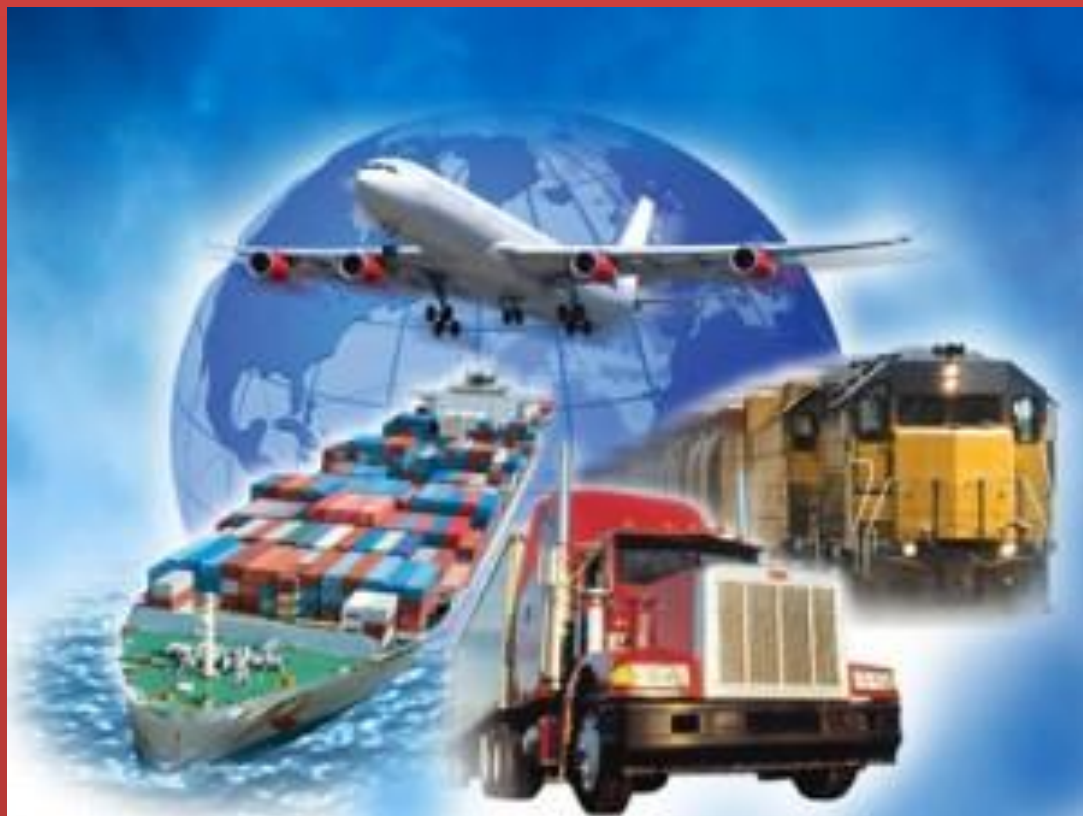


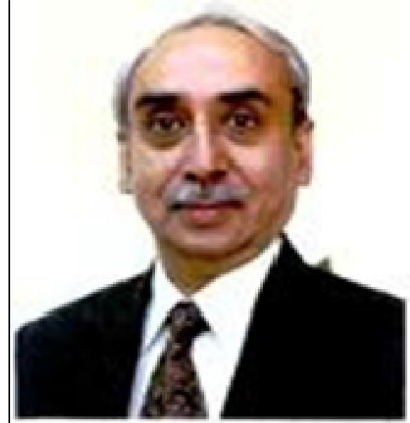
**Centre of Excellence of Logistics and Supply Chain  
Management**



**NEWS LETTER**

**October 2016**

## ***Message from the National Chairman***



*It gives me an immense pleasure to present you our 4th issue of e-magazine brought out by the Center of Excellence –Supply Chain Management, a joint initiation of CILT and the School of Management, GD Goenka University, Gurgaon (India). The current issue in your hand brings the special news and article on Goods & Services Tax (GST) bill which is considered to be one of the greatest reform measures in Indian economy since post-independence. The present issues contains latest news and articles on supply chain and logistics area covering national as well as international domain.*

*I appreciate faculty members of Center of Excellence and editorial board for putting sincere effort in bringing out relevant articles for readers. I hope that readers will find the current issue of this magazine worthy and interesting.*

*Warm Wishes*

***Shanti Narain***

## ***Message from the National Vice Chairman***



*India is all set to usher in a game-changing and historic tax reform—the goods and services tax (GST). The planned GST system seeks to replace around 15 state and federal taxes and tariffs for a single tax at the point of sale. Apart from creating a unified market across India, GST will help make India's manufacturing competitive by cutting high logistics and warehousing costs. The regulatory reforms proposed in the GST presents a golden opportunity to revisit, rationalize and re-engineer transportation and logistics networks, given the inherent inefficiencies with taxes based on the crossing of administrative boundaries or border checkpoints. Taxation at a national level, rather than by each state, will result in more efficient cross-state transportation, streamlining paperwork for road transporters and bringing down logistics costs. Given that the inefficient and longer supply chains with warehouses in almost every state is fiscally preferred in the existing regime, it is now time to overhaul and compress the entire logistics set-up.*

*Considering the importance of GST, the present issue of this e-magazine covers the featured article highlighting its impact on logistics and supply chain management. Apart from this, the magazine has covered news and article on digitized trucking, supplier's resilience towards supply chain risks, current status and prospects of port operations in India etc. in detail*

*I thank to faculty members for coming up with very informative articles and helping the center of excellence to become as a major reservoir of knowledge's in the area of supply chain and logistics management.*

***Prof. (Dr.) Pradeep Kumar Goel***

*Professor & Dean, School of Management*

*GD Goenka University, Gurgaon*



## National News

October 2016

### **Inland Goods and Services Tax (GST) Bill – A Historic Step towards Unified Tax Structure**

The long-delayed GST Constitution bill was passed by Parliament on 8<sup>th</sup> of August 2016, marking a historic step for tax reforms. Prime Minister Narendra Modi said GST was "crucial" for ending tax terrorism besides reducing corruption and black money. The Constitution (122nd Amendment) Bill, which was passed by the Lok Sabha in May 2015, was taken up again by the Lower House to approve the changes made in it by the Rajya Sabha. The government had moved six official amendments, including scrapping of 1 per cent additional tax to the bill which were approved by the Upper House.

After a six-hour debate, the Lower House passed the bill with all the 443 members present voting in favor. PM Modi, while intervening in the debate, said the passage of the Bill reflected "maturity" of the Indian democracy as such a crucial legislation was approved with consensus rather than on the basis of numbers. The experts hailed it as a "great step by team India" that would help transform the economy, bring in transparency and bring in the system of "one country one tax. Union Finance Minister Mr. Arun Jaitley, while replying to the debate, said the tax rate under the GST regime will be kept at "minimum workable rate" as no state government can annoy its people by having a higher rate. He said the rate will be decided by the GST council. Within a month of passage of this bill, more than half of the 29 state assemblies already ratified it. Modi asserted that the GST will benefit mainly those states which are considered backward and address the problem of the imbalanced development. The Govt acknowledged that manufacturing states might suffer losses but said they would be compensated.

#### **GST Rate**

The proposed goods and services tax (GST) regime promised the nation to inter-alia fix the issues above and ensure the reform aims at simplifying the indirect tax levy. The ball was set rolling with changes to the Constitution followed by setting up of the GST Council to address key issues on GST. The council in its meetings thus far has progressed on several key issues and was reconvened on November 3-4, 2016 with top agenda to finalize tax rates, address states' compensation row

and sort guidelines on cross-empowerment of centre and state tax authorities. This was imperative from a timing standpoint given the aspirational start date of April 1, 2017 for GST.

In the latest round of its meeting, The GST Council finalized a 4-tier tax structure of **5, 12, 18** and **28** per cent, with lower rates for essential items and the highest for luxury and de-merits goods that would also attract an additional cess. Announcing the decision arrived at the first day of the two-day GST Council meeting, Finance Minister told that to keep inflation under check, essential items including food, which presently constitute roughly half of the consumer inflation basket, will be taxed at zero rate.

### **Highlights of GST Rate**

- The lowest rate of 5 per cent would be for common use items while there would be two standard rates of 12 and 18 per cent under the GST regime, targeted to be rolled out from April 1, 2017.
- Highest tax slab will be applicable to items which are currently taxed at 30-31 per cent (excise duty plus VAT).
- Tobacco will fetch 28 percent sin tax, excluding cess. Aerated drinks will also fetch tax at the same rate. Most white goods to be taxed at 28 percent but with riders.
- About 50 percent of products in the consumer basket, such as foodgrains, has been kept as 'zero-rated'.
- Rs 50,000 crore would be needed to compensate states for loss of revenue from rollout of GST, which is to subsume a host of central and state taxes like excise duty, service tax and VAT, in the first year

The biggest surprise has come for the products likely to be under the 28 per cent category, e.g. white goods. These industries were looking forward to a rationalised rate of 18 per cent and passing on the benefit to consumers at large. Albeit, that isn't meant to be. No announcement was specifically directed at GST rate on services but the informal understanding is that the same would be covered under 18 per cent.

FM mentioned that the tax rate on gold was not finalised and could be anywhere between 2-4 per cent depending upon how related factors pan out.

On an overall note, multiple tax rates is a significant departure of how an ideal GST structure with maximum of two rates could have been. With this backdrop, all eyes are on the list of the goods that would fall under the respective rate categories. Needless to mention, the categorisation of what qualifies as "mass consumption" products, products for "lower middle class" would indeed involve some level of subjectivity and it is unlikely the outcome would indeed be a perfect one. Also, industry is hoping that the lists are unambiguous in terms of products which fall under the respective categories. It is hoped that a clear HSN based classification is done — else, classification disputes will continue under GST as well.

On cess, the modalities remained unclear. The FM did mention that the cess would work as an additional GST (thus impliedly altering the rate) rather than adding another line item on the invoice. The quantum of cess would vary from product to product so as to achieve a GST rate for said goods as is equal to effective current rate of tax. The cess would be reviewed annually and last 5 years from implementation of GST in India. While burdensome, but the approach seems to give financial cushion to the central government for compensating states under a righteous approach of not tagging all demerit or sin goods at a common rate and thus making some expectedly more expensive.

On the issue of dual control, barring the earlier consensus that states would administer taxpayers up to a limit of Rs 1.50 crore no further headways have been made. The FM in a post meet media address said that consensus was far from being reached in hunt for the approach that best serves the taxpayer's interest. Sources, however, suggest that the issue is not being concluded due to a disconnect between centre and states on the powers to administer and assess taxpayers. Apparently, the states want powers to assess possible top taxpayers including service providers (a fractured vertical division of powers) though lacking relevant experience and while the centre wants a horizontal division, which would possibly keep states away from top taxpayers.

## **Goods and Services Tax: Impact on supply Chain and Logistics Management**

The regulatory reforms proposed in the goods and service tax (GST) presents a golden opportunity to revisit, rationalize and re-engineer transportation and logistics networks, given the inherent inefficiencies with taxes based on the crossing of administrative boundaries or border checkpoints. Taxation at a national level, rather than by each state, will result in more efficient cross-state transportation, streamlining paperwork for road transporters and bringing down logistics costs. GST will create a unified market across India.

Currently, each of India's 29 states taxes goods that move across their borders at different rates. As a result, freight that moves across the country is taxed multiple times. Worse, there are long delays at inter-state checkpoints, as state authorities review and examine freight and apply the relevant taxes and other levies.

