lacking the specified skill



Data Source: TeamLease dip-stick survey, April 2018

Skill Gaps– by Geography and hierarchy

How will change in technology and business models impact Nature of Work

Nature of Work today	**Hierarchy**	**Role / Salary**	**Nature of Work** tomorrow	**Skills required** [today | tomorrow]	
Extensive knowledge of logistics function, Managing and owning warehouses, business, logistic activities etc.	Senior Management / Entrepreneurs	**CIO** [INR 4,200,000 p.a] **Head- SCM** [INR 3,500,000 p.a] **Marketing Head/ BU Head** [INR 1,770,000 p.a]	Highly Positive Impact- decision systems will enhance skills Diverse senior roles will be created salaries to increase by 20%-25%	Strategic Planning, Operations Optimization and Coordination	Big Data Analytics based decision support, Workforce planning with automation and AI, Business model reinvention
Integration of various aspects of logistics, performance measurement. Efficient working, costing, operations etc.	Middle Management	**Yard Managers** [INR 640,000 p.a] **Port Planning Manager** [INR 540,000 p.a] **Seafarers** [INR 510,000 p.a]	Skill upgradation necessitated No Job loss Salaries will be substantially (33%-40%) higher for skill intensity	Route / Delivery Planning and Coordination, Cost optimization	Working knowledge of AI for routing / analytics for costing, market forecasting and customer trends
Driver, Equipment operators/handling assistant, Supervisors, Operational Technical, Operation non technical etc.	Operational / front line and Supervisory (entry level)	**Logistics Executive** [INR 210,000 p.a] **Stackers** [INR 179,000 p.a] **Forklift Operator** [INR 185,000 p.a]	Skill aggregation at the low- end 24% - 30% job loss Wages to go up for fewer roles and jobs	Timeliness and Reliability in delivery, Customer-facing skills	Working knowledge of last-mile technology, ability to work with automated sorting / labeling systems

Technologies [AI, robotics, Big Data Analytics and IoT] will **enable and transform** the senior levels and much of the middle levels of the logistics organization, but will cause job losses at the operational level

Data Source: TeamLease Jobs and Salaries Analysis, 2018

Skill Gaps– by Geography and hierarchy

Jobs of today and tomorrow, salaries they command

Logistics Jobs – Today

Job Role	Skills Required	Median Salary (INR p.a., 2018)
Operations Specialist	Planning and Coordination, SCM Software	6,25,000
Associate Business Analyst	Scenario planning, Solution ideation and implementation	7,60,000
Delivery Consultant	Packaging and distribution, GIS, Workforce planning	5,10,000
Senior Program Manager	Customer advocacy, multiple platform delivery	11,33,000
Capacity / Flow Planner	Capacity utilization, operations, Logistics and Retail Supply Integration	6,40,000
SAP Lead	SAP, IT integration, analytical and communication skills	8,10,000

Logistics Jobs – Tomorrow

Job Role	Skills Required	Median Salary (INR p.a., 2019-22 Estimates)
Demand Planner	Growth hacking, Cloud-based planning systems	9,55,000
Customization Manager *	Collaborative robotics, IoT-based digital testing	11,20,000
Sustainability Leader	Operational precision, SCM for resource optimization	10,70,000
AI Assisted Category Manager *	Algorithm development, JiT procurement	10,15,000
Drone Jockey – Delivery Coordinator *	Allocation and matching, routing and remote control	6,80,000
Inventory Data Broker *	Data monetization, micro data feeds, Optimization techniques	9,30,000

Job roles representative of typical logistics jobs today, **are knowledge and hands-on**; tomorrow's job roles would be **technological and analytical**.

** Job roles likely to take shape post-2020. The other job roles of tomorrow are likely to emerge sooner than 2020.*

Data Source: TeamLease Jobs and Salaries Analysis, 2018

Technology

Technological disruptions |
Managing the impact of disruptions on skills

The impact of technological disruptions on skills

Technological disruptions	Benefits of Technology	Impact on Skills	Managing Impact on Skills
IoT: Intelligent routing and synchronization >> will disrupt manual marshalling >> job loss	Agility >> improves customer satisfaction and efficiency	Skill redundancy at the lower-levels of the hierarchy	Up-skilling of lower-level staff for supervisory roles
Big Data and Predictive Analytics: Enables business transformation >> will require relevant skills >> job creation	Predictability of growth >> helps plan effectively	Skill deficit at the mid- and senior-levels of the hierarchy	Hiring analytics and machine learning talent
AI and Robotics: intelligent automation and operational precision >> will replace many manual, repetitive, jobs >> job loss	Sustainability >> better business operations	Skill aggregation at the lower-and mid-levels of the hierarchy	Optimizing workforce mix and imparting new skills
Cloud Computing: complex data processing, sharing and real-time reporting >> enhances productivity >> no adverse impact on jobs	End-to-end visibility >> effective tracking / tracing	Skill deficit at the mid- and senior-levels of the hierarchy	Train middle and senior management on real-time analytics
3D printing: last mile production and shipping >> will contract logistics demand >> job loss	Near-shoring >> Lowers prices, faster deliveries	Skill redundancy at the lower-levels of the hierarchy	Mapping location-based demand and redistributing workforce
Drones / Driverless vehicles: machine based last mile delivery >> will replace delivery runners / drivers >> job loss	Continuity >> Service quality and assurance	Skill redundancy at the lower-levels of the hierarchy	Re-skilling and redeployment of lower-level staff

Data Source: Emerging Technologies shaping the future of Logistics, Industry Week, Sep 2016

Talent Management

Talent Sourcing | Gender Diversity |
Talent Attraction and Retention

Talent Sourcing and Gender Diversity

Challenges in sourcing talent:

Factors ranked by respondents of the survey

1. Perception of Logistics as a low-skills sector
2. Availability of formally educated / trained talent
3. Outmoded, manual, tasks that discourage knowledge workers
4. Distribution of operations in remote locations
5. Fear of skill redundancy and costs of re-skilling

