Capacity-building for the development and operation of dry ports of international importance

Integrated logistics and economic development

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Transport has ceased to be a wholly independent function, to become an integral part of the production and distribution process.
Transport has emerged to be a strategic sector.

- As trade becomes more and more globalised, logistics chains become more complex, and need to be managed globally.
- Businesses endeavour to integrate supply networks across the globe, comprising several tiers of suppliers and distributors,
- Using different transport modes and carriers.
- They demand an intelligent logistics execution, managing multi-modal, multi-leg and multi-carrier integration.
- It is now the integrated transportation chain that matters, encompassing:
  - production,
  - transportation,
  - storage,
  - distribution,
  - information
An integrated transport system

A network of networks – that permits the greatest choice at the lowest resource cost.

One that is safe, efficient, effective, and reflective of the net economic, social, and environmental costs of service provision.
- Also that serves for a composite door-to-door transit at a unified price with a single responsibility.

An integrated logistics system has major objectives:
- obtaining the lowest possible inventory levels
- the shortest and most reliable lead times.

Inefficiencies of an unintegrated transport system are manifest in
- higher prices
- longer journeys,
- reduced reliability,
- higher risks of damage or pilferage, and
- more complex administrative procedures.
Intermodal transport gathers momentum

- The cost-efficiency factor, also energy and environment considerations compel the evolution of integrated multimodal logistics.
- Intermodal transport industry continues to evolve, and in so doing, it becomes increasingly integrated with supply chain management.
  - Today, ocean carriers integrate into ports, inland terminals and landside transport links as well.
  - Multimodal operators integrate into the reverse of this chain.
  - Railways combine with port terminals, to establish a unified movement chain.
  - Road operators become logistics service providers.
  - Freight forwarders extend traditional service boundaries.
For the land routes to become viable arteries of international trade and commerce, countries need to recognise the benefits of a seamless, integrated cross-border movement of traffic.

UNESCAP has been promoting the role of Asian Highway (AH) and Trans-Asian Railway (TAR).

Its concomitant aspect is the promotion of intermodal transport and

- the development of freight modal interchanges and inland ports.
- Clustering of industries around intermodal interfaces serves as a magnet for FDI.

Inland port connectivity leads to a more efficient integration of the hinterland markets into the economy.

An inland freight modal interchange facility stimulates growth of other economic activities in its vicinity.
Intermodal facilities along economic corridors

- Clustering of economic activities transforms transport corridors into economic corridors.
  - The Tokyo-Osaka industrial corridor along Japan’s main rail and highway infrastructure contributed to two-thirds of country’s GDP.
  - India is developing a $90bn Delhi-Mumbai Industrial Corridor along the hinterlands of the freight corridor linking JN Port to inland industrial nodes in north and north west.
Efficient logistics – *sine qua non* of development

Logistics – emerging paradigm change
Throughout human history, transport has been the great connector.

As Transport rapidly expands, it changes global economic sector.
➢ Its efficiency directly impacts product prices and security of supply.

The key is collaboration/integration, end-to-end, door-to-door full service provision.

Improving connectivity for users hinges on seamless cooperation between the players.

Focus is on exploiting cooperative advantages and creating synergies with other modes.

Today, new business models are emerging.
➢ There is a paradigm change in transport itself:

An integrated logistics service, involving the convergence of traditional transport infrastructure with the world of information technology.
Efficient logistics – *sine qua non* of development

- Promotes trade and industry, facilitates the process of globalisation.
  - shifts from a purely cost centre to centre creating value.
- Effective logistics helps companies gain competitive advantage through
  - value enhancement, and
  - cost reduction.
- Trade is becoming more and more globalised, implying
  - spatial expansion of the economy,
  - more complex global economic integration, and
  - an intricate network of global flows and hubs.
- Outsourcing is the flavour of the season.
  - In-house production in sectors such as automobile manufacturing reduced to just about 30-40%.
  - Raw materials may be obtained from the cheapest supplier anywhere in the world.
  - Production can take place wherever the costs are the lowest.
The World Shrinks

Tectonic shifts

Death of distance

End of geography
The world is shrinking, and transport has made it so.