Truck delays average five-to-seven hours at inter-state checkpoints. This, combined with other delays, keep trucks from moving during 60% of the entire transit time. As much as 65% of India's freight moves by road, a fact which leads logistics experts to see GST as critical for India. High variability and unpredictability in shipments add to logistics costs in the form of higher-than-optimal buffer stocks and lost sales, pushing logistics costs in India to two-to three times global benchmarks, according to the World Bank.

Simply halving the delays due to roadblocks, tolls and other stoppages could cut freight times by some 20-30% and logistics costs by an even higher 30-40%, according to World Bank estimates.

This alone can go a long way in boosting the competitiveness of India's key manufacturing sectors by 3-4% of net sales.

The planned GST system seeks to replace around 15 state and federal taxes and tariffs for a single tax at the point of sale. The prevailing complicated tax structure in India meant that logistics decisions, including the choice of setting up inventory and distribution centers, are taken based on the tax regime such as central sales tax and state value-added tax (VAT) rates, rather than on operational efficiency. Tax optimization and administration is often considered over the operational and logistics efficiency.

GST, when implemented, will free the decisions on warehousing and distribution from tax considerations, which, henceforth, would be based purely upon operational and logistics efficiency. This will lead to changes in logistics requirements of clients, forcing logistics service providers (LSPs) to rethink their business operations, including creating new warehousing and logistics locations and expanding or closing existing warehouses at certain other locations.

In fact, networks and infrastructure associated with warehousing and logistics hubs are expected to be the most affected in the entire supply chain when GST takes effect. Network and infrastructure related businesses would get drastically realigned, ensuring proximity to manufacturing locations or consumption centres and ultimately resulting in hub-and-spoke models.

From the infrastructure perspective, the new scenario would reduce the number of warehouses but will increase their sizes, leading to a consolidation of the currently widely spread warehouses across states. This would translate into expansion of some of the existing warehouses, development of new ones and shutting down of several existing set-ups. LSPs and their end-users both would need to re-engineer their supply chains, focusing on optimal locations for warehouses and logistics centres.

GST will score over the existing regime in the transportation and logistics industry, where a tendency is seen to engage with the unorganized players for tax considerations.

The GST regime will see the emergence of the organized service providers since taxes will no longer be added costs for the businesses. Given the highly fragmented nature of the Indian transportation and logistics industry (the leading 10 listed firms command less than 5% of the overall market), implementation of GST is expected to unleash a plethora of opportunities for companies in the organized sector.

Further, the firms in the unorganized sectors, too, would be expected to improve their service levels if they intend to successfully grow in the likely shape up or shape-out competitive landscape. The post-GST regime is, in fact, likely to offer many more unseen opportunities for unorganized entities to tie up or collaborate with established companies. This could ultimately result in a win-win scenario for both the collaborating parties and the industry at large.

GST, combined with the dismantling of inter-state check posts, is the most crucial reform since the economic liberalization in 1991 that can significantly improve domestic and global competitiveness of Indian manufacturing firms

## **ILLUSTRATION**

Let us look at prevalent tax structure in India, before we dwell into benefits that GST would supposedly bring in. The current tax structure is quite complex - there are central level taxes in form of excise, customs duty and CST, and then there are varying state level taxes in form of VAT and other levies like Octroi, state level cess etc. The problem is that, state level taxes are applicable on top of central taxes. Which means the manufacturer/supplier is paying taxes on taxes. Only way to avoid this multi tax scenario is to create a stock transfer between inventory stocking points within states.

Hence, most industries - like manufacturing/third party logistics players - generally have warehouses/offices in each state to reduce tax burden of Central Service Tax (CST). Thus, planning is more driven by logic of saving taxes rather than achieving operational efficiency.

Any large LSP, manufacturer or CPG player hence maintains warehouses in all the states of operations. With 29 states in India, that accounts to 25-40 small warehouses (depending of regions and scale of operations) instead of 6-8 large warehouses which would be needed for geography of this size. For some manufacturers/CPG corporate with countrywide operations, we have seen the number of warehouses as high as 55-60. Adding to this inefficiency is the fragmented structure in Indian Logistics industry which results in extreme competition.

With such cost structures, and margins less than 5% on turnover of few millions, implementation of ERP/technology at multiple warehouses is costly affair. Hence, most small to medium businesses in this space have stayed away from technology implementations that can result in long term profits. In any case, with smaller warehouses, the automation will not yield great benefits; hence most of the warehouses are semi-automated or completely manual. Labour in India is still quite cheap, and considering SLAs are not that strict - the efficiencies are generally compromised. You cannot really fault them, can you? After all, the competition is so intense that the purse strings are already very tight.

This impact of inefficiency and cost burden is passed to end consumer, either in terms of quality/SLAs or/and in terms of cost. With GST coming in, the key advantage will be re-aligning/merger of the smaller warehouses to most productive and logical locations - without having a tax burden to think of, which when automated will give excellent cost structure.

With government all geared up to release the GST regime, the businesses also need to plan accordingly. They will need to take a fresh look at their supply chain to cater to existing geography and should also look at the new business areas that this impending legislation is due to bring. With so much focus on existing operations, it will be almost difficult for the management of these businesses to plan for revamping. Hence, best way would be to look at external experts to provide the guidance. What they may also want to look at is outsource to LSP who have planned for post GST regime. It is quite obvious that LSPs, who can adapt the changes due to GST will be at higher advantage to others

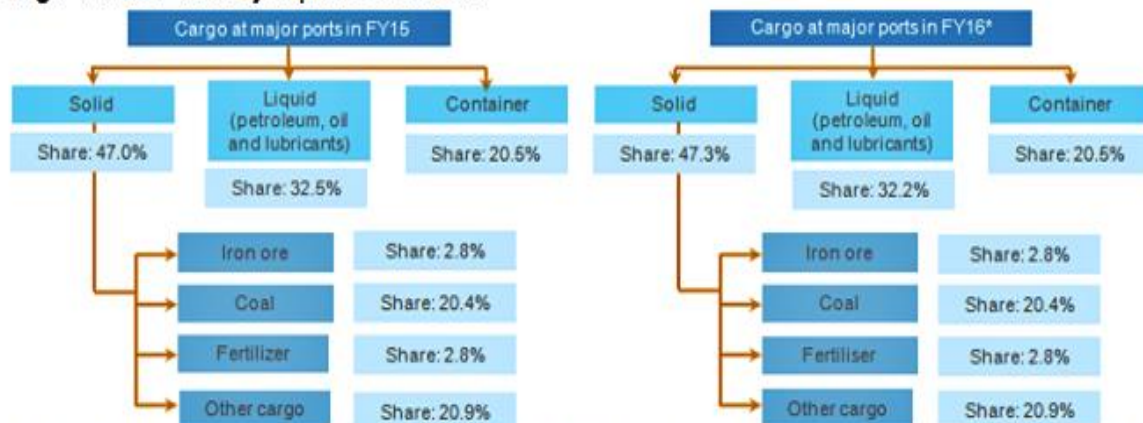


All in all, the post GST regime should provide exciting times for logistics - and particularly so for 3PL/Warehousing industries.

## Ports in India: Present Status and Future Prospects

According to the Ministry of Shipping, around 95 per cent of India's trading by volume and 70 per cent by value is done through maritime transport. India has 12 major and 200 notified minor and intermediate ports. Cargo traffic, which recorded 1,052 Million Metric Tonnes (MMT) in 2015, is expected to reach 1,758 MMT by 2017. The Indian ports and shipping industry plays a vital role in sustaining growth in the country's trade and commerce. India is the sixteenth largest maritime country in the world, with a coastline of about 7,517 km. The Indian Government plays an important role in supporting the ports sector. It has allowed Foreign Direct Investment (FDI) of up to 100 per cent under the automatic route for port and harbour construction and maintenance projects. It has also facilitated a 10-year tax holiday to enterprises that develop, maintain and operate ports, inland waterways and inland ports.

### Cargo Profile at major ports in India



Source: Ministry of Shipping; TechSci Research; Note: Other cargo includes Fertiliser Raw Material (dry) and food-grains; FY16\* : April-October 2015

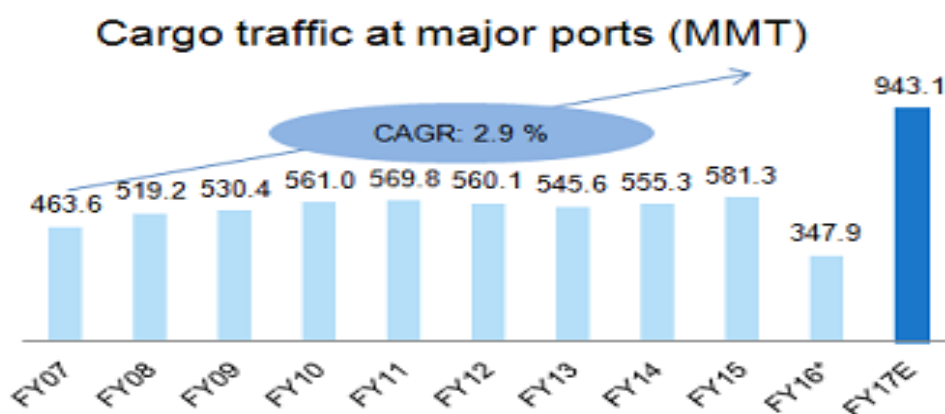
### Market size

Cargo traffic handled by India's Major ports increased 4.6 per cent year-on-year to 264.73 million tonnes (MT) during April-August 2016. In terms of composition of cargo traffic, the largest commodity was P.O.L. (32.44 per cent), followed by coal (24.09 per cent), container traffic (19.65 per cent), other cargo (12.68 per cent), iron ore (4.6 per cent) and other liquids (4.13 per cent). The country's major ports handled a combined volume of 718,000 Twenty-foot-Equivalent Units (TEU) during August 2016, up from 679,000 TEUs during same month last year, while

containerized cargo tonnage rose 3.7 per cent to 10.5 MT during August 2016. During April-June 2016, the ports had handled a combined volume of 2.12 million TEUs, which is roughly around 70 per cent of the country's overall container trade.

The government has taken several measures to improve operational efficiency through mechanization, deepening the draft and speedy evacuations. In FY 2015-16, the Indian Port sector witnessed capacity addition of 94 Million Tonnes Per Annum (MTPA), which is the highest in the history of major ports.

The Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce and Industry, reported that the Indian ports sector received FDI worth US\$ 1.64 billion between April 2000 and March 2016.



Source: Ministry of Shipping, TechSci Research; Note: MMT – Million Metric Tonnes; CAGR – Compound Annual Growth Rate, FY – Indian Financial Year (April-March); FY16\* – From April -October 2015

## Investments/Developments

The Indian Minister for Shipping, Road Transport and Highways, Mr Nitin Gadkari, announced a massive investment in India's ports and roads sector, which is likely to help boost the country's economy. The Indian government plans to develop 10 coastal economic regions as part of plans to revive the country's Sagarmala (string of ports) project.

The zones would be converted into manufacturing hubs, supported by port modernisation projects, and could span 300–500 km of the coastline. The government is also looking to develop the inland waterway sector as an alternative to road and rail routes to transport goods to the nation's ports and hopes to attract private investment in the sector.