Data Source: TeamLease dip-stick survey, April 2018

Transformational change necessitates diversity

Gender Diversity is being seen as a possible talent attraction and retention tool

Criticality of knowledge skills, as opposed to the traditional hands-on skills, is a driver of diversity hiring

Data Source: Long dominated by men logistics firms now hiring women to check attrition, Business Standard, October 2017

Proportion of women in the Indian logistics sector

4% - 5%	20%	26%
in 2010	in 2017	by 2021

Barriers	Workplace Inhibitors
Preference for male candidates	Poor / unhygienic working conditions
Biased selection criteria in job role descriptions	Incompatible Work-Life balance
Female candidates typecast as unsuitable	Harassment, bullying and violence
Traditional tasks still prevalent in the sector	Skilling inadequacy
Entrenched gender norms	

Data Source: "Women Representation in Indian Transport and Logistics Industry : Aspects and Opportunities, Business Dimensions, Vol. 3(3), 40-48, March 2016

Talent Attraction and Retention

What it takes for a Logistics business to attract talent:

Factors ranked by respondents of the survey

1. Commitment to training and skill upgradation
2. Timely modernization and 'technological upkeep'
3. Well planned and articulated career paths across roles
4. Best in class compensation and benefits

What makes talent stay:

Factors ranked by respondents of the survey

1. Organized and modern work culture
2. Opportunities to nurture tech skills
3. Leave policies aiding work-life balance
4. Safe and hygienic working conditions
5. Career growth and salary prospects

What makes talent leave:

Factors ranked by respondents of the survey

1. Hazardous and high-stress working conditions
2. Low compensation levels and inadequate benefits
3. Distance and time from home to workplace
4. Lack of Learning and Development initiatives
5. Inadequate / inefficient processes and systems

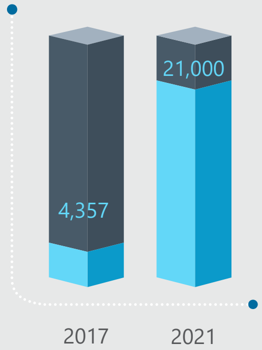
Data Source: TeamLease dip-stick survey, April 2018

Spotlight- Ecommerce Retail Logistics

Vendor and Geographic Landscape |
Job creation – today's and tomorrow's jobs,
roles and skills for today and tomorrow

LSP: Logistics Service Providers

Ecommerce Retail Logistics: creating jobs at great speed

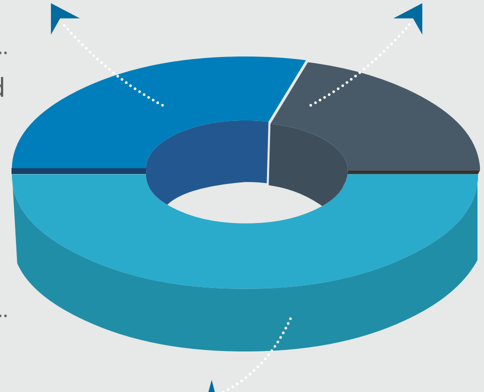


Ecommerce Retail Logistics market size [INR crore]

Data Source: Fulfilled! India's e-commerce retail logistics growth story, KPMG-CII, August 2016; TeamLease analysis, 2018

1 million of the 13.9 million total potential logistics jobs in 2022 will be engaged in Ecommerce Retail Logistics (supporting last-mile consumer delivery)

- Tier-2/3/rural geographies will make up 43% of these 1 million potential jobs
- Maharashtra, Delhi, Andhra Pradesh and Karnataka will account for 67% of all Ecommerce Logistics jobs
- A linear business model – will add headcount in tandem with revenue growth



Vendor and Geographic Landscape

	2017 Number of jobs			2022 Number of jobs		
	Metro / Tier-1	**Tier-2 / 3 / Rural**	**Totals**	**Metro / Tier-1**	**Tier-2 / 3 / Rural**	**Totals**
Traditional Logistics Service Providers	17,600	25,600	43,200	85,000	115,000	200,000
Ecommerce-focused Logistics Service Providers	61,200	38,400	99,600	295,000	205,000	500,000
Captive logistics arm	38,900	21,300	60,200	187,000	113,000	300,000
	Current Total (2017): 203,000			**Projected Total (2022): 10,00,000**		

With a 5-fold growth the segment is likely to employ **1 million** people, of the **13.9 million** logistics jobs by 2022

Spotlight – ecommerce retail logistics

Ecommerce Retail Logistics: today's and tomorrow's jobs, roles and skills

City	Today's Jobs (2018)	Tomorrow's Jobs (Projected-2022)
Ahmedabad	10,800	58,000
Bangalore	26,700	1,27,000
Chennai	16,100	83,000
Delhi	36,200	1,69,000
Hyderabad	34,100	1,58,000
Kolkata	18,100	92,000
Mumbai	38,800	1,93,000
Pune	22,200	1,20,000
ALL TOTALS	**2,03,000**	**10,00,000**

Maharashtra, Delhi, Andhra Pradesh and Karnataka will account for 67% of all Ecommerce Logistics jobs

Data Source: TeamLease Employment Outlook Analysis, 2018

Role	Today's Skills	Tomorrow's Skills
Category Manager	Analytical and Problem Solving Skills, Order processing and Inventory Management	Predictive and Prescriptive Analytics to arrive at Market-Baskets, working knowledge of Just-in-Time Inventory Management Technology
Supply Chain Manager	Working knowledge of Inventory Management and ERP software, Delivery coordination and stock management	End-to-end visibility via AI-based technology, Fulfillment predictability through matching algorithms
E-commerce Operations Executive	Sorting, picking and packing, Tracking orders on various marketplaces	Ability to oversee automated machinery, working knowledge of real-time tracking systems