As transportation costs decline relative to other costs, manufacturers can relocate first domestically, and then internationally, to reduce other costs.

**Outsourcing is the flavour of the season.**

In-house production is sectors such as automobile manufacturing reduced to just about 30%.

Falling communications costs have resulted in greater fragmentation of services into “components”, supplied to final consumers.

Emphasis is on integration of national and international production systems with a greater demand of a common web of integrated supply chain for

- speed
- efficiency
- reliability.
Tectonic economic and logistics shifts

**Two technical revolutions**
- Information
- Transportation

**The Box**
- Integrated intermodal transport
- Door-to-door seamless logistics
- Safety, speed and economy

**EDI**
- Productivity
- Visibility
- Control

**Global economic change**
- Rapid growth in business: services and high-tech manufacturing
- Steady growth in international trade
- Competition: on the basis of cost, quality & speed

**Changing business practices**
- Outsourcing: Coordination of free flows of goods, information, capital
- Geographic spread of production
- Just-in-time inventory

**New pressures**
- Increasing sensitivity to transit/delivery times
- Cost competitiveness
- Customers now part of large supply chains

Logistics: new global architecture

The Box
- Productivity
- Visibility
- Control
Death of distance: end of geography

<table>
<thead>
<tr>
<th>Globalisation</th>
<th>Rapidly evolving economic geography</th>
<th>Continuing globalisation coupled with growth in population density and GDP impacting the flow of goods and people, altering world’s economic geography.</th>
<th>Combined E-7 (China, India, Brazil, Russia, Indonesia, Mexico, Turkey) GDP by 2030 will be 30% higher than total G-7 GDP: PwC.</th>
</tr>
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<tbody>
<tr>
<td>New division</td>
<td>Falling communication costs result in greater fragmentation of services into ‘components’.</td>
<td>By 2020, 80% of the goods will be manufactured in a country different from where they are consumed compared with 20% now: Mckinsey.</td>
<td></td>
</tr>
<tr>
<td>of labour</td>
<td></td>
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<tr>
<td>Transport</td>
<td>Worldwide, transport growth has been consistently higher than economic growth.</td>
<td>With growing outsourcing and offshore manufacturing, containerized cargo market has changed radically.</td>
<td>Over 70% of global general cargo volumes are shipped in containers. Containerised trade is likely to continue to grow faster than the world economy.</td>
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<td>transformation</td>
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*Transport growth higher than economic growth*

*Intraindustry trade has risen for primary, intermediate, and final goods*

(Source: Brülhart 2008, for this Report.)
Supply-chain management: an evolution of logistics

Customers have more demanding and diverging requirements

- As transport costs fall, physical geography matters less.

- With recent increases in the intensity of international trade, the demand for speed has increased.

- With the decline in air transport costs, the price of speed has fallen dramatically.

- Faster transport speeds the changes in the geography of trade.
Each member of the supply chain influences the performance of others and the overall supply chain performance.

All participants in the supply chain are stakeholders. Value must be added for everyone in the business.

It is essential to develop close, collaborative, reciprocal and trusting relationship with suppliers.
All participants stakeholders

LSPs blur lines of responsibility
Evolving role of integrated LSPs

Logistics services are increasingly being offered by integrated providers.

Firms that specialise in logistics blur the lines between transporter, transport arranger, and even manufacturer.

- Previously, separate agencies and enterprises would have been responsible for customs clearance, quarantine inspection, freight forwarding, trucking, shipping, and final delivery.

- LSPs also provide a host of auxiliary services that become an essential part of the product offering.

- For example, UPS not only delivers Toshiba laptops throughout the country, but is also responsible for after-sales customer service, for collection of faulty product, and for its eventual return and repair.

Like world’s leading integrators, FedEx and UPS, the largest shipping lines such as AP Moeller-Maersk and CGA CGM diversify away from merely providing transport services

- to also working with manufacturing companies in planning their supply chains and distribution networks.
Transportation systems bear close relationship with inventory management systems.