- India's largest container handling port Jawaharlal Nehru Port Trust (JNPT) has signed an agreement to raise US\$ 400 million from State Bank of India and Development Bank of Singapore, to improve the infrastructure required for doubling its existing capacity to 9.85 million twenty foot equivalent units (TEUs) annually.
- Inland Waterways Authority of India (IWAI) and India Ports Global Private Limited (IPGPL) have signed a Memorandum of Understanding (MoU) for implementation of three additional works worth Rs 476 crore (US\$ 70.98 million) in the Kaladan Multimodal Transit Transport Project (KMTTP) in Myanmar.
- The India Ports Global Pvt Ltd plans to set up a Special Purpose Vehicle (SPV) in Iran with participation from private Iranian and Indian firms to develop and operate the

Chabahar port project, which is expected to give India a sea-land access route into Afghanistan through Iran's eastern borders.

- Mr Julian Michael Bevis, Senior Director of Group Relations, Maersk Line India Pvt Ltd, has expressed confidence in Government of India's policies like Sagarmala project, and stated that the company is keen on taking Indian ports on lease.
- An expert panel of the Union environment ministry has recommended approvals for projects worth Rs 20,500 crore (US\$ 3.06 billion) in the aviation and port sectors.
- Minister of Road Transport and Highways, and Shipping, Mr Nitin Gadkari is hopeful of bringing a 'blue revolution' in five years which will include developing eight major ports, making 27 industrial clusters, developing rail and road connective
- ity with ports and will entail investment of around Rs 400,000 crore (US\$ 59.7 billion)
- The Maritime India Summit 2016, which was held in Mumbai between 14th-16th April, attracted investments worth Rs 82,905 crores (US\$ 12.36 billion) across 141 memorandum of understanding (MOU) and business agreements, which were signed by various players in the maritime sector.
- JM Baxi Group, an integrated logistics, services and transportation conglomerate, has initiated talks with Private Equity (PE) funds to raise around US\$ 150-200 million, which will be invested in its asset-heavy businesses such as port terminals and container handling facilities.
- DP World Pvt. Ltd, world's fourth biggest container port operator, plans to invest over US\$1 billion in India, which will be used for augmenting its port-related operations.
- Government of India plans to invest Rs 70,000 crore (US\$ 10.44 billion) in 12 major ports in the next five years under 'Sagarmala' initiative.
- Government of India is planning to set up low-cost non-major ports along coastline under the Sagarmala project and has asked all the 12 major ports to accord priority berthing to such vessels and to encourage quicker movement of cargo.
- Jindal ITF plans to invest nearly Rs 500 crore (US\$ 74.56 million) to further transloading operations in Haldia. The company, which already transports imported coal in barges to NTPC's power plants in Farakka and Kahalgaon from the Sandheads, plans to transload cargo at the deep-drafted location at Kanika Sands and transport it to Haldia.
- A memorandum of understanding (MoU) has been signed between the Inland Waterways Authority of India (IWAI) and Dedicated Freight Corridor Corporation of India (DFCCIL) to create logistics hubs with rail connectivity at Varanasi and other places on national waterways. The joint development of state-of-the-art logistics hubs at Varanasi and other areas would lead to the convergence of inland waterways with railways and roadways, thus providing a seamless, efficient and cost-effective cargo transportation solution.
- The state-run Shipping Corporation of India Ltd (SCI) is expected to purchase five vessels from the state-owned Cochin Shipyard Ltd. It is also likely to issue tenders to buy two used Liquefied Petroleum Gas (LPG) carriers as it looks to re-start ship purchases that were frozen after poor financial performance.
- Kamarajar Port Limited (KPL, erstwhile Ennore Port Limited) has signed an agreement with M/s Toyota Kirloskar Motor Pvt Ltd to export automobile units through Kamarajar Port. The agreement primarily includes a clause that would restrict original equipment manufacturers (OEMs) to use KPL as their primary port. KPL would in turn offer volume-based discounts on the tariffs on certain facilities for the smooth functioning of operations.

- The Visakhapatnam Port Trust (VPT) has outlined an Rs 3,000 crore (US\$ 444.72 million) expansion-cum-modernisation plan aimed at enhancing the port's capacity by nearly 50 per cent. The port is estimated to invest Rs 800 crore (US\$ 118.6 million), a fourth of the planned investment, while seeking private partners to invest the remainder by way of public-private partnerships (PPPs).
- Maharashtra's Jawaharlal Nehru Port Trust (JNPT) plans to build a satellite port at Wadhwan near Dahanu (bordering Gujarat), which is estimated to cost Rs 10,000 crore (US\$ 1.48 billion) to build and likely to ease the congestion of ships at JNPT.

## **Government Initiatives**

Some of the major initiatives taken by the government to are as follows:

- The Ministry of Road Transport and Highways and National Highways Authority of India (NHAI) plan to take up 82 highway development projects under the Bharatmala project, which would help in improving connectivity to both major as well as minor ports in the country.
- The Ministry of Shipping plans to install 160.64 megawatts (MW) of solar and wind based power systems at all the major ports across the country by 2017, thereby promoting the use of renewable energy sources and giving a fillip to government's Green Port Initiative.
- Mr Nitin Gadkari, Minister of Road Transport and Highways and Shipping, Government of India expects investment proposals worth Rs 1.2 trillion (US\$ 17.9 billion) in the shipping sector to be finalised during the upcoming two-day Maritime India Summit (MIS), scheduled to be held in Mumbai.
- The Union Cabinet is planning to propose amendments to the Multi Modal Transportation of Goods Act, 1993, with a view to increase transparency in the shipping and logistics sectors and to discourage container freight stations from overcharging both importers and exporters.
- The Government of India plans to amend the current Model Concession Agreement (MCA), by providing a better allocation of risks between the government and private firms, thereby encouraging investments in the sector.
- The Government of India plans to introduce a new framework on renegotiation of Public Private Partnership (PPP) contracts, which will allow renegotiations based on sector-specific issues, especially for national highways and ports, and provide greater flexibility to the parties involved.
- The Ministry of Shipping, India and the Ministry of Oceans and Fisheries, Korea have signed a Memorandum of Understanding (MoU) for cooperation in terms of sharing technology and experiences in port development and operation, and joint port-related construction, building and engineering projects.
- The Government of Maharashtra plans to come up with a policy by January 2016 for developing ports along the 720 km long coastline of the state, including development of creeks at Vasai, Jaigad and Rajapuri for integrated coastal shipping.
- The Union Minister stated that the Government of India has set an ambitious target to convert 101 rivers across the country into waterways to promote water transport and propel economic growth.

- The government plans to establish two new major ports, one at Sagar in West Bengal and the other at Dugarajapatnam in the Nellore district of Andhra Pradesh. Prime Minister Mr Narendra Modi has laid the foundation stone for the Fourth Container Terminal of Jawaharlal Nehru Port at Mumbai, which is expected to increase the existing capacity of the container terminal by more than twice.
- The Ministry of Shipping, in collaboration with Rajasthan government, has planned to develop an Inland Shipping Port at Jalore, Rajasthan.
- The Cabinet Committee on Economic Affairs (CCEA) has approved the Mechanisation of East Quay (EQ) Berths-1, 2 and 3 at Paradip Port on Build, Operate and Transfer (BOT) basis, under Public Private Partnership (PPP) mode, which will increase their coal handling capacity from existing 7.85 million tonnes to 30 million tonnes.
- The government has a proposed to set up an Integrated National Waterways Transport Grid (INWTG), which covers primarily five national waterways. The INWTG plan involves the development of these national waterways with at least 2.5 metres of least available depth (LAD), upgrade/setting up of priority terminals, and establishment of road connectivity (wherever feasible) and rail and port connectivity. The Central Government has approved amendments to 'The National Waterways Bill, 2015' which will provide for enacting a Central Legislation to declare 106 additional inland waterways, as the national waterways.

## Road ahead

Increasing investments and cargo traffic point towards a healthy outlook for the Indian ports sector. Providers of services such as operation and maintenance (O&M), pilotage and harbouring and marine assets such as barges and dredgers are benefiting from these investments.

The Planning Commission of India forecasts an investment of Rs 180,626 crore (US\$ 26.93 billion) for this industry in its 12th Five Year Plan. In addition, through The Maritime Agenda 2010–2020, the Ministry of Shipping has set a target capacity of over 3,130 MMT by 2020, which would be driven by participation from the private sector. Non-major ports are expected to generate over 50 per cent of this capacity.

Source: <http://www.ibef.org>

## **Reducing rail freight: A key to making inland container movement competitive**

Rationalization of rail freight charges to reflect the actual cost has emerged as the single biggest factor for facilitating a shift towards rail from roads as the government looks to raise the share of railways in the movement of containers, cut logistics costs and make industries competitive.

The modal mix for container transport in India is heavily skewed in favour of roads due to high railway freight, lack of reliable scheduling of freight trains, and poor last-mile connectivity. Congestion and priority to passenger trains adds to delays in rail freight transportation. Cross-subsidization between passenger and freight trains has made the railways unviable for most



transportation routes. This results in a greater preference for roads, which is not the ideal mode of transportation for the long haul.



Increasing the modal share of rail from the current 18% to 25% will save India Rs.3,000-6,000 crore a year in logistics costs by 2025.

The modal shift from road to rail will also cut down crude imports by 1.2 million kilo litres a year, saving another Rs.2,400-5,200 crore in fuel imports.

Exporting a container from the hinterland in India takes on average 32 days, compared with 26 days for China, for the same distance, according to a study undertaken by the shipping ministry. The transit time also varies by up to five days, forcing exporters to keep a higher buffer time.

Indian containers can take around 50% longer than Chinese containers for a similar inland distance. The duration is highly variable due to the lack of automation in customs processes, lower speed of trucks and trains, and congestion and inefficiency at ports. This unreliability of transport schedules forces shippers to build buffer time into the transportation schedule, leading to idle waiting time for export cargo at ports.

The ministry study reveals that on a per tonne km basis, the cost differential between India and China is not significant. China, however, has a lower overall container exporting cost due to lower lead distances. The study finds two opportunities to reduce export costs by Rs.1,100 per container. At a projected 25 million twenty-foot equivalent unit (TEU) volume under the business-as-usual scenario, it will save India Rs.3,000-6,000 crore a year by 2025. A TEU is the standard size of a container and a common measure of capacity in the container business.

Export-import container movement, including empties, was 10.7 million TEUs during 2014-15. Of the 9.3 million TEUs laden container volume, 60% was west-bound and the remaining 40% east-bound. China and the US accounted for approximately 14% and 10%, respectively, of the EXIM container volumes to and from India, while the remaining was split between several countries, including the United Arab Emirates (UAE), United Kingdom, Germany, Saudi Arabia, Korea, Vietnam and others.

In terms of the overall balance of trade in containers, India exported 5.1 million TEUs while it imported 4.2 million TEUs during 2014-15. Three major hinterlands in India—the northwest, west and southern clusters—account for roughly 90% of container volumes.

The northwest cluster is the farthest from the coastline and is the largest, generating 3.7 million TEUs in 2014-15. It has the greatest impact on the overall logistics cost of container movement. It lies at an average distance of 1,087km from the Gujarat/Jawaharlal Nehru Port cluster.

The Gujarat-Maharashtra port cluster comprising Mundra, Kandla, Pipavav and Jawaharlal Nehru Port handles 70% of India's EXIM traffic, while Chennai handles another 14%. Other ports on the east coast—Haldia, Vizag and Tuticorin—account for the remaining container traffic. Around 78% of the container traffic from the east coast ports is trans-shipped through Colombo, Singapore and Jebel Ali.