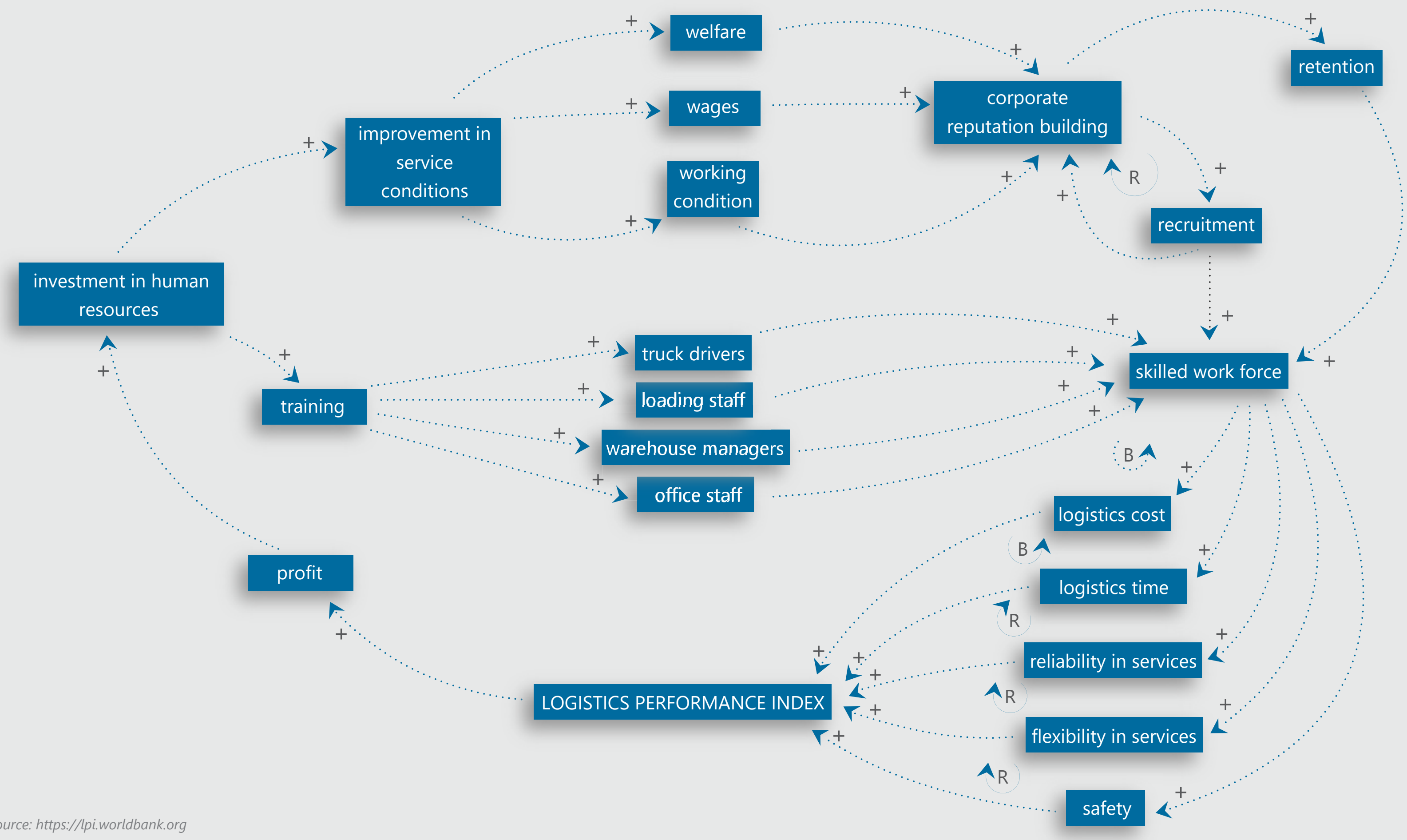
Data Source: Human Resource & Skill Requirements, 2017-22, by NSDC

Annexure- 1

Logistics Performance Index Framework |
Infrastructure Data |
Logistics Clusters and Warehousing Hubs

Annexure- 1

Logistics Performance Index (LPI) Framework



Source: https://lpi.worldbank.org

Annexure- 1

NHDP highway road network and road length summaries

National Highways Development Project

Status as on August 31, 2017

Delhi - Mumbai NH - 8, 76 & 79 : 1419 Kms.

PKG No.	Stretch	Length	Construction Dates	
			Start	Anticipated
58	Delhi- Amer (Via Gurgaon, Kotputli)	248.00		4 laned
Jaipur Bypass Phase I & Phase II		**49.00**		
59	(a) Jaipur Bypass Phase II	34.70		4 laned
60	(b) Jaipur Bypass Phase I	14.00		4 laned
61	Mahapura (near Jaipur)- Kishangarh	90.38		4 laned
62	1 ROB at Kishangrah	01.00		4 laned
Kishangarh- Udaipur		**314.275**		
63	Cont. I (Kishangarh- Nasirabad)	36.23		4 laned
64	Cont.II (Nasirabad- Gulabpura)	55.87		4 laned
65	Cont.III (Gulabpura- Bhilwara Bypass)	50.00		4 laned
66	Cont.IV (Bhilwara Bypass- Chittorgarh)	66.00		4 laned
67	Cont.V (Chittorgarh- Mangalwar)	48.00		4 laned
68	Cont. VI (Mangalwar- Udaipur)	58.175		4 laned
Udaipur- Ratanpur- Chiloda		**217.00**		
69	Cont. I- (Udaipur- Kesariaji)	62.00		4 laned
70	Cont. II (Kesariji- Ratanpur)	48.40		4 laned
71	Cont. III (Ratanpur- Himmatnagar)	54.60		4 laned
72	Cont. IV (Himmatnagar- Chiloda)	52.00		4 laned
73	Ahmadabad bypass- Vadodara Expressway	15.00		4 laned
Ahmadabad		**93.00**		
74	(a) Phase I	43.40		4 laned
75	(b) Phase II	50.00		4 laned
76	Vadodara- Surat	152.00		4 laned
Surat- Manor- Mumbai		**239.60**		
77	(a) Surat (Chalthan- Atul)	79.60		4 laned
78	(b) Atul- Kajali	38.60		4 laned
79	(c) Kajali- Manor	57.40		4 laned
80	Manor- Mumbai (Via Basseim Creek Bridge, Dhaishar)	64.00		4 laned

Data Source: http://nhai.gov.in

Annexure- 1

NHDP highway road network and road length summaries

Delhi - Kolkata NH - 2: 1453 Kms.