- synchronising raw material collection, manufacture, packaging, bundling and unbundling, distribution, and retail.

Not only are suppliers and customers participants in the distribution or marketing channel
- but also third party logistics providers (3PL).

A 4PL or lead logistics “manager” is sometimes seen as a supply chain “manager”, a coordinating intermediary between the shipper and 3PL.

A 4PL provider is an “integrator that assembles the resources, capabilities and technology of its own organization and other organizations to design, build and run comprehensive supply-chain solutions”

- J. Bumstead and K. Cannons.
Just as the industry has consolidated, so has the infrastructure it requires.

Logistics centres may perform a number of functions including, but not only, the traditional warehousing function of storage.

- Modern logistics approaches emphasise flow rather than storage of inventory.
- Massive logistics parks as hubs of administrative services like customs and quarantine, and of purpose-built inventory control facilities.

The logistics parks and the transport links constitute the scaffolding on which the entire set of other facilities rests.

Warehousing is traditionally associated with the storage of goods.

- The role of the modern warehouse has as much to do with switching or transfer as it has to do with storage.
- Freight seamlessly interchanges from plane to truck, from ship to rail, from any combination of these.

Standardisation technology like pallets and containers allows vehicles, vessels and wagons to be designed with complete agnosticism on the cargo carried.
Examples and initiative as polestars
An acme of integration: a scale that amazes

The World Port centralised sorting facility of the United Parcel Service of America (UPS) in Louisville, Kentucky, and Federal Express’s (FedEx) Super Hub, at Memphis, Tennessee.

- The two logistics giants have turned Memphis and Louisville into “areotropolises”, delivering over 7 billion packages every year for combined net revenues of $100b.

- Aerotropolis, a 2011 book by John Kasarda and Greg Lindsay that argues that cities of the future and their economies will increasingly be built around airports.

- The World Port and the Super Hub transform into world’s two busiest airports,
  - With around 200 aircraft movements each between 11pm and 4am every night.

- FedEx is world’s largest airline with a fleet of 684 jets.
  - Employs 290,000 people
  - Maintains a fleet of 75,000 trucks for overland transportation and final delivery
    - Serves nearly every country on the map almost every day of the week

- UPS and FedEx not only just deliver packages.
  - They also assemble a bespoke order, organise returns and refunds, and provide other customer services.

- Several firms have located their production facilities near the World Port and the Super Hub
  - All mobile phones imported into the US by Sprint are carried by UPS aircraft from factories in Asia.
  - Stored at UPS facilities in Louisville before being assembled by UPS staff into orders for individual stores.
LPG cylinders distribution: one of world’s largest supply chains

The OMCs supply LPG in 14.2kg cylinders from 186 bottling plants through 13,088 distributors to more than 158 million households, covering more than half of the country’s population.

Every day, more than 3 million cylinders are home-delivered to customers across the country, making it one of the world’s largest supply chains.

LPG, being highly subsidized, is prone to diversion into commercial segments.

- The LPG subsidy burden in 2012-13 was Rs. 416 billion (app. US$ 7 billion).

The LPG supply chain became seamless and integrated over time.

- It no longer operates as a linear supply chain.
- It operates more as a service value network, much like it is for the automotive parts.
- It aims at delivering LPG in the right quantity, at the right time, to the right customer, at the right location, minimizing overall costs and ensuring service levels.
The India Post, world’s largest postal network with more than 155,200 post offices, also has express mail services.

- When decades ago, most of India’s 700,000 villages had little connectivity by road, MNCs like UNILEVER relied on India Post to have their consumer products delivered to customers in remotest villages by postmen riding bicycles or animals, or walking through even hazardous terrains.

The first organized form of courier services was the Angadia service, people who carry documents and valuables as a part of their ang or body.

This system operates strongly in many parts of central and western India, mainly in Gujarat (Surat, Bhavnagar, Navasari), Mumbai, Jaipur, Delhi.