Mundra and Pipavav are the only ports whose primary hinterland (cargo catchment area) lies outside the state where they are located. Also, a significant portion of the total traffic from the hinterlands of the national capital region (NCR) and Punjab is handled at Jawaharlal Nehru Port even though they are closer to the Gujarat port cluster.

With respect to the modal mix for container movement from the hinterland to the ports, roads have an 82% share while rail accounts for just 18%.

The average distance between manufacturing hinterlands and ports in India is 700-800 km compared with 150-300 km in China. Even though India fares better than China in the transportation cost for a comparable distance, longer hinterland to port distance leads to higher costs for exporting/importing a container in India as compared to China. Higher rail haulage charges due to cross-subsidization (unlike in China) make exports/imports expensive in India. Due to the freight charges on road and rail and handling cost involved, rail in India is currently viable for exporters-importers only for a transportation distance beyond 1,000-1,300km. This makes the northwest cluster the primary hinterland where rail becomes viable for inland container transportation. But the cost differential between road and rail remains minimal even beyond a distance of 1,000-1,300 km. Due to this, only 38% of the total volume from this cluster moves by rail.

Assuming a scenario where Indian Railways charge only the cost incurred to transport containers without any mark-up, the viable distance for exporters-importers to use rail reduces to 600-700km. This implies many routes from the north-western hinterland to the ports will not shift from road to rail because of the economics involved. Rationalizing rail rates for containers can reduce the cut-off distance for the viability of rail from 1,000-1,300km to 400-500km. This will enable changing the modal mix from road to rail, especially for the northwestern hinterland to increase trade competitiveness, de-congest roads and port gates, the study concluded.

## **Finance Ministry, Railways working on ways to cut logistics cost for exports**

As per the union ministry of commerce and industry, the finance and railways ministries are working on ways to cut logistics costs which make exports uncompetitive. The Minister said that she has discussed the increasing logistics costs with the Finance Minister. Worried over slow growth in exports, the Commerce Ministry has pitched to enhance the logistics competitiveness of exporters.

The department of commerce has suggested to the Railway Ministry that it needs to clearly distinguish between consignments for exports, imports and general, in terms of freight rates. It was also suggested to the railways to work on ways to reduce the delivery time of consignments providing traders more predictability and reliability. Indian exporters have time and again demanded drastic cuts in freight rates to enhance price competitiveness in the global markets as costs of exports is currently very high in India. *As per the industry expert the time taken for delivery of consignment through Railways from Tughlakabad in Delhi to Jawaharlal Nehru Port (JNPT) is huge and needs to be reduced to about 36 hours.*

In India, the container transport mainly happens through roads due to various reasons like high railway freight rates, unreliable scheduling of freight trains and poor last-mile connectivity. The Commerce Ministry is also in consultations with the ports for timely handling of cargo. Currently, traders have to spend a lot of time in off-loading and on-loading their consignments from ports, impacting the country's trade. Improvement in port infrastructure would help in reducing transaction costs and boost shipments.

A Commerce Ministry strategy paper released in 2010 had emphasized the need to invest billions in improving infrastructure to boost exports. It had asked the government to invest in modernising roads, ports, railways, airports, power and customs stations.

Between December 2014 and May 2016, exports fell for 18 straight months due to weak global demand and slide in oil prices.





**The Chartered  
Institute of Logistics  
and Transport**

## International News

October 2016

### **ATA Report Sees Growth in Freight, Trucking Through 2026**

A new report released Monday by the American Trucking Associations (ATA) projects freight volumes will increase by nearly 29 percent over the next 11 years.

As ATA, the outlook for all modes of freight transportation remains bright. Freight. Continued population growth, expansion of the energy sector and foreign trade will boost trucking, intermodal rail and pipeline shipments in particular.

Forecast, a collaboration between ATA and IHS Global Insight, projects a 28.6 percent increase in freight tonnage and an increase in freight revenues of 74.5 percent to \$1.52 trillion in 2026.

Forecast is a valuable resource for executives and decision makers in both the private and public sector,” said ATA President and CEO Bill Graves. “Knowing where the industry and economy is headed can help shippers and fleets make key business decisions and instruct lawmakers and regulators on the best policies to move our economy forward.”

For the first time, this year’s Forecast includes near-term projections for 2015 and 2016 and estimates for changes in the size of the Class 8 truck fleet.

### **Among Forecast's findings:**

- Trucking will still be the dominant mode of freight transportation, although the share of tonnage it hauls dips slightly. Even though truck tonnage grows over the forecast period, trucking's share will dip from 68.8 percent in 2014 to 64.6 percent in 2026.
- Due to tremendous growth in energy production in the U.S., pipelines will benefit more than other modes. Between 2015 and 2026, pipeline volumes will increase an average of 10.6 percent a year and their share of freight will increase from 10.8 percent in 2015 to 18.1 percent in 2026.
- While railroads' share of freight tonnage will drift down from 14.2 percent in 2015 to 12.3 percent in 2026, intermodal freight will be the second-fastest growing mode at 4.5 percent annually through 2021 and increase 5.3 percent per year thereafter.
- The number of Class 8 trucks in use will grow from 3.56 million in 2015 to 3.98 million by 2026.

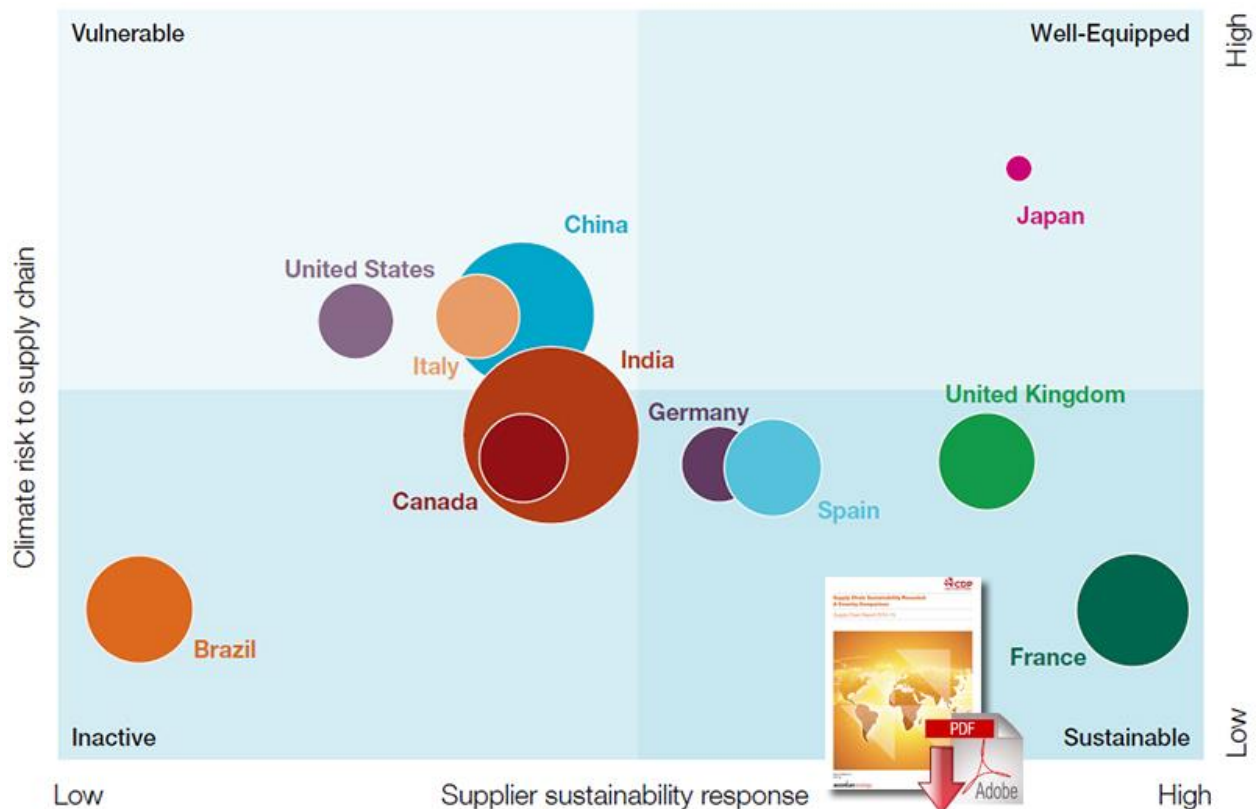
Lack of preparation currently leaves supply chains in Brazil, China, India and the United States more vulnerable to climate risks than those in Europe and Japan. However, suppliers in China and India deliver the greatest financial return on investment to reduce their greenhouse gas emissions and demonstrate the strongest appetite for collaboration across the value chain.

This is according to research conducted by CDP, the international NGO formerly called Carbon Disclosure Project, and Accenture.

**Supply chain sustainability** revealed: a country comparison. CDP supply chain report 2014–15 is the most comprehensive overview of the climate risks and opportunities that exist for supply chains globally.

The new research, which also incorporates information from the United Nations' World Risk Report, is based on data collected from 3,396 companies on behalf of 66 multinational purchasers that work with CDP to better understand and manage the environmental impacts of their supply chains; they account for \$1.3 trillion in procurement spend and include organizations such as Nissan Motor Co. Ltd., and Unilever plc.

Climate and water data disclosed by suppliers to CDP were scored and evaluated to create a sustainability risk/response matrix (below). This offers a visual comparison of how well-prepared suppliers across 11 major economies<sup>2</sup> are to mitigate and manage environmental risk.



While climate and water risks are apparent, the implications for businesses and economies reliant on complex supply chain models are less understood. That multinationals are engaging with thousands of suppliers to better manage environmental challenges and opportunities is encouraging. These companies are catalyzing progress in response to global problems.

As per report It is particularly exciting to see such a strong appetite for collaboration and superior financial returns on initiatives to reduce emissions from Chinese and Indian suppliers. This should attract investment, which in turn will drive greater action within these high emitting markets.”

Despite the increase in the number of companies assessing and reporting on their emissions, the data suggests that suppliers are making either marginal or no improvements in their development of sustainable supply chains capable of weathering climate risks and other natural disasters. The good news is that as companies transform their supply chains into digital supply networks they will gain greater end-to-end visibility, traceability and access to information to report on their compliance progress and mitigate climate risks.

The sustainability risk matrix takes climate change mitigation strategies, carbon emissions reporting, target setting, emission reduction initiatives, climate risk procedures, uptake of low-carbon energy, water risk assessment efforts and collaboration into account. It reveals that:

- **Suppliers in France, the UK, Spain and Germany – in that order – are identified as the most sustainable.** They have taken extensive measures despite comparatively low levels of exposure to climate risk. However, the report notes a year-on-year decline in the percentage of German suppliers implementing a number of key environmental

performance indicators, such as having a climate risk management processes in place, which has dropped from 82% to 72%.

- **Japan is the only country with suppliers that are well-equipped to respond to high climate risks.** They have some of the highest levels of emissions reporting, target setting and climate risk awareness.
- **Suppliers in China, Italy and United States are found to be vulnerable.** An imbalance between high exposure to climate risk and the steps that suppliers have taken in response leaves room for improvement in these geographies.
- **Even so, the United States has been identified by CDP as a polarized market,** given that the majority constituent of the CDP Supplier Climate Performance Leadership Index—those suppliers identified as taking the most positive actions to address climate change – are headquartered in America.
- **Brazil, Canada and India must do more** as suppliers there who participated in the research report fewer emission reduction initiatives than the global average.
- **A collaborative approach and profitable emissions reductions initiatives give China and India a competitive edge.** Suppliers in China and India offer the best return on investment in terms of emissions reductions and monetary savings. Further, suppliers in both markets demonstrate the highest propensity to collaborate with partners across the value chain in order to reduce climate risk.