PKG No.	Stretch	Length	Construction Dates Start	Anticipated
1	Delhi- Agra (Via Mathura)	199.00		4 laned
Agra - Sikandara & Etawah bypass		**196.275**		
2	(a) Cont. 1A (Agra-Shikohabad)	50.83		4 laned
3	(b) Cont. I B (Shikohabad - Etawah)	59.02		4 laned
4	Etawah Bypass	13.60		4 laned
5	(c) Cont. I C (Etawah - Rajpur)	72.825		4 laned
Sikandara - Khaga		**190.50**		
6	(a) Cont. II A (Sikandara - Bhaunti)	62.00		4 laned
7	(b) Cont. II B (Kanpur - Fatehpur)	51.50		4 laned
8	(c) Cont. II C (Fatehpur - Khaga)	77.00		4 laned
Khaga - Varanasi		**199.715**		
9	(a) Cont.III A (Khaga-Kokhraj)	43.00		4 laned
10	(a) Cont. I Bridge (Allahabad Bypass)	1.02		4 laned
10	(b) Cont. II (Allahabad Bypass)	38.987		4 laned
10	(c) Cont. III (Allahabad Bypass)	44.708		4 laned
11	(d) Cont. III C (Handia - Varanasi)	72.00		4 laned
Varanasi - Aurangabad		**191.00**		
12	(a) Cont. IV A (Varanasi - Mohania)	76.00		4 laned
13	(b) Cont. IV B (Mohanla - Sasaram)	45.00		4 laned
14	(c) Cont. IV C (Sasaram - Dehri - On - Sone)	30.00		4 laned
15	(d) Cont. IV D (Dehri - On- Sone-Aurangabad)	40.00		4 laned
Aurangabad - Barwa Adda		**218.75**		
16	(a) Cont. V A (Aurangabad - Barachatti)	60.00		4 laned
17	(b) Cont. V B (Barachatti - Gorhar)	80.00		4 laned
18	(c) Cont. V C (Gorhar - Barwa Adda)	78.75		4 laned
Barwa Adda - Palsit - Kolkata		**258.457**		
19	Barwa Adda - Panagarh	118.00		4 laned
22	Panagarh - Palsit	64.457		4 laned
23	Palsit - Dankuni	65.00		4 laned
24	Dankuni -NH-2/NH-6 Junction near Kolkata	05.00		4 laned
25	Vivekananda Bridge and Approach	06.00		4 laned

Data Source: http://nhai.gov.in

Mumbai – Chennai NH – 4, 7 & 46 : 1290 Kms.

PKG No.	Stretch	Length	Construction Dates Start	Anticipated
82	Mumbai- Pune Expressway	90.00		4 laned
83	Westerly Diversion (Pune Bypass)	34.25		4 laned
Pune- Satara		**110.50**		
84	Cont. IV (Katraj-Sarole)	28.50		4 laned
86	Cont. III Katraj Reallignment	09.00		4 laned
88	Cont. II, I (Sarole-Satara) Including Khambakti Ghat	73.00		4 laned
Satara- Haveri		**383.50**		
89	Satara- Kagal	133.00		4 laned
90	Maharastra Border (Kagal)- Belgaum	77.00		4 laned
91	Belgaum Bypass	18.00		4 laned
92	Belgaum- Dharwad	62.00		4 laned
93	Dharwad-Hubli	29.00		4 laned
94	Hubli-Haveri	64.50		4 laned
Haveri-Tumkur		**264.90**		
95	Cont. V (Haveri-Harihar)	56.00		4 laned
96	Cont. IV (Harihar-Chitradurga)	77.00		4 laned
98	Cont. II (Chitradurga-Sira)	18.00		4 laned
99	Sira By Pass	5.80		4 laned
100	Cont. I (Sira- Tumkur)	41.40		4 laned
Tumkur Bypass- Krishnagiri		**169.90**		
101	Tumkur Bypass	13.00		4 laned
102	Tumkur- Hosur	111.50		4 laned
103	Hosur- Krishnagiri	45.40		4 laned
Krishnagiri- Ranlpet- Chennai		**237.60**		
104	Cont. V (Krishnagiri- Vaniyambadi)	49.00		4 laned
105	Cont. IV (Vanlyambadi-Pallikonda)	51.00		4 laned
106	Cont. III (Pallikonda-Ranipet & Valejapet Bypass)	45.00		4 laned
107	Cont.II (Valejapet-Kanchipuram)	36.20		4 laned
108	Cont.I (Kanchipuram-Poonamalee)	56.40		4 laned

Annexure- 1

NHDP highway road network and road length summaries

Chennai – Kolkata NH – 5,6 & 60 : 1684 Kms.