Angadia services are popular, particularly with the diamond cutting and polishing businesses.
- In earlier days, they carried parcels hidden under their cloths and used horses and camels.

The secret of their success lies in staying inconspicuous: they refrain from using ritzy vehicles or gunmen.
- In Delhi and Mumbai, they would rather use metro or local trains.
- They even travel by bicycle or on foot.
- For inter-city travel, they prefer trains, travelling in groups of 8-10.

Angadias travel with parcels of precious stones or bullion and are thus highly risk-prone.
- If the shipment is too valuable when transported by train, Angadias, change their routes frequently, rotate field staff, and also change service timings.

They are defined by audacity, accuracy and sincerity in delivering valuable shipments.
Mumbai Dabbawala: a humble home-grown initiative

<table>
<thead>
<tr>
<th>Started in</th>
<th>: 1890</th>
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</thead>
<tbody>
<tr>
<td>Employees</td>
<td>: 5000</td>
</tr>
<tr>
<td>Number of tiffin boxes</td>
<td>: 200,000, i.e., 400,000 transactions every day.</td>
</tr>
<tr>
<td>Time taken</td>
<td>: 3 hours (9.00 A.M. to 12.00 P.M. for the collection of Dabbas and delivery)</td>
</tr>
<tr>
<td>Error rate</td>
<td>: 1 in 16 million transactions</td>
</tr>
<tr>
<td>Six Sigma performance</td>
<td>: 99.999999</td>
</tr>
<tr>
<td>Technology backup</td>
<td>: Nil.</td>
</tr>
<tr>
<td>Earnings/employee</td>
<td>: Rs. 7,000/- to 10,000/- per month.</td>
</tr>
<tr>
<td>Website</td>
<td>: <a href="http://www.mumbaidabbawala.com">www.mumbaidabbawala.com</a></td>
</tr>
</tbody>
</table>

**Investment & Special Features**
- Zero % fuel
- Zero % investment
- Zero % modern tech.
- Zero % disputes
- 99.99% performance
- 100 % customers satisfaction

**Individual Dabbawallas**

**Workload (30 tiffins)**
- Collect tiffins from home.
- Carry tiffins from one station to another
- Deliver tiffins at office.
- Return empty tiffins home.
The Flow Logic

Dabbawalas wading thro’ flooded roads

Dabbawala picks up empty tiffin from office where he had delivered about an hour ago, segregates as per the destination suburb

Coding System

VLP : Vile Parle (suburb in Mumbai)
9EX12 : Code for dabbawala at destination
EX : Express Towers (building name)
12 : Floor no.
E : Code for dabbawala at residential station
3 : Code for destination station eg. Churchgate Station

D'souza Charni Road (12)
Churchgate (1-10)
Lower Parel (14)
Collection from home
Distribution at lunchtime to offices

The Flow Logic

Dabbawala picks up empty tiffin from office where he had delivered about an hour ago, segregates as per the destination suburb
A letter from Prince Charles

My wife and I were deeply concerned to learn of the appalling floods in Mumbai as a result of the catastrophic Monsoon weather. We are particularly distressed by the suffering being endured by so many people in and around Mumbai and wanted the Dabbawallas to know how much we feel for you all and that our hearts go out to all those whose lives and property have been so cruelly affected by this continuing tragedy.

We send you all our fondest thoughts and heartfelt wishes.

[Signature]
Imperatives of integration
An essential concomitant

An integrated approach to investment in transport infrastructure and service delivery implies that there be a universe of transport modes

- setting out choices between the modes
- also choices to be made within the modes
- and choices over the complementarity of modes.

It is essential to plan in an integrated manner across the entire movement chain.

Transport in such a tenor is firmly integrated within the value proposition of the good.

One of the major weaknesses of transport infrastructure, for example in India, has been modal development in silos, and mismatch at the interfaces of various modes.

An urgent increase in capacity is required for all modes, especially of railways, with an equal focus to last-mile connectivity with ports, logistics parks, etc.

- Inadequate access by rail, road or water-borne transport to existing transfer points can hamper the integration of these modes and transfer between modes
Thank you