The global picture, which is presented alongside the country-by-country analysis, establishes some encouraging signs of global progress. More organizations than ever are assessing and reporting to CDP on their environmental impacts. The 3,396 companies that took part in the program this year represent a substantial increase of more than 40% in the past three years.

Further, the quantity and percentage of suppliers setting emissions targets, which is a crucial component of climate risk management, shows a steady upward trend: nearly half (48%) of suppliers set targets last year, compared to 44% in 2013 and 39% in 2012. There has also been an increase in the number of suppliers achieving emissions reductions since 2012, with the percentage rising from 34% to 40% in 2014.

As suppliers become more advanced at carbon management, the number of companies realizing monetary savings from their actions to reduce emissions mirrors the rising trajectory, jumping from 29% in 2012 to 33% in 2014.

Source: [www.supplychain247.com](http://www.supplychain247.com)

**Suppliers in USA, Brazil, China and India Least Resilient Against Climate Change Risks**

# The Future of Transport is Digital: Transport Services Production

Philippe Clapin Didier Le Guirriec (2016) explains the digitization in transport sector. Firstly, the challenges that delve into the area of digitized transport services production and all that entails is explained below.

## The Challenges and the Needs

Digitization is cutting across all layers of society. We have an expectation that virtually every action we take, now has a digital approach and transport and logistics has not escaped this. Digitizing transport services, if done well, can improve the efficiency, create better experiences for customers and ultimately increase profitability of an integrated transport infrastructure.

The transportation industry, like many others, is under pressure to improve cost efficiency. A report by transport and logistics analysts, Oliver Wyman, found that in a ten-year study, the companies' involved showed increased revenue, yet reduced profits. Oliver Wyman suggesting that to improve the situation logistics and transport companies should focus on, "standardizing and streamlining structures and processes, developing industry oriented and innovative solutions, thinking and acting in terms of networks"

And digitization is also being driven by consumer needs. Consumers are pushing the boundaries using 'collaborative consumption' to envision new models of transport, including app initiated car sharing and personal car rental.

## An Example of the Power of Digitization: Traffic Management

In a report by Deloitte Research, Digital-Age Transportation: The Future of Urban Mobility, they spoke of American commuters spending 34 hours per year delayed in traffic. Europe can be even worse, with Paris having the worst traffic jams in Europe, unfortunate drivers loosing up to 70 hours a year, stuck in traffic. A German Automobile Club study found that the impact on a country's economy of traffic jams and the related fuel consumed and lost time could be up to 200 billion Euros.

This situation is not good for anyone, from drivers, to the road system, to councils. The issue arises when transport planners try to rectify these issues by adding new infrastructure; without intelligent application, this can prove slow and costly.

One of the emerging ways of managing traffic is through the use of drones. The U.S. Government is currently piloting a drone-based traffic monitoring system. In Europe there has been a number of research projects looking into the use of drones for traffic management. Some examples being the Czech Republic, Spain and France. Drones offer real time data of traffic issues and allow planners to build patterns of traffic use and spot areas and times, prone to traffic problems. They give a more accurate way of measuring and predicting traffic patterns. Big data obtained in real-time, from real events, can help to build a smarter approach to traffic planning and can inform smart infrastructure improvements. This can mean changes such as encouraging flexible working and creating 'park and ride' areas for busy town locations. The Netherlands has used this type of approach to manage their increasing traffic and cut traffic jams by 20%.

## **The Importance of Trains**

The use of trains as a way of managing traffic should not be overlooked. Digitization does not stop at roads. The automation of train management is crucial to the optimization of the use of trains, which ultimately impacts on the optimization of other modes of transport. Examples of how to improve train traffic have been identified by planning and prediction initiatives such as 'Project Darwin', which looks at how to link real time train running information, to web sites and social media platforms. This information can then be used to predict journey times and allow passengers to plan journeys.

## **An Example in Action: La Poste Courier**

La Poste delivered around 15 billion parcels and letters in 2012 and is France's foremost postal service. To say they have complex logistics is an understatement. To improve productivity and increase profits, La Poste Courier have digitized their processes across 50 applications. By digitizing their services and logistics, La Poste Courier has been able to expand its product offering and improve their overall responsiveness by simplifying operations. One of the key areas that a business like la Poste has to engage in is customer engagement and commitment. Being able to optimize logistics and transport has ensured that delivery schedules are maintained and customers see the best service – giving La Poste the competitive edge in an increasingly competitive market space.

One of the challenges of digitizing La Poste and other similar transport and logistic organizations is supporting existing infrastructures. Drawing on the use of modern Internet programming languages like PHP and .net as well as supporting enterprise architecture languages like Java, are essential to the success of digitization of transport. In addition, understanding the needs of the various integrated departments within any given industry can only help to optimize the digitization processes.

## **The Future**

In a Franhofer Institute study into the future of road and train transportation and logistics, they determined that three main changes needed to be put in place to effect positive and efficient improvements, these were, digitization, flexible management and use of technology.



## Articles

October 2016

### **The era of digitized trucking: Transforming the logistics value chain**

Just as the arrival of the connected car is already changing how carmakers will operate in the future, the advent of the digital truck will completely transform how freight is transported on the world's highways. Thanks to a combination of new technologies, trucks will move down the road guided by a wealth of information from transportation infrastructure and other vehicles, improving utilization through remote maintenance, increasing efficiency, and boosting safety. Eventually, these trucks will drive themselves, freeing up drivers to take on administrative tasks, and eventually doing away with them altogether.

These advances will have an equally profound effect on the entire logistics system. Trucks will become even more tightly integrated into the entire logistics chain, with the arrival of shipments to factories, warehouses, and end customers timed precisely, as all the players across the supply chain gain full transparency into the whereabouts of their goods. And ultimately, trucks will be able to communicate their contents and destination with other trucks and with technology platforms that will automatically match shipments with trucks with available space, rerouting them as necessary.

As these digitally enabled, cloud-based solutions come on line, they will rearrange how the logistics business operates, rendering obsolete old business models and enabling new ones. Some players, such as the truck makers, will look to offer increasingly sophisticated shipping solutions, taking over much of the territory now controlled by shipping companies and other logistics providers, as will many large end customers. Technology companies will try to enter the market as well, offering their own trucking and logistics platforms — and even, perhaps, their own trucks.

The promise of connected trucks combined with the digital supply chain is huge. But so are the risks for those players that don't move now to begin building the capabilities and business models needed to win in this new world.

### *Further down the road*

Imagine a world in which long caravans of large trucks travel in lockstep down major highways while each of the trucks automatically transmits its whereabouts, estimated time of arrival, and load information to its next stop. The warehouse system automatically assigns each truck to a loading dock, where several autonomous forklifts stand ready to unload it. Then they move the load on to another portion of the warehouse, where it is sorted by machine for local delivery routes and loaded onto the proper small autonomous electric trucks for final delivery.

### **“Digitized trucking” is still at least a decade in the future, but parts of it are being put in place.**

This “digitized trucking,” and the logistics industry of which it is a part, is still at least a decade in the future, but parts of it are already being put in place — thanks largely to two major global trends that are transforming the trucking industry. First, efforts on the part of regulators around the world to manage climate change and to save energy and resources are forcing the industry to develop cleaner, more efficient trucks and optimize the use of heavy vehicles. Second, social and cultural changes are opening up new markets and increasing expectations for the efficiencies to be gained through autonomous vehicles and the digitized supply chain.

The effect of these trends isn’t just a matter of how trucks move down the highway, or how the global supply chain is managed. Rather, digitized trucking will transform how virtually every stakeholder in these linked businesses — original equipment manufacturers (OEMs), logistics companies, warehouses, and local delivery businesses — will operate. Some stakeholders will see a wide range of new business models open up, while others will likely struggle as their roles in the logistics chain are diminished.

And in the longer term, the trucking business will likely divide into two distinct markets. Emissions regulations, increased competition, big strides in connectivity, and coming disruptions in the entire logistics chain will primarily affect developed economies. In emerging markets, the issues will involve the need for more reliable and economical trucks, a growing interest in regulating emissions, and strong overall growth prospects, but not necessarily the development of digitized solutions. These distinctions will likely last into the foreseeable future.

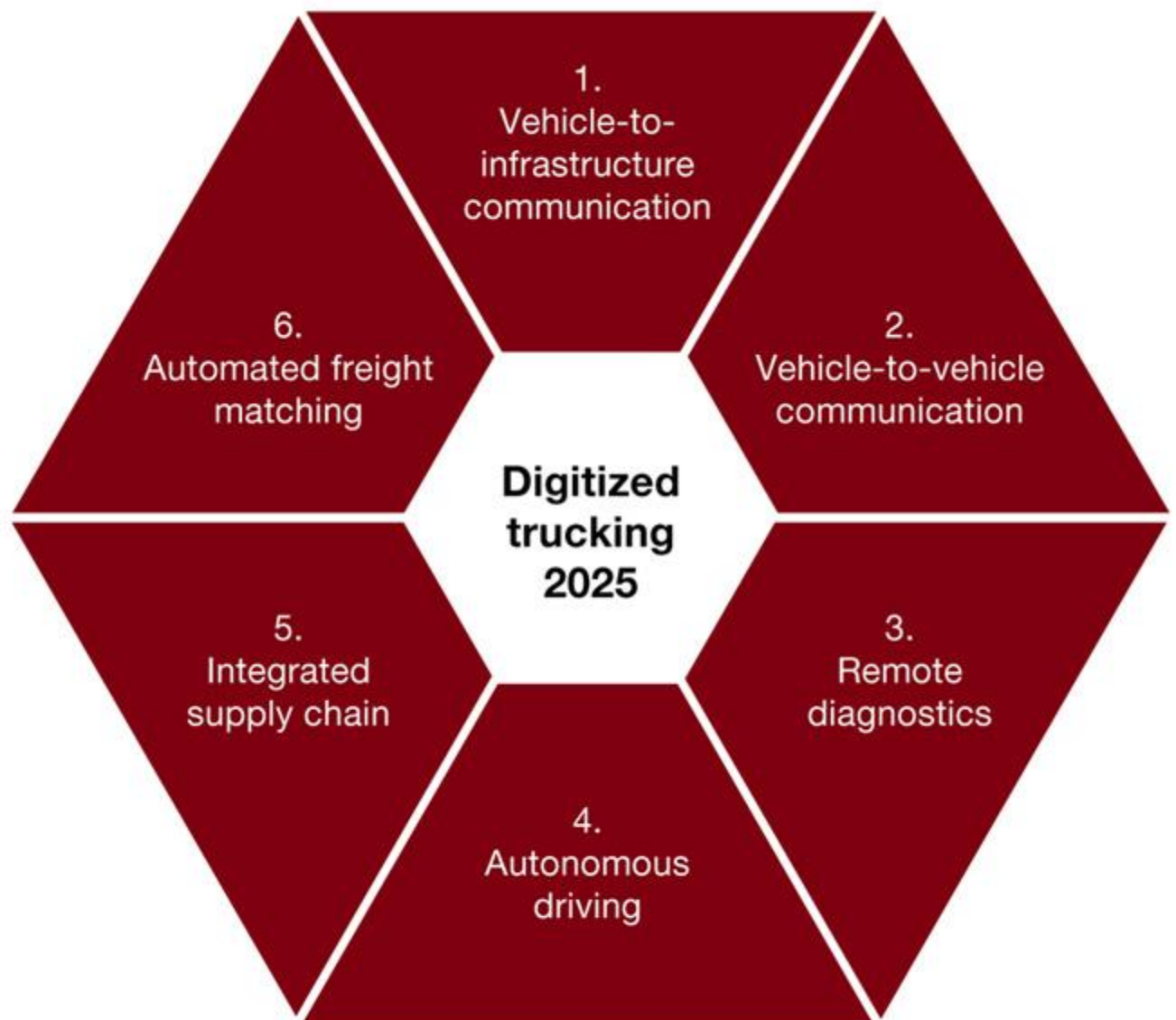
In this report we focus on developed markets: how the forces behind the transformation of trucking will develop, and what that means for OEMs, trucking companies, and other logistics providers in the long run.