PKG No.	Stretch	Length	Construction Dates	
			Start	Anticipated
Dankuni – Kharagpur		**114.85**		
26	Dhankuni – Kolaghat	54.40		4 laned
26	Bridge Section (WB-III)	1.732		4 laned
27	Kolaghat – Kharagpur	60.45		4 laned
Kharagpur – Chandikhole – Khurda		**339.51**		
28	Kharagpur – Laxmanath	65.51		4 laned
29	Laxmanath – Baleshwar	53.41		4 laned
30	Balasore-Bhadrak	62.64		4 laned
30	Bridge Section (OR-V)	11.587		4 laned
31	Bhadrak-Chandikhole	75.50		4 laned
32	Chandikhole-Bhubaneshwar	55.80		4 laned
34	Bhubaneshwar-Khurda	27.15		4 laned
Khurda Town – Icchapuram		**158.571**		
35	Cont. I (Khurda-Sunakhala)	52.058		4 laned
36	Cont. VII (Sunakhala-Ganjam)	55.713		4 laned
37	Cont. VIII (Ganjam-Icchapuram)	50.80		4 laned
Icchapuram – Vishakapatnam – Tuni		**327.147**		
38	Cont. I A (Icchapuram-Korlam)	33.00		4 laned
39	Cont. I B (Korlam-Palasa)	29.00		4 laned
40	Cont. II (Palasa – Srikakulam)	74.00		4 laned
41	Cont. III (Srikakulam-Champawati)	48.00		4 laned
42	Cont. IV (Champawati-Vishakapatnam)	46.20		4 laned
43	Vishakapatnam-Ankapalli	38.00		4 laned
44	Ankapalli-Tuni	58.947		4 laned

PKG No.	Stretch	Length	Construction Dates	
			Start	Anticipated
Tuni – Rajahmundry		100.00		
45	Cont. I (Tuni-Dharmavaram)	47.00		4 laned
46	Cont. II (Dharmavaram-Rajahmundry)	53.00		4 laned
Rajahmundry-Eluru-Chilkalurlpet		276.69		
47	Cont. I (Divancheru-Gowthami)	34.95		4 laned
48	Cont. II (Gowthami-Gundugolanu)	81.08		4 laned
49	Vijayawada – Rajahmundry Sec.	5.00		4 laned
51	Eluru-Chilkaluripet	155.66		4 laned
Chilkalurlpet – Nelloure & Nellore Bypass		198.966		
52	Cont. I (Chilkaluripet – Ongole)	66.00		4 laned
53	Cont. II (Ongole-Kavali)	72.00		4 laned
54	Cont. III (Kavali-Nellore)	43.80		4 laned
55	Nellore Bypass (BOT)	17.166		4 laned
Nellore – Chennai		152.32		
56	Cont. I (Nellore – Tada)	110.52		4 laned
57	Cont. II (Tada-Chennai)	41.80		4 laned

Data Source: http://nhai.gov.in

Annexure- 1

Rail Freight linked Government Initiatives: DFCs and DMIC

Summary Table of DFCs

Dedicated Freight Corridor	Track gauge	Speed	Length (km)	RORO Enabled (YN)	Further Extension	Status	Start Point	Termination Point
Western Dedicated Freight Corridor	1,676 mm (5 lt 6 in) broad gauge	100 Km/hr	1483	Y	Not Planned	Approved in Rail Budget 2014-15 [11]	Dadri	JNPT Nava Sheva
Eastern Dedicated Freight Corridor	1,676mm (5 ft 6 in) Broad gauge		1839	N (maybe)		Approved in Rail Budget 2014-15 [12] World Bank has sanctioned loan for development of 393 km of double track between Mughalsarai and Bhaupur (near Kanpur and between kanpur and Etawah) [13]	Ludhiana	Dankuni
East-West Dedicated Freight Corridor	1,676mm (5 ft 6 in) Broad gauge	100 Km/hr	2000			Announced in Budget 2016-17 [14]	Kolkata	Mumbai
North-South Dedicated Freight Corridor	1,676mm (5 ft 6 in) Broad gauge		2173			Announced in Budget 2016-17 [14]	Delhi	Chennai
East Coast Dedicated Freight Corridor	1,676mm (5 ft 6 in) Broad gauge		1100			Announced in Budget 2016-17 [14]	Kharagpur	Vijayawada
South –West Dedciated Freight Corridor	1,676mm (5 ft 6 in) Broad gauge		890		Branching to Mangalore from Bangalore	Planned	Chennai	Goa
Total			**9485**					

Data Source: www.dfccil.gov.in

DMIC - status

Phase	Start Date	Completion Date	Investment	Projects
Phase-I		2025 [16]	INR 15,500 Crore [16]	**1. Shendra Bidkin** in Maharashtra Rs.8,000 crore (Completion by March 2019) **2. Dholera** in Gujarat for Rs. 4,700 crore (Completion by March 2019). **3. Vikram Udyogpuri** in Ujjain for Rs.1,300 crore (Completion by December 2018). **4. IIT Greater Noida** for Rs.1,500 crore (Completion by December 2018) (16)
Phase-II	2018 [16]	2032 [16]	INR 10,200 Crore [16]	2 Multi-modal logistic hubs: **Greater Noida** Rs. 4,800 crore (initial Rs.1600 crore). **Haryana** Rs.5,400 crore (initial Rs. 1,100 crore) (16)
Phase-III		2037 [16]		
Total		**2037 [16]**	**US$90 billion**	