### *Driven by technology*

Perhaps the best way to understand the technologies that are already being implemented in the trucking industry, and how they will transform the industry’s many stakeholders, is to break them down into two primary areas: the truck itself and the logistics chain of which it is an essential part (*see Exhibit 1*).



*Exhibit 1: The six technological advancements that will transform trucking and logistics*



Source: Strategy& analysis  
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**The connected truck.** Like cars, trucks are changing rapidly. In addition to increased efficiency, new sensor and connectivity technologies linking the truck to its surroundings, to the repair shop, and to other vehicles are making obsolete the notion of the lone truck traveling down the lonesome highway. And in the longer run, they will lead to the brave new world of autonomous trucking.

- **Vehicle-to-infrastructure (V2I) communication.** This technology makes it possible for trucks to remain in constant communication with their surroundings through GPS tracking and digital links between the truck and the road or other infrastructure installations (*see Exhibit 2*). The goal is to optimize traffic flows, automate routing, improve parking efficiency and safety, and allow drivers to be more efficient.

- The technology will provide drivers with real-time information about congestion and accidents and automatically update routes. Automated parking features will provide suggestions on where to park depending on the driver's level of fatigue, regulatory provisions, and the traffic situation. Intelligent road signs will even be able to signal to specific vehicles.
- 

*Exhibit 2: Examples of improved traffic flow and safety through vehicle-to-infrastructure (V2I) communications*



1. Real-time data sharing in combination with intelligent road signs and vehicle information



2. Intersection assistance and hazard warning



3. Automated parking place suggestions



4. Automatic parking and rest necessity notification

Source: Strategy& analysis  
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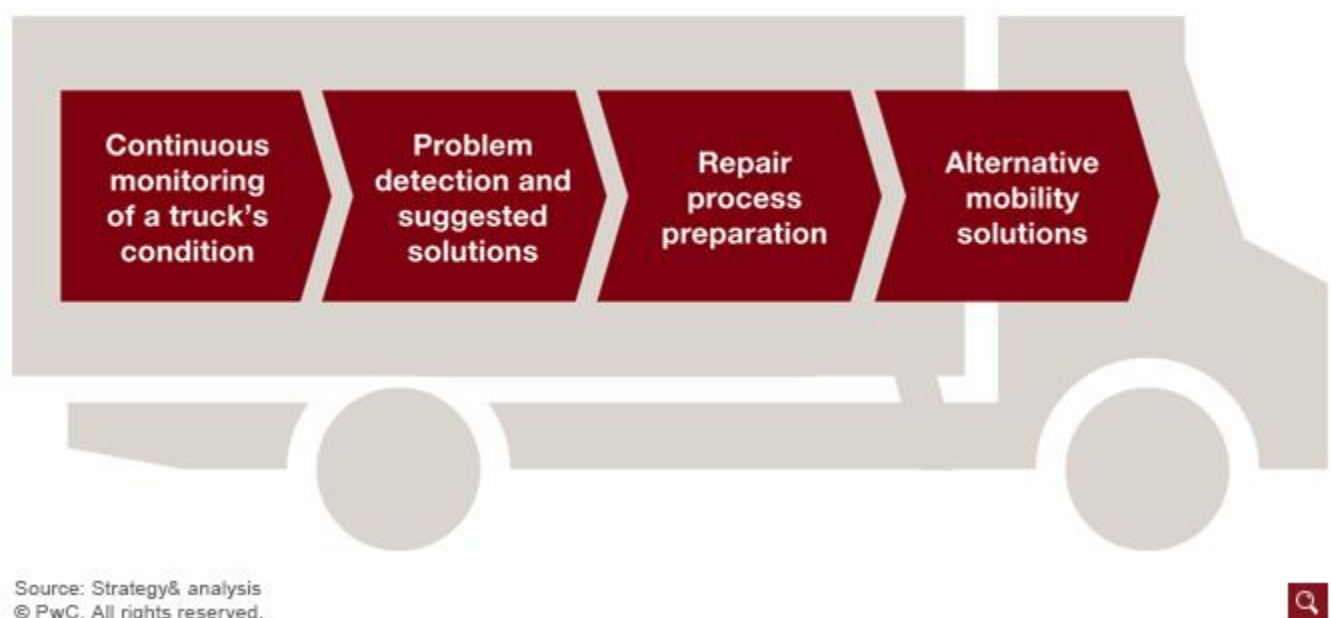


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- **Vehicle-to-vehicle (V2V) communication.** Trucks will be able to communicate automatically with other vehicles on the road, decreasing fatalities and improving accident rates. Intelligent telematics systems linking trucks will share information regarding position, speed, and direction, allowing for automated alerts.
  - When integrated with advanced driving technology such as adaptive cruise control, collision avoidance systems, and radar, V2V will also enable trucks to save fuel through platooning: moving down the road in tight convoys, close enough to benefit from the decrease in aerodynamic drag. This technology can save as much as 11 percent of fuel costs for a three-truck platoon. Of course, the lead truck won't generate these savings, so an internal payment system will allow the trucks in the platoon to share the savings equally. The first examples of this technology are already coming on the market, but the legal and regulatory status of platooning still has to be worked out before its benefits can be fully realized.
  - **Remote diagnostics.** Through constant monitoring of the condition of the truck, remote diagnostics will allow companies to make more timely repairs, develop more efficient maintenance schedules, and considerably reduce truck downtime. It is estimated that the technology can prolong a truck's service life and reduce maintenance costs by as much as 5 percent. The technology will

also provide truck manufacturers with detailed understanding of how vehicles are used, as well as the ability to control their electronics remotely. And the attraction for customers is clear: improved utilization of trucks and significant maintenance savings.

- The truck monitors its own condition and maintenance status and gives real-time updates to the driver and fleet managers (*see Exhibit 3*). These systems will be able to automatically suggest the nearest repair shop and even contact it about the problem and time of arrival. And because the repair shop will already have the diagnostic information, it can begin making repairs as soon as the truck arrives. This will improve how the repair shop operates, increasing utilization and profits from spare parts, and improving customer satisfaction. It will lead to more integrated service agreements between repair shops and fleet owners. And it will be the first step toward advanced mobility solutions offered by OEMs and other players.

*Exhibit 3: How remote diagnostics will improve truck utilization*



- **Autonomous driving.** Ultimately, of course, these technologies, combined with short- and long-distance radar, laser detection, cameras, sensors, and 3D mapping, will eventually lead to the era of self-driving trucks — and completely revolutionize the entire industry. The first road tests for autonomous trucks are already under way, carried out by OEMs such as Daimler and Freightliner, its U.S. subsidiary. Whether these trucks will be fully accepted around the world is unclear, however, given ongoing regulatory concerns about drivers' control of the trucks and whether the driver or the truck is responsible for the truck's behavior in emergency situations. And the complete elimination of the driver is still far in the future.

**Drivers may not be needed in long-haul trucks, but will still be needed for local deliveries.**

- Meanwhile, the development of the completely autonomous truck will likely come in stages. Within the next 10 years, drivers may not be needed in long-haul trucks anymore, but will continue

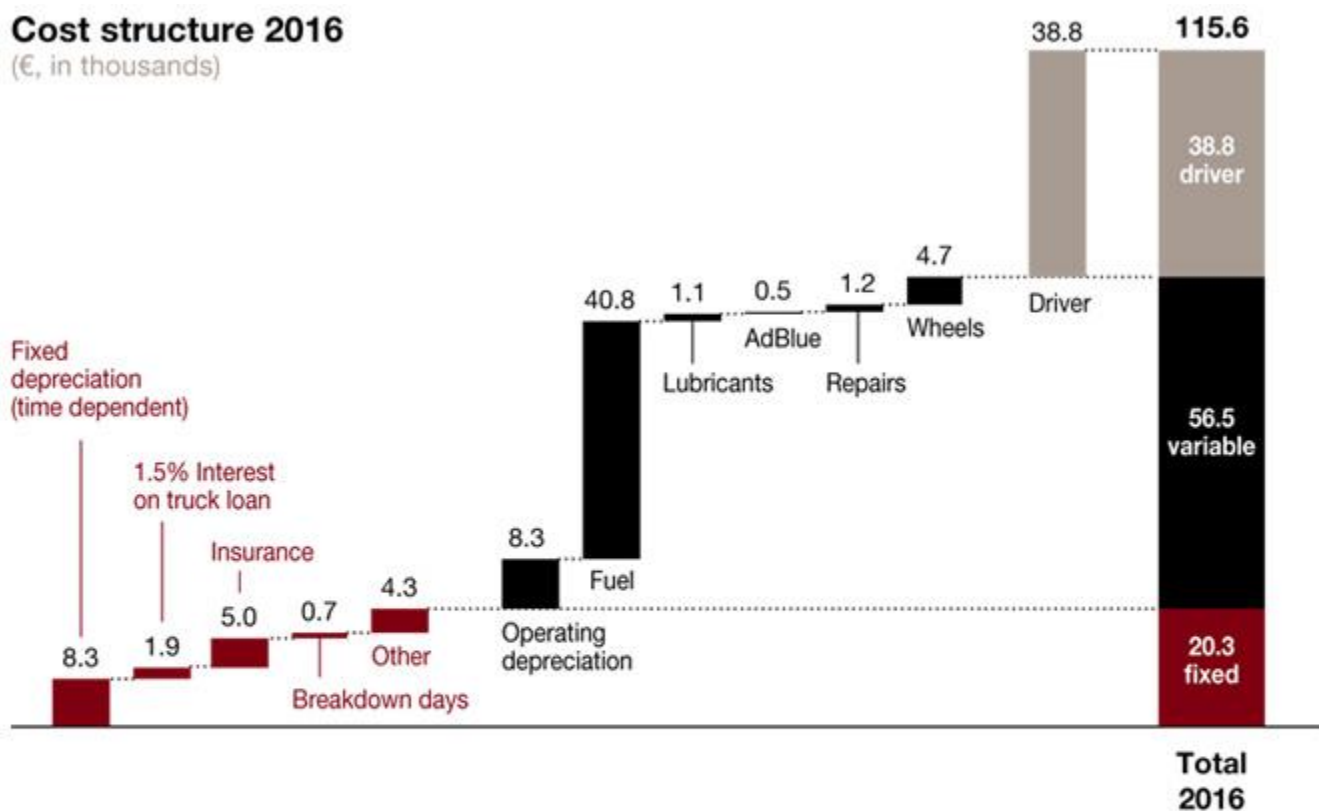
to take over trucks entering urban areas, the way local pilots board large ships as they enter a harbor. And drivers will still be needed for local deliveries. It will take another five years or so before all trucking becomes fully autonomous.