Annexure- 1

Government Initiatives for Waterways

Sagarmala: Proposed megaports

#	State	No. of rivers / canal	Name of the River / Canal
1	Andhra Pradesh	2	Pennar and Tungabhadra
2	Arunachal Pradesh	1	Lohit
3	Assam	14	Aai, Barak, Beki, Dhansiri / Chathe, Dehing, Dikhu, Doyans, Gangadhar, Jinjiram, Kopili, Lohit, Puthimari, Subansiri and Tlwang (Dhaleswari)
4	Bihar	6	Gandak, Ghaghra, Karamnasa, Kosi, Punpun and Sone
5	Delhi	1	Yamuna
6	Goa	6	Chapora, Cumberjua, Mandovi, Mapusa, Sal and Zuari
7	Gujarat	5	Jawai-Luni-Rann of Kutch, Mahi, Narmada, Sabarmati and Tapi
8	Haryana	2	Indira Gandhi Canal and Yamuna
9	Himachal Pradesh	3	Beas, Ravi and Sutlej
10	Jammu & Kashmir	4	Chenab, Indus, Jhelum and Ravi
11	Jharkhand	2	Kherkai and Subarnarekha
12	Karnataka	11	Bheema, Ghataprabha, Gurupur, Kabini, Kali, Malaprabha, Netravathi, Pachagangavali (Panchagangoli), Sharavati, Tungabhadra and Udayavara
13	Kerala	4	AVM Canal, Alappuzha-Changanassery Canal, Alappuzha-Kottayam-Athirampuzha Canal and Kottayam-Vaikom Canal
14	Maharashtra	14	Amba, Arunawati-Aran, Dabhol Creek-Vashishti River, Kalyan-Thane-Mumbai Waterway – Vasai Creek- Ulhas River, Manjara, Nag, Narmada, Penganga-Wardha, Rajpuri Creek, Revadanda Creek-Kundalika River, Savitri (Bankot Creek), Shastri River – Jaigad Creek, Tapi and Wainganga – Pranahita
15	Meghalaya	5	Ganol, Jinjiram, Kynshi, Simsang and Umngot (Dawki)
16	Mizoram	1	Tlwang (Dhaleswari)
17	Nagaland	1	Tizu – Zungki
18	Odisha	5	Baitarni, Birupa – Badi Genguti – Brahmani, Budha Balanga, Mahanadi and Subarnarekha
19	Punjab	3	Beas, Indira Gandhi Canal and Sutlej
20	Rajasthan	3	Indira Gandhi Canal, Jawai-Luni-Rann of Kutch and Luni
21	TamilNadu	9	AVM Canal, Bhavani, Kaveri-Kollidam, Manimutharu, Palar, Pazhyar, Ponniyar, Tamaraparni and Vaigai
22	Telangana	5	Bheema, Manjara, Penganga – Wardha, Tungabhadra and Wainganga – Pranahita
23	Uttar Pradesh	10	Asi, Betwa, Chambal, Gandak, Ghaghra, Gomti, Karamnasa, Tons, Varuna and Yamuna
24	West Bengal	15	Ajoy, Bakreswar – Mayurakshi, Damodar, DVC Canal, Dwarkeswar, Dwarka, Gangadhar, Ichamati, Jalangi, Kumari, Mahananda, Rupnarayan, Silabati, Subarnarekha, Sunderbans, Waterway-Bidya-Chhota Kalagachi (Chhoto Kalergachi)- Gomar-Haribhanga-Hogla (Hogal) /Pathankhali-Kalindi (Kalandi)-Katakhali – Matla – Muri Ganga (Baratala)- Raimangal-Sahibkhali (Sahebkhali)-Saptamukhi-Thakurran

Data Source: iwai.nic.in,

Annexure- 1

Government Initiatives for Waterways

State-wise details of new National Waterways

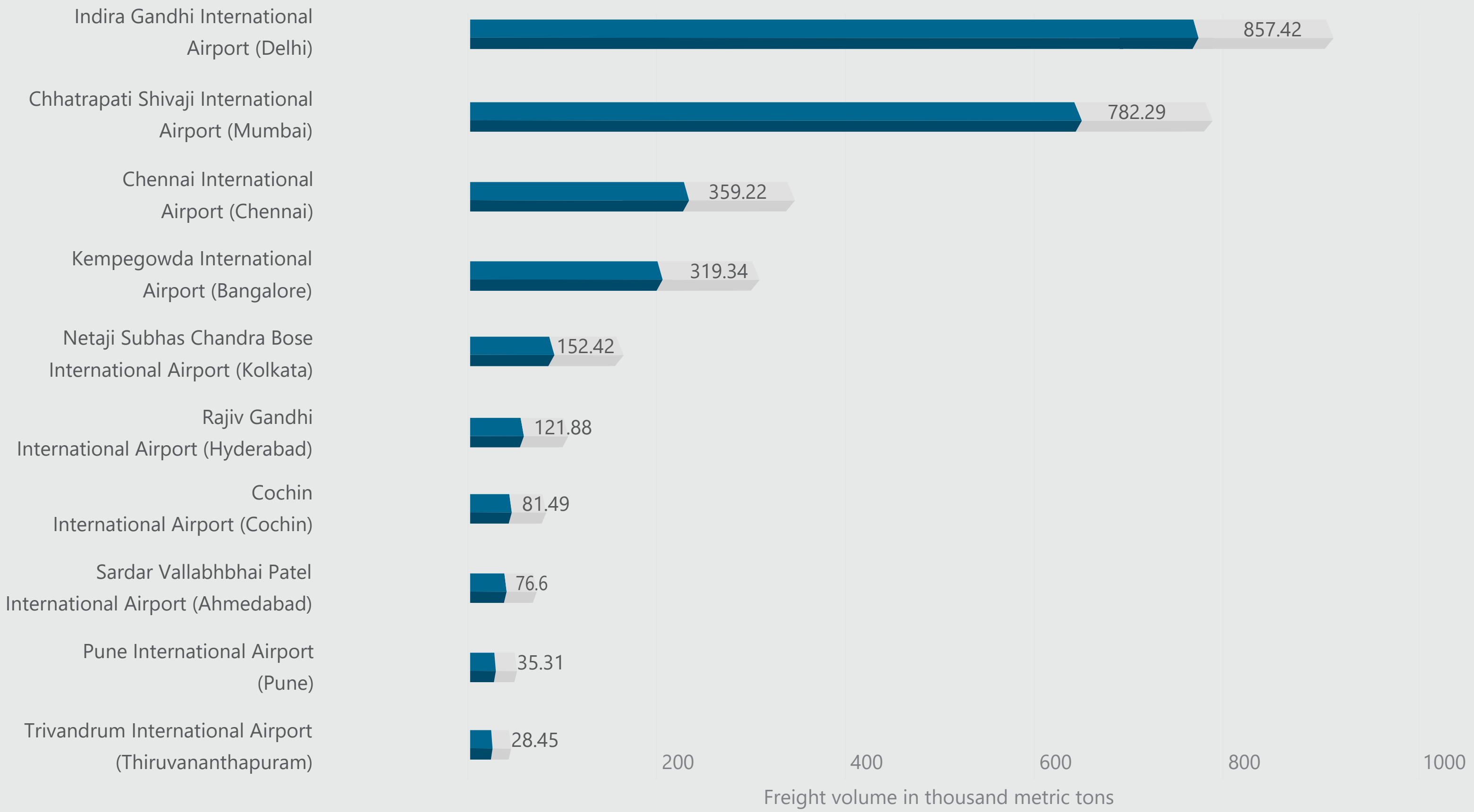
Sl.No	New Port Location	State
1	Sagar Island	West Bengal
2	Paradip Outer Harbour	Odisha
3	Sirkhazi	Tamil Nadu
4	Enayam	Tamil Nadu
5	Belikeri	Karnataka
6	Vadhavan	Maharashtra