- The key advantage of the connected truck over the unconnected truck lies in its total cost of ownership, which will vary by its stage of autonomy. Connectivity itself will play a major role in recruiting younger, more “digitized” drivers, whom trucking companies are desperate to hire, in part because they are less expensive. Automated driving saves money by optimizing accelerating and braking, in addition to platooning. Improved safety will reduce insurance premiums. And drivers can turn their attention to administrative tasks that would otherwise have to be done by others. In the end, of course, the cost of the driver can be eliminated completely.
- *Exhibit 4*, breaks down how much the connected truck and autonomous driving can ultimately save fleet owners. The current annual operating costs are around €115,600 (US\$128,900) for an average traditional long-haul truck, and only some of the costs can be reduced through connectivity and automation — notably the cost of fuel. Depending on the stage of automation and on regulatory changes, fleet owners could save between €17,000 and €32,400 (\$19,000–\$36,100) a year per truck.

*Exhibit 4: Reduced operating costs with autonomous driving technologies*

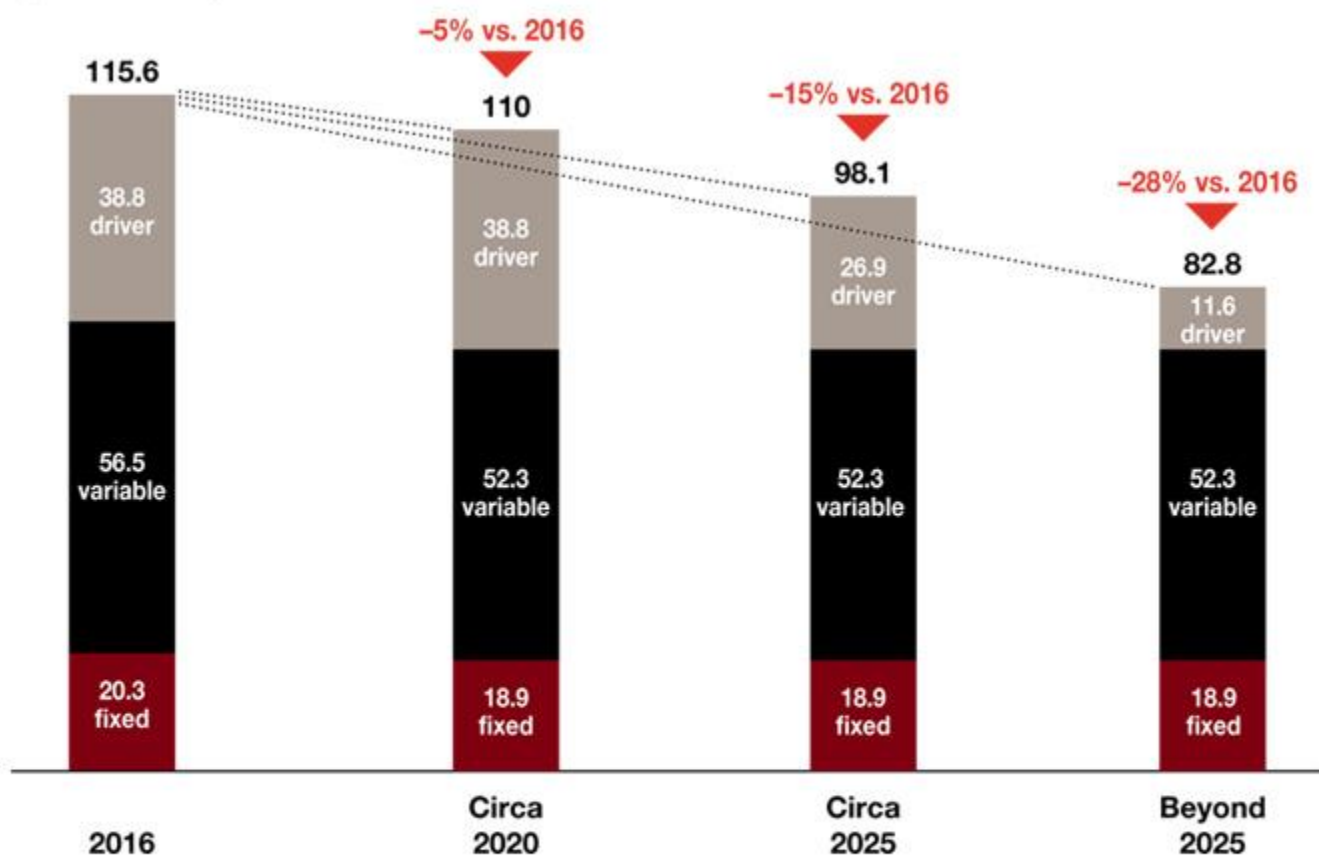
## Cost structure 2016

(€, in thousands)



## Future cost structure

(€, in thousands)



Note: "Other" includes tax, testing costs, fixed rate for cleaning, and communication costs.

Additional investment and operational costs for autonomous technology are included. Costs are based on annual driving of 140,000 kilometers. Due to rounding, numbers shown here may not add up precisely to the totals provided.

Source: Lastauto Omnibus (May 2016); Strategy& analysis

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- This level of savings, by itself, will completely change the economics of fleet ownership. But this is by no means the only way the trucking industry will be transformed. The connected truck and other technologies, many of them already in place, will also revolutionize the entire logistics industry.

### *Digital logistics*

As critical as the connected truck will be in bringing sweeping changes to the global transport of goods, its very connectivity will allow it to be fully integrated into the entire logistics effort. That in turn will fully enable two key elements of the effort: the integrated digital supply chain and freight matching.

#### **Trucks will eventually be able to determine whether they can take on additional freight.**

- **The integrated supply chain.** It will soon be possible to integrate the truck into real-time logistics data across the entire supply chain, from parts and materials suppliers to manufacturers to warehouses and distributors and finally to the end customer. Thus, for example, when a customer sends an order to a manufacturer, the system will send back a report on the availability of the goods and timing of shipment, enabling the manufacturer to optimize its just-in-time production schedule. Once the goods are available, the shipment will be dispatched from the warehouse along a predetermined route. If an accident or heavy traffic impedes the on-time arrival of the truck, the system can automatically determine a new route, and send a new estimated delivery time to both the shipper and the customer. Given the delay, the system will then calibrate changes in the shipping rate and cost of the goods. Moreover, manufacturing customers whose goods are delayed will be able to make immediate changes in their production sequences to avoid loss of production capacity while waiting for the missing parts. All that's needed now is their approval of the changes.
  - **Automated freight matching.** Thanks to their ability to communicate with fleet management and with shippers of goods — and in the future with cloud-based solutions for freight matching — trucks will eventually be able to determine whether they can take on additional freight. The truck trailer itself will be able to determine through sensors its available space and weight, as well as scheduled route, ETA, and other relevant information, and communicate this data to a digital freight-matching platform (*see Exhibit 5*).

Exhibit 5: Freight-matching information flow



Source: Strategy& analysis  
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- In turn, the platform will notify the driver and fleet management about available freight-sharing opportunities, and an agreement can be struck between the truck operator and the shipper. Ultimately, with the aid of smart cloud-based solutions, goods sitting in a warehouse equipped with their own communication chips will be able to contact trucks directly to find their own transportation to their intended destination. At this stage, not only will the efficiency gains throughout the supply chain be significant, but freight brokers themselves will no longer be necessary, as standard logistics processes will be digitized all the way through to when the invoice is submitted to the customer.

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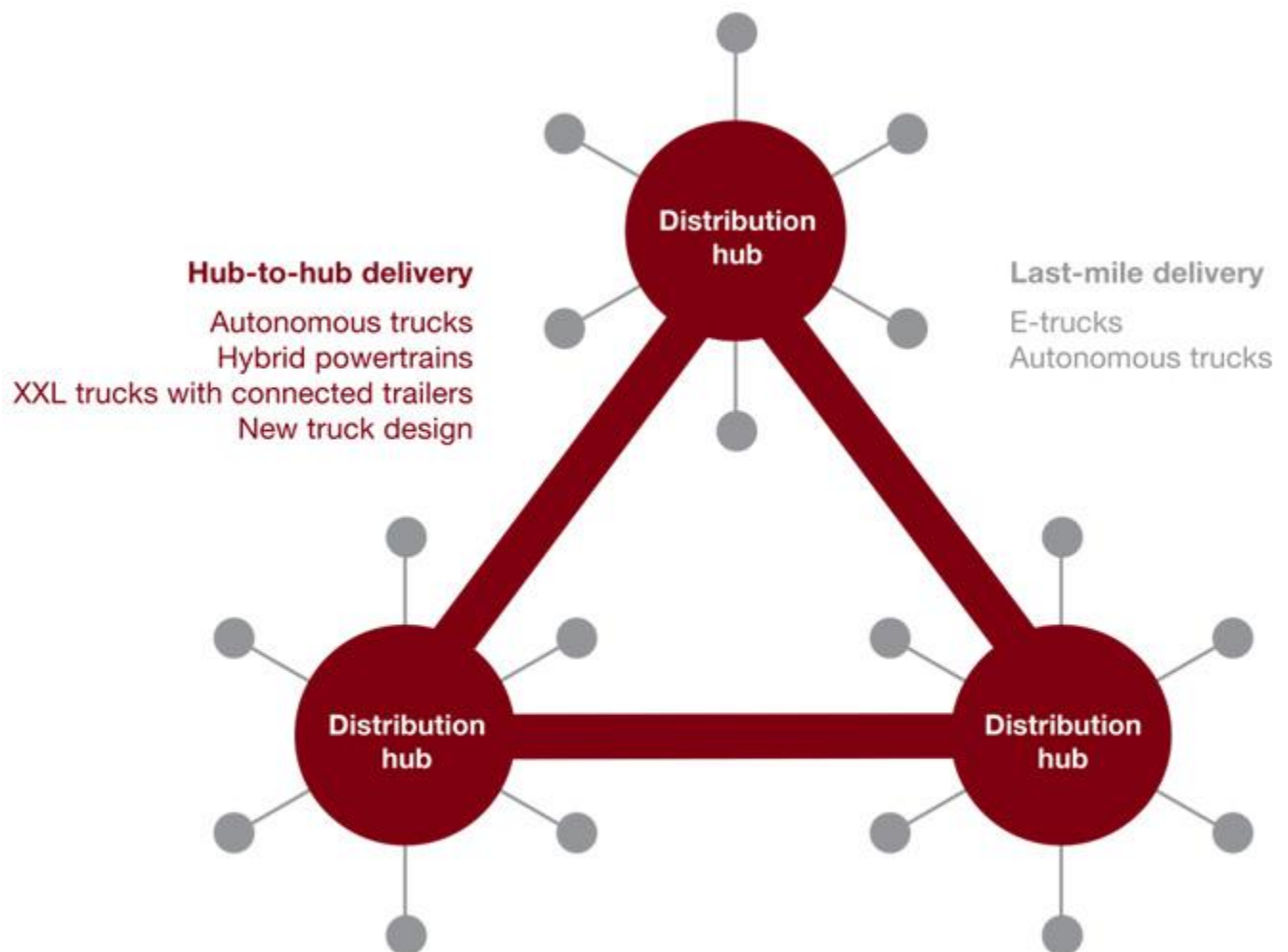
### *Industry transformation*

The combination of technologies that underlie the connected truck and the digitally integrated supply chain has already begun to transform the entire logistics business. Expect to see further development of a hub-and-spoke delivery structure, with the logistics industry profoundly changed and many current players no longer relevant.

**Hub-and-spoke.** Thanks largely to the automation of the truck, the use of large distribution hubs will become much more common — indeed, necessary. Trucks will have the ability to drive the majority of hub-to-hub routes completely without human interaction (*see Exhibit 6*). In a first step, platooning between these hubs will increase highway capacity by as much as 50 percent and play a key role in the regulatory debates around autonomous vehicles, thanks largely to the technology's huge impact on fuel consumption and CO<sub>2</sub> emissions. And it will significantly raise the utilization rates of trucks. Further improvements will come as trucks become increasingly automated.



*Exhibit 6: The hub-and-spoke network will be implemented much more widely*



Source: Strategy& analysis  
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The routing of the trucks will be entirely data-driven and freight matching between the centers will become common. Increases in transparency and efficiency will radically reduce the amount of time goods will be stored in the distribution centers, thanks to just-in-time delivery planning along the entire supply chain.

The long-haul trucks themselves will change as well. Alternative powertrain solutions such as hybrids will become much more common in an effort to reduce fuel costs and CO<sub>2</sub> emissions. And much longer combinations of trailers, already in service or the test phase in several European countries, will become common across the continent.

**The rise of smart cities will lead to more intelligent routing, decreased traffic, and easier delivery processes.**

At the local level, actual drivers will make deliveries from the hubs in smaller hybrid and fully electric trucks, reducing pollution and fuel consumption. Ultimately, however, these trucks, too,

will become autonomous. And the rise of so-called smart cities, incorporating sensors and communication technologies into their roads and infrastructure, will lead to more intelligent routing, decreased traffic, and easier delivery processes for the local trucks. Moreover, notification of delivery to recipients will be more precise, leading to a better customer experience and higher customer satisfaction in the world of online shopping.

**The logistics chain.** The current logistics chain is dependent on several different, clearly distinct market players, from the OEMs that build the trucks, to the fleet operators that deploy the trucks, to the logistics providers that organize the shipping of goods, to the end customer. The coming changes in truck technology and logistics processes within the global trend toward digitization will have a profound effect on how the chain is organized, with some players increasing their roles and others disappearing completely. Larger, more heavily utilized trucks will decrease the sheer number of trucks needed, forcing OEMs to look for value elsewhere in the supply chain — although overall logistics volume will likely increase in the future. But greater connectivity and, eventually, autonomy will allow them to participate more fully in both leasing and shipping.

As OEMs move upstream into these businesses with smart mobility solutions, however, they will put increasing pressure on current fleet operators and logistics providers. Already, some downstream companies, like Walmart and FedEx, are building their own trucks to fulfill their logistics needs; this development will put increasing pressure not just on OEMs but on the logistics providers as well.

### *Three scenarios*

Given these changes, three different scenarios for the future logistics business are possible, depending on how aggressively the various players in the overall supply chain pursue the coming opportunities (*see Exhibit 7*).

Exhibit 7: Three potential scenarios for the logistics value chain

#### Logistics stakeholder chain today



#### Alternative logistics stakeholder chains 2030

##### Scenario 1: OEM downstream integration



##### Scenario 2A: End-customer integration with logistics



##### Scenario 2B: End-customer integration with OEM



##### Scenario 3: Disruptive outside player



Source: Strategy& analysis  
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1. **OEM downstream integration.** OEMs will continue to manufacture autonomous vehicles, given their detailed knowledge of vehicle functions, maintenance, and efficient operation, and they will continue to own the underlying connected and autonomous truck technology. Thanks to their control of the truck technology, however, they will be in a good position to take over more and more of the functions of the leasing and trucking companies by providing mobility solutions to the market. Having the most modern truck fleet available and the ability to optimize operational costs by using big data, they will be able to offer especially cost-effective solutions. The challenge will be to avoid competing against their own customers or to find models that allow them to enter the market in parallel with other players.

2. The OEMs will also start to expand into freight-matching solutions to gain additional control of the logistics chain and to add another brick to their digitized business models, further improving their positions as full mobility service providers.
2. **End-customer upstream integration.** Here, the end customer uses its market power to move upstream to become a logistics provider. This could happen in two ways: Either the customer simply meets more and more of its own logistics needs, or it actually builds the trucks — most likely in partnership with an OEM — that it needs to carry out the transportation of its goods, as Walmart and FedEx are already doing. Either way, no fully digital overhaul of the logistics business will be necessary, since all supply chain activity will take place within the customer's own business. At the same time, however, no end customer will be able to capture the entire market.
3. **Disruptive outside player.** In this scenario, a tech company uses its strengths in software and innovation to move into the logistics business. A prime example would be Google, which is already the front-runner in autonomous driving technology. The company takes an innovative and disruptive approach to every business it enters, and given its advanced digital technology and experience, it could very well supply its own freight-matching digital solutions. Google's weakness, of course, is its lack of knowledge and experience in manufacturing actual vehicles. Another player could be Tesla, which recently announced a goal to build long-haul trucks with pure electric powertrains, and if it succeeds — a very difficult task, given the demands on the typical long-haul truck — the company would likely develop digitized mobility solutions for the truck as well.

These scenarios offer different visions of the future of the trucking and logistics industries, as the players develop more and more advanced digitized solutions and processes. In every case, however, various players — OEMs, end customers, tech companies — are putting real pressure on traditional logistics providers, threatening their very survival.

The traditional specialized trucking and shipping companies face the greatest risk — as the new entrants essentially take over their business, or at least become significant competitors. The added value that the traditional, typically mid-sized companies provide is simply not enough to enable them to survive as the industry becomes more digitized. In a connected and digitized logistics world, the only remaining traditional process will be the physical transportation of goods from A to B. Virtually every other main and supporting logistics process — from order placement and acceptance through delivery of documents and invoice submission after dispatch — will be fully automated. The end-to-end digitization of transport is not far away — the first solutions are in the testing phase already and will soon come on the global market.

### *The era of digitized trucking*

The radical transformation coming to the trucking and logistics industries over the next 10 or 15 years presents many risks but also opportunities for all the players in the business. For some, the risks will be so great that they will likely not survive. For others, success will depend on their

ability to understand the opportunities available to them, and to build or buy the capabilities needed to aggressively pursue them. The real risk lies in failing to move forward.

(Source: Article authored by Dr. Gerhard Nowak, Jens Maluck, Christoph Stürmer, Jan Pasemann (16 September, 2016)



## **Event Highlights @Center of Excellence**

**October 2016**

### **INDUSTRY VISIT TO INLAND CONTAINER DEPOT, GARHI HARSARU, GURGAON, HARYANA**

The MBA, MSc (Supply Chain Management) and PGDSCM I year students went for an Industry visit to Inland Container Depot, Garhi Harsaru, Gurgaon on 16 September 2016.

The objective of the visit was to give the students an Overview of International Traffic, Export Import Documentation, to understand the Container business , the process of loading, unloading and dispatch of containers ,and to become aware of the Customs Procedures involved.

Captain Ritesh Arora (Deputy GM, Gateway Rail Freight Limited) made the students aware of the various procedures through a powerpoint presentation followed by a question answer round. This was followed by an Installation trip to the site. The students also went to the CCTV room to learn about GPS tracking and RFID tags on the trucks and containers.

The trip was very informative, enriching and provided great learning experience to the students.





## **Two Days Management Development Programme on 'Logistics and Supply Chain Management' dated July 29 & 30, 2016**

A two days **Management Development Programme (MDP)** on **'Logistics and Supply Chain Management'** was organized by **Center of Excellence –Supply Chain Management (School of Management), GD Goenka University** in collaboration with **Chartered Institute of Logistics Management (CILT India)** at its campus on **July 29 & 30, 2016**. The programme was attended by senior and mid level executives/professionals with diverse background from **Navratna Company- Container Corporation of India Ltd** and other leading organizations like **Central Warehousing Corporation (CWC), Rail India Technical and Economy Service Ltd(RITES), Indian Ports Association, GATI Ltd and Pipavav Railway Corporation Ltd**. This was the 3<sup>rd</sup> corporate training programme in the area of logistics and supply chain management conducted by the center of excellence. The earlier programme were held in September 2015 and January 2016.

The programme provided training on application of analytical skill for handling complex supply chain problems.

### **MDP Session**

MDP was conducted in two days which covered eight modules (four modules on each day) with each module of duration one and half hours.

**First day (29<sup>th</sup> July )** covered modules on **Fundamental Concepts of Logistics & Supply Chain Management, Warehouse Management & Operations, Optimization for Logistics Planning**

**Second day (30<sup>th</sup> July)** covered modules on **Shipping and Containerization, Transportation, Sourcing and Green Supply Chain Management, Economics for Transportation Systems Information Technology in Supply Chain.**

Resource faculty for conducting different modules of MDP were **Prof.(Dr.) Pradeep Kumar Goel**, Dean-School of Management, **Dr. Tanuja Kaushik**, HoD-School of Management, **Dr. Gyanesh Kumar Sinha**, Asst. Professor –School of Management, **Mr. Rajneesh Kler**, Asst Professor –School of Management, **Ms. Sadhna Shukla**, Asst. Professor –School of Management. The MDP ended with conferring of memento alongwith the distribution of certificate to participants by **Prof.(Dr.) Pradeep Kumar Goel**, Dean-School of Management.











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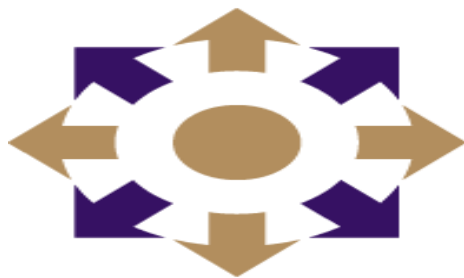
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# CILT India - Vision

***To be the first choice professional body for Supply Chain, Logistics and Transport industry and professionals nationally and be a premier knowledge sharing platform in the field of supply chain, logistics and transport management.***



The Chartered Institute of Logistics and Transport (CILT) is the international professional body for all sectors of the Logistics and transport industry. Founded in the United Kingdom in 1919 and granted a Royal Charter in 1926, it was established to promote knowledge of the science and art of logistics and transport and to provide a source of authoritative views for communication to government, industry and the community. CILT is currently operating in 31 countries globally and has over 30,000 logisticians as its members. CILT India, the India chapter of CILT, was formed in 1993 and has more than 1000 practicing professionals and a large number of corporate organizations as its members. CILT India is fully involved in spreading awareness about Logistics and Transportation industry in India and also organizing training programmes for students and Management Development Programmes for practicing professionals, apart from Research and Studies on Logistics and Supply Chain Management.



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# Center of Excellence at G D Goenka University

**Vision: School of Management, GD Goenka University aims to be a premier institute known for holistic development of future managers, leaders and entrepreneurs.**



**Center of Excellence at School of Management, G D Goenka University** is an initiative jointly undertaken by the G D Goenka University and CILT.

We at Center of Excellence believe that a lot can and shall be done on our part to create, disseminate and proliferate the knowledge and learning's in above mentioned field. We are undertaking some endeavours in these broad areas, which are as follows:

- Carry out extensive, path breaking and relevant research in the area of supply chain management, logistics and transport.
- Develop and propagate latest technologies and models in the area of supply chain and transportation.
- Undertake executive trainings, bespoke trainings, and short courses in this area.
- Jointly conduct seminars and conferences for the convergence and reflection on new ideas and findings.
- Get connected to best Supply Chain Management professionals across the globe.
- An access to global research and knowledge in U.K. knowledge centre.

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