Data Source: iwai.nic.in,

Annexure- 1

Air Freight Capacity

India's leading airports in FY 2016-17, by freight handled (in 1,000 metric tons)



Data Source: Statista Statistics

Annexure- 1

Logistics clusters and infrastructure development across 8 primary warehousing hubs

Cities	Sectors	Strengths	Connectivity	Total Warehouse Supply	Incremental Capacity being Built
				All figures are in million sft	
Ahmedabad	Pharma, Automobile	Moderately large consumer market and a growing manufacturing base	Mumbai and Delhi and its location in the Delhi Mumbai Industrial Corridor (DMIC)	3.7	0.5
Bangalore	FMCG/D, Ecommerce, Construction, Healthcare, Retail, Telecom	Quality warehouse supply is available at reasonable costs.	Relative proximity to high-demand centres (such as Hyderabad, Chennai, Cochin and Mangalore)	14.3	0.88
Chennai	Auto and ancillary manufacturing units, Ecommerce, Healthcare, Retail	Large manufacturing base, huge consumer base and presence of major ports and large box warehouses	Major ports including Chennai and Ennore ports	10.7	0.68
Delhi NCR	Manufacturing, Automobile, Construction, Ecommerce, Retail	Huge consumer base; a huge manufacturing location; one of the largest warehousing nodes in India	Ports like Jawaharlal Nehru Port Trust (JNPT) and Mundra	22.7	0.57

Source: Indian Logistics - taking giant leaps forward, JLL, August 2015

Annexure- 1

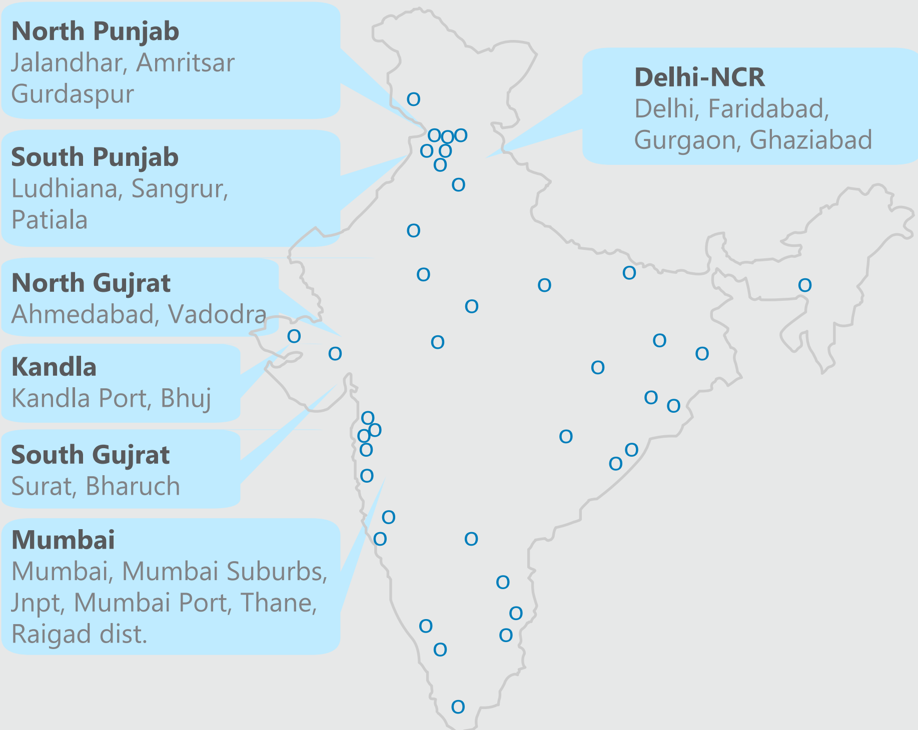
Logistics clusters and infrastructure development across 8 primary warehousing hubs

Cities	Sectors	Strengths	Connectivity	Total Warehouse Supply	Incremental Capacity being Built
				All figures are in million sft	
Hyderabad	FMCG/D, Ecommerce, Construction, Healthcare, Retail	Proximity to the airport, lower rentals and availability of land parcels (Mahbubnagar)	Shamshabad and Mahabubnagar areas have emerged as major warehousing corridors	7.5	0.74
Kolkata	Construction, Retail	Strategic location as a gateway to North-east India and its proximity to the Kolkata port	Proximity to industrial areas and good connections to North-east India	8.1	0.35
Mumbai	Construction, FMCG/D, Healthcare, Pharma, Manufacturing, Retail, Telecom	The two busiest ports of India, JNPT and Mumbai ports, are major demand generators.	Bhiwandi, Mankoli and Padgha along NH 3 and State Highway 35 (SH 35)	23.2	0.7
Pune	Manufacturing, Engineering, Automobile and Accessories, Pharma, Ecommerce, Retail	Large consumer base, huge manufacturing base and affordable prices	Proximity to large-scale manufacturing units and easy connectivity with Mumbai	7.1	0.35

Source: Indian Logistics - taking giant leaps forward, JLL, August 2015

Annexure- 1

Logistics clusters and infrastructure development across 8 primary warehousing hubs



Multi-Modal Logistics Park (MLP)

A multi-modal freight-handling facility with a minimum area of 100 acres comprising mechanized warehouses, specialized storage solutions such as cold storage, facilities for mechanized material handling and inter-modal transfers container terminals, bulk / break-bulk cargo terminals.

Logistics Clusters housing MLPs

The government is planning to develop multi-modal logistics parks at 15 locations all over India at an estimated cost of Rs 33,000 crore. As many as 35 clusters, accounting for half the total freight movement, have been identified for building logistics parks to improve the existing transportation and warehousing scenario in the country.

Four Key Services

Freight aggregation and distribution; Multimodal freight transportation; Storage and Warehousing; Value added services

Outcomes

Reduction in inventory holding costs; Reduction in freight transportation lead times

Source: Development of Multimodal Logistics Parks - Draft Policy Document, MORTH, GoI

Annexure- 2

Research and Analysis Methodology |
Bibliography | Disclaimer

Annexure- 2

Research Methodology

- Domain and Sector / Sub-sector Trends: Secondary research / literature review
  - Sub-sector definitions and related trends captured in line with the scope of the study (freight movement)
  - Public investments into Infrastructure / Logistics Infrastructure (and not private investments) from Government of India data sources

- Job Statistics, Skills, Demand and Supply: Analysis of data from government and third party data sources
  - Data captured for the most recent years available are extrapolated to 2017, to arrive the current snapshot of the sector, based on secondary research findings

- Job drivers for the sector and for sub-sectors: Literature review, analysis of sub-sector trends data
  - Data from Jobs / skills data sources and government websites collated and analyzed as per methodology detailed out on slide-54

- Talent Management trends: Literature review and dip-stick survey [30 respondents]
  - Hypotheses and research questions arrived at based on literature review; dip-stick surveys carried out across 30 prominent employers in the domain

- Skill Gap Estimates: Analysis of data from TeamLease proprietary databases
  - TeamLease-proprietary Skill-salary modeling framework used to arrive at skill supply-demand gap numbers

Annexure- 2

Employee Distribution by Location: Working Assumptions and Analysis Methodology

- The following assumptions apply to the estimation of job creation by location in the section “Jobs Distribution”.
  - Public Capital Investments into logistics infrastructure is the primary determinant of job creation
  - Capacity Creation in road, rail, waterways and air freight sub-segments has a significant causal effect as well, but to a significant lesser degree than Capital Investments
  - The effect of Capacity Upgradation is equal to that of Capacity Creation, since an un-motorable road or a non-navigable waterway adds no utility of capacity
  - Sub-segment growth contributes to job creation only if a sub-segment has a ‘linear business model’. That is, each unit of revenue needs a unit of labour for the business to operate
  - The eight cities that comprise the “Primary Warehousing Hubs” are considered “Hub Cities” for the following sub-segments: Road, Rail, Warehousing, Packaging and Courier Services. All demand for jobs has been assumed to be aggregated at these “Hub Cities”
  - The locations – irrespective of their geographic status (metro/tier-1/2/3/rural – that benefit significantly more than others from demand for air freight and capacity creation / upgradation of waterways have been considered as the “Hub Locations” for these two sub-segments

- Analysis Methodology
  - Data for each of the government initiative and the related capital investments, capacity creation, exisiting capacity utilization, upgradation and projections thereof have been acquired and collated
  - Current job number estimates (2017 data) and five-year historicals (2011 – 2016) for each of the sub-segments have been acquired and collated
  - Following appropriate aggregation of data, weights and rankings for this data have been arrived at based on the aforesaid assumptions
  - Linear and non-linear regression / extrapolation / forecasting techniques – as found suitable in each case – have been used to arrive at job creation number estimates

Annexure- 2

Market Size Estimate Workings and Skill mapping methodology

Market Size and Employment Estimates

Market size for the Logistics sector, for the year 2017, is a TeamLease estimate. It has been arrived at by aggregating the estimates of market sizes for the seven sub-sectors. Investindia and IBEF research are the data sources for the 2017 market sizes for sub-sectors. The Logistics sector market size [INR 14,19,000 crore] is the sum total of the market sizes of the seven sub-sectors.

Projection for the market size of the sector for 2022 [INR 21,15, 590 crore]: This has been computed by applying the sector growth rate of 10.5% CAGR to the 2017 market size estimate.

NSDC's Human Resource & Skill Requirements report is the source for sub-sector employment statistics for 2017 and 2022. The Logistics sector employment statistics for 2017 and 2022 have been arrived at by aggregating the sub-sector employment for each of these years.

Skills of the future: skill mapping methodology

- TeamLease-proprietary skill-salary and employability frameworks updated for Logistics sub-sectors and roles by hierarchy
- Impact of each of the disruptive technologies – IoT, Big Data and Predictive Analytics, AI and Robotics, Cloud Computing, 3-D Printing, Drones / Drivereless Vehicles – on skills and Job Descriptions assessed based on the framework
- Implications of the impact categorized as per jobs and skills – job creation, job loss or no effect and skill deficit, skill aggregation or skill redundancy
- Impacts attributed to specific hierarchical levels and steps to manage skill disruption formulated based on literature review
- Some skill terminology definitions:
    - Skill Deficit: Difference between Supply and Demand of Skills or Talent
    - Skill Redundancy: Skills that are no longer needed in an organization or in the labour market
    - Skill Aggregation: Combine multiple skills to arrive at a role description
    - Re-skilling: Train talent for additional skills
    - Up-skilling: Train talent for higher level skills

Annexure- 2

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Disclaimer

This report is for information purposes only. While due care has been taken during the data collection, analysis and compilation of this report to ensure that the information is accurate to the best of TeamLease's knowledge and belief, the content is not to be constructed in any manner whatsoever as a substitute for professional advice. The study is primarily based on secondary research and is to be read in context. Only public investments into Infrastructure / Logistics Infrastructure (and not private investments) have been considered. 'Hub Cities' considered for the purposes of this study are cities at which talent and market demand or supply are assumed to be concentrated.
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